TECHNICAL GUIDE 50 HZ

YORK® Heating and Air Conditioning

PREDATOR®

HIGH EFFICIENCY

SINGLE PACKAGE HEAT PUMPS

BP 090 & 120

7-1/2 and 10 NOMINAL TONS

9.1 EER

DESCRIPTION

YORK® Predator® heat pump units are convertible single packages with a common footprint cabinet and common roof curb for all 7-1/2 and 10 ton models. The units were designed for light commercial applications and can be easily installed on a roof curb, slab, or frame.

All Predator® heat pump units are self-contained and assembled on rigid full perimeter base rails allowing for 3-way forklift access and overhead rigging. Every unit is completely charged, wired, piped, and tested at the factory to provide a quick and easy field installation.

All units are convertible between side and down airflow. Independent economizer designs are used on side and down discharge applications, as well as all tonnage sizes.

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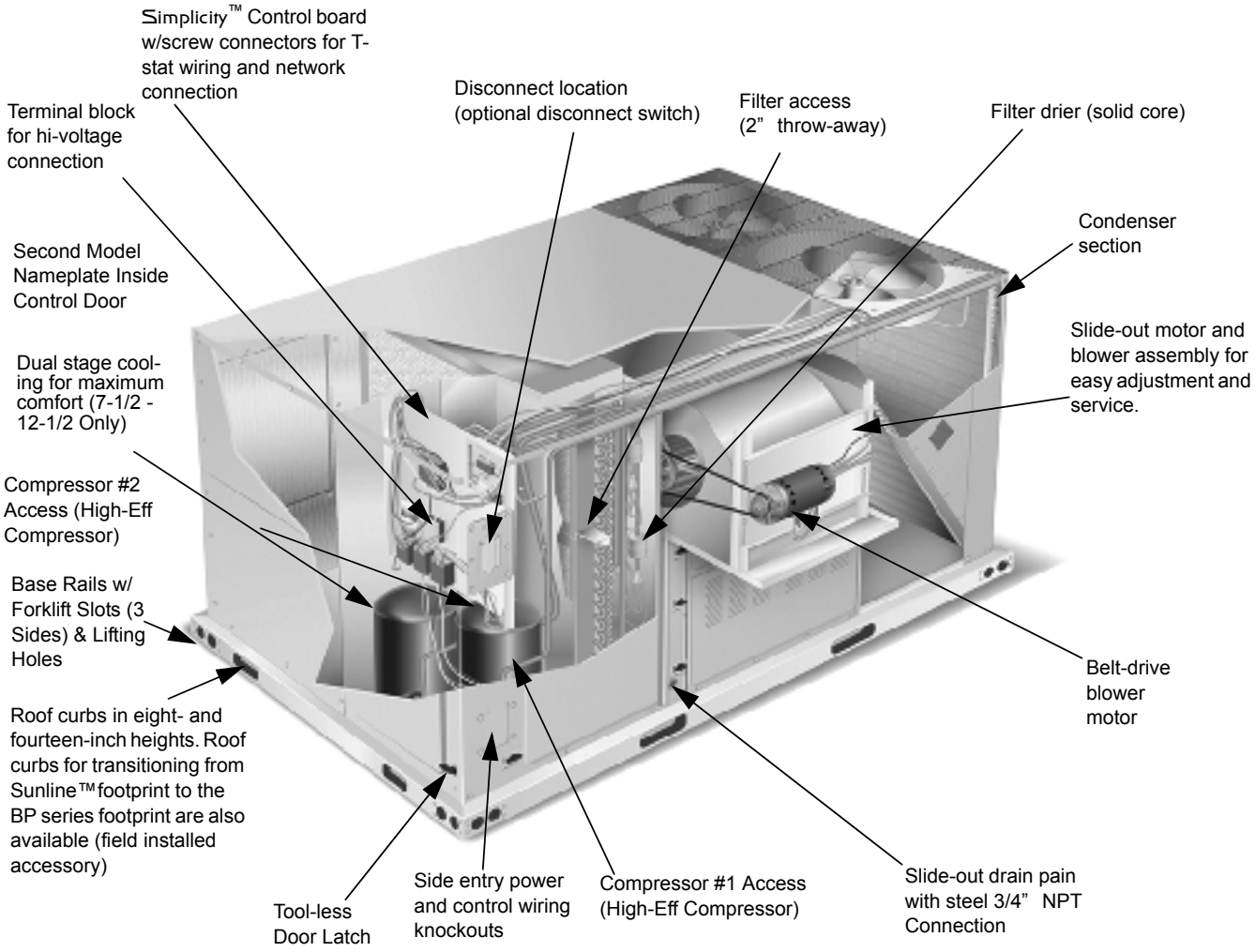


FIGURE 1 - PREDATOR® COMPONENT LOCATION

FEATURES

- **High Efficiency** – High efficiency units reach as high as 9.1 EER.
- **Service Friendly** – The Predator® incorporates a number of enhancements which improve serviceability.

  The motor and blower slide out of the unit as a common assembly. This facilitates greater access to all the indoor airflow components, thus simplifying maintenance and adjustment.

  Service time is reduced through the use of hinged, tool-less panels. Such panels provide access to frequently inspected components and areas, including the control box, compressors, filters, indoor motor & blower, and the heating section. The panels are screwed in place at the factory to prevent access by children or other unauthorized persons. It is recommended that the panels be secured with screws once service is complete.

  Service windows have been placed in both condenser section walls. Rotation of the cover allows easy access to the condenser coils for cleaning or inspection.

  The unit control board utilizes flash codes to aid in diagnosis of unit malfunctions. Unique flash codes quickly identify the source of the unit alarm.

  All units use the same standard filter size. This standardization removes any confusion on which filter sizes are needed for replacement.

  The non-corrosive drain pan slides out of the unit to permit easy cleaning. The drain pan is accessed by removing the drain pan cover plate on the rear of the unit. Once the plate is removed, the drain pan slides out through the rear of the unit.

  All Predator® units have a second model nameplate located inside the control access door. This is to prevent deterioration of the nameplate through weathering.
- **Environmentally Aware** – For improved Indoor Air Quality, foil faced insulation is used exclusively throughout the units.
- **Convertible Airflow Design** – The side duct openings are covered when they leave the factory. If a side supply/return is desired, the installer simply removes the two

side duct covers from the outside of the unit and installs them over the down shot openings. No panel cutting is required. Convertible airflow design allows maximum field flexibility and minimum inventory.

- **System Protection** - Suction line freezestats are supplied on all units to protect against loss of charge and coil frosting when the economizer operates at low outdoor air temperatures while the compressors are running. Every unit has solid-core liquid line filter-driers and high and low-pressure switches. Internal compressor protection is standard on all compressors. Crankcase heaters are standard on reciprocating compressors. Scroll compressors do not require crankcase heaters. Phase Monitors are standard on units with scroll compressors. This accessory monitors the incoming power to the unit and protects the unit from phase loss and reversed phase rotation.
- **Advanced Controls** - Simplicity™ control boards have standardized a number of features previously available only as options or by utilizing additional controls.
  - **Low Ambient** - An integrated low-ambient control allows all units to operate in the cooling mode down to 0°F (-17.8°C) outdoor ambient without additional assistance. Optionally, the- control board can be programmed to lockout the compressors when the outdoor air temperature is low or when free cooling is available.

⚠ CAUTION

The Simplicity® control board used in this product will effectively operate the cooling system down to 0°F when this product is applied in a comfort cooling application for people. An economizer is typically included in this type of application. When applying this product for process cooling applications (computer rooms, switchgear, etc.), please reference applications bulletin AE-011-07 or call the applications department for Unitary Products @ 1-877-UPG-SERV for guidance. Additional accessories may be needed for stable operation at temperatures below 30° F.

  - **Anti-Short Cycle Protection** - To aid compressor life, an anti-short cycle delay is incorporated into the standard controls. Compressor reliability is further ensured by programmable minimum run times. For testing, the anti-short cycle delay can be temporarily overridden with the push of a button.
  - **Fan Delays** - Fan on and fan off delays are fully programmable. Furthermore, the heating and cooling fan delay times are independent of one another. All units are programmed with default values based upon their configuration of cooling and heating.
  - **Safety Monitoring** - The control board monitors the high and low-pressure switches, the freezestats and the temperature limit switch on electric heat units. The unit control board will alarm on compressor lockouts and repeated limit switch trips.
  - **Nuisance Trip Protection and Strikes** - To prevent nuisance trouble calls, the control board uses a " three times, you' re out" philosophy. The high and low-pressure switches and the freezestats must trip three times within two hours before the unit control board will lock out the associated compressor.
  - **On Board Diagnostics** - Each alarm will energize a trouble light on the thermostat, if so equipped, and flash an alarm code on the control board LED. Each high and low-pressure switch alarm as well as each freezestat alarm has its own flash code. The control board saves the five most recent alarms in memory, and these alarms can be reviewed at any time. Alarms and programmed values are retained through the loss of power.
- **Reliable** – From the beginning – All units undergo computer automated testing before they leave the factory. Units are tested for refrigerant charge and pressure, unit amperage, and 100% functionality. All Predator® units are painted with a long lasting, powder paint that stands up over the life of the unit. The paint used has been proven by a 750 hour salt spray test.
- **Flexible Placement** – All models and configurations share the same cabinet/footprint and thus the same roof curb. You have the flexibility to set one curb and choose the correct tonnage size after the internal loads have been determined.

  To further simplify planning and installation, Predator® cabinets are designed to fit your roof. With the optional roof curb, the unit ductwork is designed to fit around 24" (610 mm) on-center joists or between 48" (1219 mm) on-center joists.

  The drain pan can be rotated to drain to either the front or the rear of the unit. Additionally, the drain pan can be fitted to drain through the roof curb. As it is sometimes difficult to have a level installation, the drain pan features a generous slope to ensure proper drainage.
- **Full Perimeter Base Rails** – The permanently attached base rails provide a solid foundation for the entire unit and protect the unit during shipment. The rails offer forklift access from 3 sides, and rigging holes are available so that an overhead crane can be used to place the units on a roof.
- **Easy Installation** – Electric utility knockouts are supplied in the unit underside as well as the side of the unit. A clearly identified location is provided to mount a field supplied electrical disconnect switch. Utility connections can be made quickly and with a minimum amount of field labor.

  All units are shipped with 2" (51 mm) throw-away filters installed.
- **Wide Range of Indoor Airflows** – All indoor fan motors are belt-drive type providing maximum flexibility to handle most airflow requirements. For high static

applications, factory installed alternate indoor fan motors are available. With the optional indoor fan motor, all units can supply nominal airflow at up to 1.5" (375 Pa) ESP.

FACTORY INSTALLED OPTIONS

YORK® offers several equipment options factory installed, for the Predator® line.

- **Optional Factory Installed Economizers** - Predator units offer a variety of optional factory installed economizers with low leak dampers. The outdoor air enthalpy sensor enables economizer operation if the outdoor enthalpy is less than the setpoint of the economizer logic module. See Table 41 to determine the correct economizer for your application.
  - **Downflow Economizer** - **(With barometric relief)** - The economizer is provided with a single enthalpy input. The economizer is 2% low leakage type, and is shipped installed and wired. The installer needs only to assemble and mount the outdoor air hood (Provided). The economizer has spring return, fully modulating damper actuators and is capable of introducing up to 100% outdoor air. As the outdoor air intake dampers open, the return air dampers close. The changeover from mechanical refrigeration to economizer operation is regulated by the standard single enthalpy input. There is an optional input dual dry bulb available. To meet regulated air standards, the economizer control accepts an optional CO_2 input for demand ventilation. With single enthalpy input, the economizer control monitors outdoor air. The dual enthalpy kit provides a second input used to monitor the return air. With a dual input kit installed, the economizer control compares the values of the two enthalpy or temperature inputs and positions the dampers to provide the maximum efficiency possible.
  - **Horizontal Economizer** - **(Without barometric relief)** - All features as the downflow economizer exist except you must order the barometric relief separately. **You must order a 1EH0408 if you are installing a power exhaust. You can order a 1RD0411 Barometric Relief for horizontal flow economizers only.**
  - **BAS Ready Economizer -(With barometric relief)** - The economizer is provided with an actuator that requires a 0-10V DC input from an external source (i.e., field installed building automation system controller). Power exhaust options are available. The economizer is 2% low leakage type with spring return and fully modulating dampers capable of introducing up to 100% outside air. Also include 2" (51 mm) pleated filters.
- **Power Exhaust (Downflow only)** - This accessory installs in the unit with a down flow economizer.
- **Motorized Outdoor Air Damper** - The motorized outdoor air damper includes a slide-in/plug-in damper assembly with an outdoor air hood and filters. The outdoor air dampers open to the preset position when the indoor fan motor is energized. The damper has a range of 0% to 100% outdoor air entry. Factory installed option or field installed accessory.
- **Alternate Indoor Blower Motor** - For applications with high static restrictions, units are offered with optional indoor motors that provide higher static output and/or higher airflow, depending upon the installer's needs.
- **Electric Heaters** - The electric heaters range from 9kW to 54kW and are available in all the voltage options of the base units. All heaters are dual staged. All heaters are intended for single point power supply.
- **Disconnect Switch** - For heat pumps with electric heat, a HACR breaker sized to the unit is provided. For heat pump only units, a switch sized to the largest electric heat available for the particular unit is provided. Factory installed option only.
- **Smoke Detectors** - The smoke detectors stop operation of the unit by interrupting power to the control board if smoke is detected within the air compartment. Available for both the supply and/or return air.

⚠WARNING

Factory installed smoke detectors in the return air, may be subjected to freezing temperatures during "off" times due to out side air infiltration. These smoke detectors have an operational limit of 32 °F to 131°F. Smoke detectors installed in areas that could be out side those limitations will have to be moved to prevent having false alarms.

- **Phase Monitors** - Designed to prevent unit damage. The phase monitor will shut the unit down in an out-of phase condition. **(Standard on units with Scroll Compressors.)**
- **Coil Guard** - Customers can purchase a coil guard kit to protect the condenser coil from damage. Additionally, this kit stops animals and foreign objects from entering the space between the inner condenser coil and the main cabinet. This is not a hail guard kit.
- **Dirty Filter Switch** - This kit includes a differential pressure switch that energizes the fault light on the unit thermostat, indicating that there is an abnormally high pressure drop across the filters. Factory installed option or field installed accessory.
- **Technicoat Condenser Coils** - The condenser coils are coated with a phenolic coating for protection against corrosion due to harsh environments.
- **Technicoat Evaporator Coil** - The evaporator coils are coated with a phenolic coating for protection against corrosion due to harsh environments.
- **Novar® BAS Control** - The Novar® building automation system controller is factory installed. Incudes supply air sensor, return air sensor, dirty filter indicator switch, and air proving switch.

- **Johnson Controls BAS Control** - The Johnson Control YK-UNT-1126 building automation system controller is factory installed. Includes supply air sensor, return air sensor, dirty filter indicator switch, and air proving switch.
- **CPC BAS Control** - The Computer Process Controls Model 810-3060 ARTC Advanced Rooftop building automation system controller is factory installed. Includes supply air sensor, return air sensor, dirty filter indicator switch, and air proving switch.
- **Honeywell BAS Control** - The Honeywell W7750C building automation system controller is factory installed. Includes air supply sensor, return air sensor, dirty filter indicator switch, and air proving switch.

FIELD INSTALLED ACCESSORIES

YORK® offers several equipment accessories for field installation, for the Predator® line.

- **Downflow Economizer** - **(With barometric relief)** - The economizer is provided with a single enthalpy input. The economizer is 2% low leakage type. The economizer has spring return, fully modulating damper actuators and is capable of introducing up to 100% outdoor air. As the outdoor air intake dampers open, the return air dampers close. The changeover from mechanical refrigeration to economizer operation is regulated by the standard single enthalpy input. There is an optional input dual dry bulb available. To meet regulated air standards, the economizer control accepts an optional CO_2 input for demand ventilation.With single enthalpy input, the economizer control monitors outdoor air. The dual enthalpy kit provides a second input used to monitor the return air. With a dual input kit installed, the economizer control compares the values of the two enthalpy or temperature inputs and positions the dampers to provide the maximum efficiency possible
- **Horizontal Economizer** - **(Without barometric relief)** - All features as the downflow economizer exist except you must order the barometric relief separately. **You must order a 1EH0408 if you are installing a power exhaust. You can order a 1RD0411 Barometric Relief for horizontal flow economizers only.**
- **Dual Enthalpy Control, Accessory** - This kit contains the required components to convert a single enthalpy economizer to dual enthalpy.
- **Barometric Relief Damper** - Zero to 100% capacity barometric relief dampers for use with horizontal flow, or field installed slab economizers.
- **Power Exhaust** - This accessory installs in the unit with a down flow economizer. Power exhaust plugs into the connector in the unit bulkhead. **You must purchase 1EH0408 barometric relief/power exhaust hood when applying to a horizontal flow application.**
- **Manual Outdoor Air Damper** - Like the motorized outdoor air damper, each manual outdoor air damper includes a slide-in damper assembly with an outdoor air hood and filters. Customers have a choice of dampers with ranges of 0% to 100% or 0% to 35% outdoor air entry.
- **Motorized Outdoor Air Damper** - The motorized outdoor air damper includes a slide-in/plug-in damper assembly with an outdoor air hood and filters. The out-

  door air dampers open to the preset position when the indoor fan motor is energized. The damper has a range of 0% to 100% outdoor air entry. Factory installed option or field installed accessory.
- **Smoke Detectors** - The smoke detectors stop operation of the unit by interrupting power to the control board if smoke is detected within the air compartment.
- **CO_2 Sensor** - Senses CO_2 levels and automatically overrides the economizer when levels rise above the preset limits.
- **Dirty Filter Switch** - This kit includes a differential pressure switch that energizes the fault light on the unit thermostat, indicating that there is an abnormally high pressure drop across the filters.
- **Coil Guard -** Field installed decorative wire coil guard.
- **Hail Guard** - This kit includes a sloped hood which installs over the outside condenser coil and prevents damage to the coil fins from hail strikes. Field installed accessory only.
- **Electric Heaters** - The electric heaters range from 9 kW to 54kW and are available in all the voltage options of the base units. All heaters are dual staged. Cooling units include an adapter panel for easy installation of the electric heaters. Necessary hardware and connectors are included with the heaters. All heaters are intended for single point power supply.
- **Metal Frame Filter Kit -** Metal frame with polyester filter medium.
- **Permanent Filters** - Permanent filters are available.
- **Roof Curbs** - The roof curbs have insulated decks and are shipped disassembled The roof curbs are available in 8" (203 mm) and 14" (356 mm) heights. For applications with security concerns, burglar bars are available for the duct openings of the roof curbs.
- **Roof Curb Transition -** Single Piece Adapter (10" (254 mm) High) - Roof curbs for transitioning from Sunline™ units to Predator® Magnum. Fits 7.5 to 12.5 Sunline™ roof curbs only.
- **Burglar Bars** - Mount in the supply and return openings to prevent entry into the duct work.
- **Thermostat** - The units are designed to operate with 24-volt electronic and electro-mechanical thermostats. All units (with or without an economizer) operate with two-stage heat/two-stage cool or two-stage cooling only thermostats, depending upon unit configuration.

NOMENCLATURE

7.5-10.0 Ton York® Model Number Nomenclature

B	P	090	C00	A	7	A	AA	3	0	1	2	4	A

Product Category
B = HP, Single Pkg., R-22

Product Identifier
P = 9.3-10.6 EER HP

Nominal Cooling Capacity
090 = 7.5 Ton
120 = 10.0 Ton

Heat Type and Nominal Heat Capacity
C00 = Cooling Only. No heat installed

Electric Heat Options
E09 = 9 KW
E18 = 18 KW
E24 = 24 KW
E36 = 36 KW
E54 = 54 KW

Airflow
A = Std. Motor
B = Std. Motor/Econo./Barometric Relief (Downflow Only)
C = Std. Motor/Econo./Power Exhaust (Downflow Only)
D = Std. Motor/Motorized Damper (Downflow Only)
E = Std. Motor/Horizontal Economizer (No Baro.)
F = Std. Motor/Slab Econo./Power Exhaust (Downflow Only)
G = Std. Motor/Slab Econo./Barometric Relief (Downflow Only)
N = Hi Static
P = Hi Static/Econo./Barometric Relief (Downflow Only)
Q = Hi Static/Econo./Power Exhaust (Downflow Only)
R = Hi Static/Motorized Damper (Downflow Only)
S = Hi Static/Horizontal Economizer (No Baro.)
T = Hi Static/Slab Econo./Power Exhaust (Downflow Only)
U = Hi Static/Slab Econo./Barometric Relief (Downflow only)

Voltage
7 = 380/415-3-50

Installation Options
A = No Options Installed
B = Option 1
C = Option 2
D = Options 1 & 2
E = Option 3
F = Option 4
G = Options 1 & 3
H = Options 1 & 4
J = Options 1, 2 & 3
K = Options 1, 2, & 4
L = Options 1,3 & 4
M = Options 1, 2, 3, & 4
N = Options 2 & 3
P = Options 2 & 4
Q = Options 2, 3, & 4
R = Options 3 & 4
S = Option 5
T = Options 1 & 5
U = Options 1, 3, & 5
V = Options 1, 4, & 5
W = Options 1, 3, 4, & 5
X = Options 3 & 5
Y = Options 4 & 5
Z = Options 3, 4 & 5

Options
1 = Disconnect
2 = Non-Pwr'd Conv. Outlet
3 = Smoke Detector S.A.
4 = Smoke Detector R.A.
5 = Pwr'd Conv. Outlet

Product Generation
3 = Third Generation
4 = Fourth Generation

Additional Options

AA = None	RC = Coil Guard, Shipping Bag & American Flag
AB = Phase Monitor	TA = Technicoat Condenser Coil
AC = Coil Guard	TJ = Technicoat Evaporator Coil
AD = Dirty Filter Switch	TS = Technicoat Evaporator & Condenser Coils
AE = Phase Monitor & Coil Guard	
AF = Phase Monitor & Dirty Filter Switch	
AG = Coil Guard & Dirty Filter Switch	
AH = Phase Monitor, Coil Guard & Dirty Filter Switch	

ZZ = If desired option combination is not listed above, ZZ will be assigned and configuration options will be located in digits 15-18.

Product Style
A = Style A
B = Style B
C = Style C

Configuration Options (not required for all units)
These four digits will not be assigned until a quote is requested, or an order placed.

- SS Drain Pan
- Honeywell Controller, DFS, APS
- Simplicity IntelliComfort Controller
- Simplicity IntelliComfort Controller w/ModLinc
- 2" Pleated filters
- BAS Ready Unit with Economizer
- Shipping Bag
- Any Combination of Additional Options that Don't Have an Option Code Pre-assigned

TABLE 1: PHYSICAL DATA

COMPONENT		MODELS	
		090	120
Evaporator Blower	Blower, Centrifugal Dia. X Wd. in. (Dia. X Wd. mm)	15 x 15 (381 x 381)	15 x 15 (381 x 381)
	Motor, Standard HP (kW)	1-1/2 (1.1)	2 (1.5)
	Motor, Optional HP (kW)	2 (1.5)	4 (3)
Evaporator Coil	Rows	3	4
	Fins per Inch (2.54 cm.)	15	15
	Height in. (mm)	40 (1020)	40 (1020)
	Face Area $ft.^2$ each (m^2)	13.2 (1.23)	13.2 (1.23)
Condenser Fan (2 per Unit)	Propeller Dia. in., each (mm)	24 (610)	24 (610)
	Motor HP, each (kW)	3/4 (.56)	3/4 (.56)
	CFM, Nominal (each)	4000	4000
Condenser Coil (2 per unit)	Rows (each)	1	2
	Fins per Inch (2.54 cm)	20	20
	Height in., each (mm)	44 (1120)	44 (1120)
	Face Area $ft.^2$ each (mm)	14.5 (1.35)	14.5 (1.35)
Refrigerant Charge	System 1 lb./oz. (kg)	9 lbs. 4 oz. (4.20)	15 lbs. 4 oz. (6.92)
	System 2 lb./oz. (kg)	9 lbs. 0 oz. (4.06)	15 lbs. 0 oz. (6.80)
Compressors	Quantity	2	2
	Type	Recip	Scroll
Air Filters	Size Wd. x Ht. x Thickness in. (Wd. x Ht x Thickness mm)	25x20x2 (635 x 508 x 51)	25x20x2 (635 x 508 x 51)
	Number Per Unit	4	4

TABLE 2: BP CAPACITY RATINGS

SIZE (TONS)	COOLING CAPACITY ARI RATINGS*			CFM	HEATING CAPACITY				SOUND RATING (dB)†	NOM ELEC HEAT CAP‡ (kW)
	MBH	EER	IPLV		MBH @ 47° F	COP @ 47°F	MBH @ 17°F	COP @ 17°F		
7-1/2 (090)	93	9.1	7.5	3000	86	3.1	44	2.0	84	9, 18, 24 34
10 (120)	120	9.4	9.4	4000	116	3.15	75	2.25	85	18, 24, 34 54

* Rated at 95°F ambient 80°F dry bulb and 67°F wet bulb.
† Rated in accordance with ARI 270 standard.
‡ See Table 14.

TABLE 3: COOLING CAPACITY 7-1/2 TON HP COOL IMPERIAL

Air On Evap. Coil		Temperature of Air on Condenser Coil 85°F									Temperature of Air on Condenser Coil 95°F								
CFM	WB (°F)	Tot. Cap.* (MBH)	Tot. Input† (kW)	Sensible Capacity (MBH)* Return Dry Bulb (°F)							Tot. Cap.* (MBH)	Tot. Input† (kW)	Sensible Capacity (MBH)* Return Dry Bulb (°F)						
				86	83	80	77	74	71	68			86	83	80	77	74	71	68
2250	72	109	8.7	61	55	48	42	35	#N/A	#N/A	104	9.4	58	52	45	39	33	#N/A	#N/A
	67	98	8.4	74	68	62	55	49	42	36	92	8.9	72	66	59	53	46	40	34
	62	89	8.0	88	81	75	69	62	56	49	83	8.6	83	79	73	66	60	53	47
	57	95	8.0	93	87	80	74	68	61	55	84	8.5	84	82	75	69	62	56	50
2625	72	112	8.8	67	59	52	44	36	#N/A	#N/A	106	9.5	64	56	49	41	34	#N/A	#N/A
	67	101	8.5	81	74	66	58	51	43	36	94	9.0	79	71	64	56	49	41	33
	62	92	8.1	91	88	80	73	65	58	50	85	8.7	85	83	78	70	63	55	48
	57	97	8.1	97	93	86	79	71	63	56	86	8.6	86	85	81	73	66	58	51
3000	72	115	8.9	73	64	55	46	38	#N/A	#N/A	109	9.6	70	61	52	43	35	#N/A	#N/A
	67	104	8.5	88	79	70	62	53	44	35	97	9.1	86	77	68	59	51	42	33
	62	94	8.2	94	94	86	77	68	59	51	88	8.8	88	88	83	75	66	57	48
	57	100	8.1	100	100	92	83	75	66	57	88	8.7	88	88	86	78	69	60	51
3375	72	117	8.9	78	68	58	48	38	#N/A	#N/A	112	9.7	75	65	55	45	35	#N/A	#N/A
	67	106	8.6	94	84	74	64	54	44	34	99	9.2	92	82	72	62	52	42	32
	62	96	8.2	96	96	90	80	70	60	50	90	8.9	90	90	88	78	68	58	48
	57	102	8.2	102	102	97	87	77	67	57	91	8.8	91	91	90	80	70	60	50
3750	72	120	9.0	83	72	61	50	38	#N/A	#N/A	115	9.8	80	69	58	47	35	#N/A	#N/A
	67	108	8.6	100	89	78	66	55	44	33	102	9.3	98	87	76	64	53	42	31
	62	98	8.3	98	98	94	83	72	61	50	92	8.9	92	92	92	81	70	59	48
	57	104	8.2	104	104	101	90	79	68	57	93	8.9	93	93	93	82	71	60	49
		Temperature of Air on Condenser Coil 105°F									Temperature of Air on Condenser Coil 115°F								
2250	72	101	10.1	60	53	47	40	34	#N/A	#N/A	98	10.9	61	55	48	42	35	#N/A	#N/A
	67	88	9.6	74	67	61	54	48	42	35	84	10.3	75	69	62	56	50	43	37
	62	79	9.2	79	77	74	67	61	54	48	74	9.9	74	74	74	68	62	55	49
	57	79	9.2	79	78	75	68	62	55	49	74	9.9	74	74	74	68	61	55	48
2625	72	102	10.2	64	56	48	41	33	#N/A	#N/A	99	10.9	63	56	48	41	33	#N/A	#N/A
	67	89	9.7	78	71	63	56	48	40	33	84	10.3	78	70	63	55	47	40	32
	62	80	9.3	80	79	76	69	61	54	46	75	9.9	75	75	75	67	59	52	44
	57	80	9.2	80	80	77	70	62	55	47	74	9.9	74	74	74	67	59	51	44
3000	72	104	10.2	68	59	50	41	33	#N/A	#N/A	99	10.9	66	57	48	39	31	#N/A	#N/A
	67	90	9.7	83	74	65	57	48	39	30	84	10.3	80	71	63	54	45	36	28
	62	81	9.3	81	81	79	70	62	53	44	75	9.9	75	75	75	66	57	49	40
	57	81	9.3	81	81	80	72	63	54	45	74	9.9	74	74	74	66	57	48	39
3375	72	106	10.3	73	63	53	43	33	#N/A	#N/A	100	11.0	72	62	52	42	32	#N/A	#N/A
	67	92	9.8	88	79	69	59	49	39	30	85	10.4	83	77	67	57	47	37	27
	62	83	9.4	83	83	82	72	62	52	42	76	10.0	76	76	76	66	56	46	36
	57	83	9.4	83	83	83	73	63	53	43	75	9.9	75	75	75	65	55	45	35
3750	72	108	10.4	79	68	56	45	34	#N/A	#N/A	102	11.0	77	66	55	44	33	#N/A	#N/A
	67	94	9.9	92	85	73	62	51	40	29	86	10.5	86	82	71	60	49	38	27
	62	85	9.5	85	85	85	73	62	51	40	77	10.0	77	77	77	66	54	43	32
	57	85	9.4	85	85	85	74	62	51	40	76	10.0	76	76	76	65	54	43	32
		Temperature of Air on Condenser Coil 125°F																	
2250	72	96	11.6	62	56	50	43	37	#N/A	#N/A									
	67	80	11.0	77	70	64	58	51	45	38									
	62	70	10.5	70	70	70	69	62	56	50									
	57	69	10.5	69	69	69	67	60	54	48									
2625	72	95	11.6	63	55	48	40	33	#N/A	#N/A									
	67	79	11.0	77	70	62	54	47	39	32									
	62	69	10.5	69	69	69	65	58	50	43									
	57	68	10.5	68	68	68	63	56	48	40									
3000	72	94	11.5	64	55	46	38	29	#N/A	#N/A									
	67	78	11.0	77	69	60	51	42	34	25									
	62	68	10.5	68	68	68	62	53	44	35									
	57	67	10.4	67	67	67	60	51	42	33									
3375	72	95	11.6	70	60	50	40	30	#N/A	#N/A									
	67	78	11.0	78	74	64	55	45	35	25									
	62	69	10.5	69	69	69	60	50	40	30									
	57	68	10.5	68	68	68	58	48	38	28									
3750	72	95	11.6	76	65	54	42	31	#N/A	#N/A									
	67	79	11.1	79	79	69	58	47	36	24									
	62	69	10.6	69	69	69	58	47	35	24									
	57	68	10.5	68	68	68	57	46	34	23									

* These capacities are gross ratings. For net capacity, deduct air blower motor, MBH = 3.415 x kW. Refer to the appropriate Blower Performance Table for the kW of the supply air blower motor.

† These ratings include condenser fan motors and the compressor motors but not the supply air blower motor.

TABLE 4: COOLING CAPACITY 7-1/2 TON HP COOL METRIC

Return Air		Outdoor Ambient Temperature (C) 29									Outdoor Ambient Temperature (C) 35								
m^3s	WB (°C)	Gross Cap.* (kW)	Tot. Input† (kW)	Sensible Capacity (kW)* Return Dry Bulb (°C)							Gross Cap.* (kW)	Tot. Input† (kW)	Sensible Capacity (kW)* Return Dry Bulb (°C)						
				30	28	27	25	23	22	20			30	28	27	25	23	22	20
1.06	22	32	8.7	17	16	14	12	11	#N/A	#N/A	30	9.4	17	15	13	12	10	#N/A	#N/A
	19	29	8.4	21	20	18	16	15	13	11	27	8.9	21	19	17	16	14	12	11
	17	26	8.0	25	24	22	20	19	17	15	24	8.6	24	23	21	20	18	16	15
	14	28	8.0	27	25	24	22	20	19	17	25	8.5	25	24	22	20	19	17	15
1.24	22	33	8.8	19	17	15	13	11	#N/A	#N/A	31	9.5	18	16	14	12	10	#N/A	#N/A
	19	30	8.5	23	21	19	17	15	13	11	28	9.0	23	21	19	17	15	13	11
	17	27	8.1	26	26	24	22	20	18	16	25	8.7	25	24	23	21	19	17	15
	14	29	8.1	28	27	25	23	21	19	17	25	8.6	25	25	24	22	20	18	16
1.42	22	34	8.9	21	18	16	14	12	#N/A	#N/A	32	9.6	20	18	15	13	11	#N/A	#N/A
	19	30	8.5	25	23	21	18	16	14	11	28	9.1	25	22	20	18	15	13	11
	17	28	8.2	28	27	25	23	21	18	16	26	8.8	26	26	24	22	20	18	15
	14	29	8.1	29	29	27	25	22	20	18	26	8.7	26	26	25	23	21	18	16
1.53	22	34	8.9	22	20	17	14	12	#N/A	#N/A	33	9.7	21	19	16	13	11	#N/A	#N/A
	19	31	8.6	27	24	22	19	16	14	11	29	9.2	26	24	21	18	16	13	11
	17	28	8.2	28	28	26	24	21	19	16	26	8.9	26	26	26	23	21	18	15
	14	30	8.2	30	30	28	26	23	20	18	27	8.8	27	27	26	24	21	18	16
1.77	22	35	9.0	24	21	18	15	12	#N/A	#N/A	34	9.8	23	20	17	14	11	#N/A	#N/A
	19	32	8.6	29	26	23	20	17	14	11	30	9.3	28	25	22	19	16	13	10
	17	29	8.3	29	29	28	25	22	19	16	27	8.9	27	27	27	24	21	18	15
	14	31	8.2	31	31	30	27	24	21	18	27	8.9	27	27	27	24	21	19	16
		Outdoor Ambient Temperature (C) 41									Outdoor Ambient Temperature (C) 46								
1.06	22	30	10.1	17	15	14	12	10	#N/A	#N/A	29	10.9	17	16	14	12	11	#N/A	#N/A
	19	26	9.6	21	20	18	16	14	13	11	25	10.3	22	20	18	17	15	13	12
	17	23	9.2	23	22	22	20	18	16	15	22	9.9	22	22	22	20	18	17	15
	14	23	9.2	23	23	22	20	18	17	15	22	9.9	22	22	22	20	18	17	15
1.24	22	30	10.2	18	16	14	12	10	#N/A	#N/A	29	10.9	18	16	14	12	10	#N/A	#N/A
	19	26	9.7	22	20	18	17	15	13	11	25	10.3	22	20	18	16	14	12	10
	17	23	9.3	23	23	22	20	18	16	14	22	9.9	22	22	22	20	18	16	14
	14	24	9.2	24	23	23	21	19	17	15	22	9.9	22	22	22	20	18	16	14
1.42	22	30	10.2	19	17	15	12	10	#N/A	#N/A	29	10.9	19	16	14	12	10	#N/A	#N/A
	19	27	9.7	24	21	19	17	15	12	10	25	10.3	23	21	18	16	14	11	9
	17	24	9.3	24	24	23	21	19	16	14	22	9.9	22	22	22	20	17	15	13
	14	24	9.3	24	24	24	21	19	17	14	22	9.9	22	22	22	19	17	15	13
1.53	22	31	10.3	21	18	16	13	10	#N/A	#N/A	29	11.0	20	18	15	13	10	#N/A	#N/A
	19	27	9.8	25	23	20	18	15	12	10	25	10.4	24	22	20	17	14	12	9
	17	24	9.4	24	24	24	21	19	16	14	22	10.0	22	22	22	20	17	14	12
	14	24	9.4	24	24	24	22	19	16	14	22	9.9	22	22	22	19	17	14	12
1.77	22	32	10.4	22	19	17	14	11	#N/A	#N/A	30	11.0	22	19	16	13	10	#N/A	#N/A
	19	28	9.9	27	24	22	19	16	13	10	25	10.5	25	24	21	18	15	12	9
	17	25	9.5	25	25	25	22	19	16	13	22	10.0	22	22	22	20	17	14	11
	14	25	9.4	25	25	25	22	19	16	13	22	10.0	22	22	22	19	17	14	11
		Outdoor Ambient Temperature (C) 52																	
1.06	22	28	11.6	18	16	15	13	11	#N/A	#N/A									
	19	23	11.0	22	20	19	17	15	14	12									
	17	20	10.5	20	20	20	20	19	17	15									
	14	20	10.5	20	20	20	20	18	16	15									
1.24	22	28	11.6	18	16	14	12	10	#N/A	#N/A									
	19	23	11.0	22	20	18	16	14	12	10									
	17	20	10.5	20	20	20	19	17	15	13									
	14	20	10.5	20	20	20	19	17	15	13									
1.42	22	28	11.5	18	16	14	11	9	#N/A	#N/A									
	19	23	11.0	22	20	18	15	13	11	8									
	17	20	10.5	20	20	20	18	16	14	11									
	14	20	10.4	20	20	20	18	15	13	11									
1.53	22	28	11.6	20	17	15	12	9	#N/A	#N/A									
	19	23	11.0	23	22	19	16	14	11	8									
	17	20	10.5	20	20	20	18	15	13	10									
	14	20	10.5	20	20	20	17	15	12	10									
1.77	22	28	11.6	22	19	16	13	10	#N/A	#N/A									
	19	23	11.1	23	23	20	17	14	11	9									
	17	20	10.6	20	20	20	17	14	11	8									
	14	20	10.5	20	20	20	17	14	11	8									

* These capacities are gross ratings. For net capacity, deduct air blower motor, kW. Refer to the appropriate Blower Performance Table for the kW of the supply air blower motor.

† These ratings include condenser fan motors and the compressor motors but not the supply air blower motor.

TABLE 5: COOLING CAPACITY 10 TON HP COOL IMPERIAL

Air On Evap. Coil		Temperature of Air on Condenser Coil 85°F									Temperature of Air on Condenser Coil 95°F								
CFM	WB (°F)	Tot. Cap.* (MBH)	Tot. Input† (kW)	Sensible Capacity (MBH)* Return Dry Bulb (°F)							Tot. Cap.* (MBH)	Tot. Input† (kW)	Sensible Capacity (MBH)* Return Dry Bulb (°F)						
				86	83	80	77	74	71	68			86	83	80	77	74	71	68
3000	72	130	9.9	78	69	61	52	44	35	26	127	11.0	77	69	60	51	43	34	26
	67	123	9.7	100	91	83	74	66	57	49	119	10.8	98	90	81	72	64	55	47
	62	115	9.6	115	109	100	92	83	75	66	111	10.6	111	109	100	92	83	74	66
	57	113	9.5	113	110	102	93	85	76	68	109	10.6	109	107	99	90	81	73	64
3500	72	134	10.0	86	76	66	56	46	36	26	130	11.1	86	75	65	55	45	35	25
	67	127	9.8	110	100	90	80	70	60	50	122	10.9	108	98	88	78	68	58	48
	62	119	9.6	119	116	109	99	89	79	69	115	10.7	115	113	109	99	89	79	69
	57	117	9.6	117	115	111	101	91	81	70	113	10.7	113	112	107	97	87	77	67
4000	72	137	10.1	95	83	71	60	48	36	25	134	11.2	94	82	71	59	47	36	24
	67	131	9.9	121	109	98	86	74	63	51	126	10.9	119	107	95	84	72	61	49
	62	122	9.7	122	122	118	107	95	83	72	118	10.7	118	118	118	106	95	83	71
	57	120	9.6	120	120	120	108	97	85	73	116	10.7	116	116	116	104	93	81	69
4500	72	140	10.1	102	89	76	63	49	36	23	136	11.2	102	89	76	62	49	36	23
	67	133	9.9	128	117	104	90	77	64	51	128	11.0	124	116	102	89	76	62	49
	62	124	9.7	124	124	122	109	96	82	69	120	10.7	120	120	120	106	93	80	66
	57	122	9.7	122	122	122	109	95	82	69	118	10.8	118	118	118	104	91	78	65
5000	72	142	10.1	110	95	80	65	51	36	21	138	11.2	110	96	81	66	51	36	21
	67	135	9.9	135	125	110	95	80	65	50	129	11.0	129	124	109	94	79	64	49
	62	126	9.7	126	126	126	111	96	81	66	121	10.8	121	121	121	106	91	76	62
	57	124	9.7	124	124	124	109	94	79	64	119	10.8	119	119	119	104	90	75	60
		Temperature of Air on Condenser Coil 105°F									Temperature of Air on Condenser Coil 115°F								
3000	72	121	12.3	75	66	58	49	41	32	24	116	13.6	73	64	56	47	38	30	21
	67	111	12.1	95	86	78	69	61	52	44	104	13.3	92	83	75	66	58	49	40
	62	104	11.7	104	101	93	84	76	67	58	97	12.9	97	94	85	77	68	60	51
	57	103	11.8	103	100	92	83	75	66	58	97	12.9	97	94	85	77	68	59	51
3500	72	125	12.4	83	73	63	53	43	33	23	119	13.7	81	71	61	51	41	31	21
	67	114	12.2	104	95	85	75	65	55	45	106	13.5	100	92	82	72	62	52	42
	62	107	11.8	107	106	101	91	81	71	61	100	13.0	100	98	94	84	74	64	53
	57	106	11.9	106	105	101	90	80	70	60	100	13.1	100	98	94	84	73	63	53
4000	72	128	12.5	92	80	69	57	45	34	22	122	13.9	90	78	67	55	43	32	20
	67	118	12.3	114	104	93	81	69	58	46	109	13.6	109	101	90	78	66	55	43
	62	110	11.9	110	110	110	99	87	75	64	103	13.2	103	103	103	91	79	68	56
	57	109	12.0	109	109	109	98	86	74	63	102	13.2	102	102	102	91	79	67	56
4500	72	130	12.5	100	87	74	61	47	34	21	124	13.9	99	85	72	59	46	32	19
	67	119	12.3	118	111	100	86	73	60	47	111	13.6	111	107	97	84	71	57	44
	62	112	12.0	112	112	112	99	85	72	59	104	13.2	104	104	104	91	78	65	51
	57	111	12.0	111	111	111	98	84	71	58	104	13.2	104	104	104	91	78	64	51
5000	72	132	12.5	109	94	79	64	49	34	20	127	13.9	107	93	78	63	48	33	18
	67	121	12.3	121	119	107	92	77	62	47	113	13.6	113	113	104	89	75	60	45
	62	114	12.0	114	114	114	99	84	69	54	106	13.2	106	106	106	91	77	62	47
	57	113	12.0	113	113	113	98	83	68	53	106	13.2	106	106	106	91	76	61	47
		Temperature of Air on Condenser Coil 125°F																	
3000	72	111	14.8	70	62	53	45	36	28	19									
	67	96	14.6	89	80	71	63	54	46	37									
	62	90	14.0	90	86	78	69	61	52	44									
	57	91	14.1	91	87	78	70	61	53	44									
3500	72	113	15.0	79	69	59	49	39	29	19									
	67	99	14.8	96	89	79	69	59	49	39									
	62	93	14.2	93	91	86	76	66	56	46									
	57	93	14.3	93	91	87	77	67	57	46									
4000	72	116	15.2	88	76	65	53	41	30	18									
	67	101	14.9	101	99	87	75	64	52	40									
	62	95	14.4	95	95	95	83	71	60	48									
	57	95	14.4	95	95	95	84	72	60	49									
4500	72	118	15.2	97	84	70	57	44	31	17									
	67	103	14.9	103	103	94	81	68	55	41									
	62	97	14.4	97	97	97	84	70	57	44									
	57	97	14.4	97	97	97	84	71	58	44									
5000	72	121	15.2	106	91	76	61	46	31	16									
	67	105	14.9	105	105	102	87	72	57	42									
	62	99	14.4	99	99	99	84	69	54	39									
	57	100	14.4	100	100	100	85	70	55	40									

* These capacities are gross ratings. For net capacity, deduct air blower motor, MBH = 3.415 x kW. Refer to the appropriate Blower Performance Table for the kW of the supply air blower motor.

† These ratings include condenser fan motors and the compressor motors but not the supply air blower motor.

TABLE 6: COOLING CAPACITY 10 TON HP COOL METRIC

Return Air		Outdoor Ambient Temperature (C) 29									Outdoor Ambient Temperature (C) 35								
m^3s	WB (°C)	Gross Cap.* (kW)	Tot. Input† (kW)	Sensible Capacity (kW)* Return Dry Bulb (°C)							Gross Cap.* (kW)	Tot. Input† (kW)	Sensible Capacity (kW)* Return Dry Bulb (°C)						
				30	28	27	25	23	22	20			30	28	27	25	23	22	20
1.42	22	38	9.9	22	20	18	16	13	11	9	37	11.0	22	20	18	15	13	11	9
	19	36	9.7	29	27	24	22	20	18	15	35	10.8	28	26	24	22	19	17	15
	17	34	9.6	34	32	29	27	25	23	20	33	10.6	33	32	29	27	25	23	20
	14	33	9.5	33	32	30	28	25	23	21	32	10.6	32	31	29	27	24	22	20
1.65	22	39	10.0	25	22	19	17	14	11	9	38	11.1	24	22	19	16	14	11	9
	19	37	9.8	32	29	26	24	21	18	16	36	10.9	31	29	26	23	21	18	15
	17	35	9.6	35	34	32	29	27	24	21	34	10.7	34	33	32	29	27	24	21
	14	34	9.6	34	34	32	30	27	25	22	33	10.7	33	33	31	29	26	23	21
1.89	22	40	10.1	27	24	21	18	15	12	9	39	11.2	27	24	21	18	15	12	8
	19	38	9.9	35	32	29	26	22	19	16	37	10.9	34	31	28	25	22	19	16
	17	36	9.7	36	36	35	32	29	25	22	35	10.7	35	35	35	31	28	25	22
	14	35	9.6	35	35	35	32	29	26	23	34	10.7	34	34	34	31	28	25	22
2.12	22	41	10.1	29	26	22	19	15	12	8	40	11.2	29	26	22	19	15	12	8
	19	39	9.9	37	34	30	27	23	20	16	37	11.0	36	33	30	26	23	20	16
	17	36	9.7	36	36	36	32	29	25	22	35	10.7	35	35	35	32	28	25	21
	14	36	9.7	36	36	36	32	29	25	22	34	10.8	34	34	34	31	28	24	21
2.36	22	42	10.1	31	27	24	20	16	12	8	40	11.2	31	28	24	20	16	12	8
	19	39	9.9	39	36	32	28	24	20	17	38	11.0	38	36	32	28	24	20	16
	17	37	9.7	37	37	37	33	29	25	21	36	10.8	36	36	36	32	28	24	20
	14	36	9.7	36	36	36	32	28	25	21	35	10.8	35	35	35	31	27	23	19
		Outdoor Ambient Temperature (C) 41									Outdoor Ambient Temperature (C) 46								
1.42	22	36	12.3	21	19	17	15	12	10	8	34	13.6	21	19	16	14	12	10	7
	19	33	12.1	27	25	23	21	18	16	14	30	13.3	26	24	22	20	17	15	13
	17	31	11.7	31	29	27	25	23	20	18	29	12.9	29	27	25	23	20	18	16
	14	30	11.8	30	29	27	25	22	20	18	28	12.9	28	27	25	23	20	18	16
1.65	22	37	12.4	24	21	19	16	13	11	8	35	13.7	23	21	18	15	13	10	7
	19	34	12.2	30	28	25	22	20	17	14	31	13.5	29	27	24	21	19	16	13
	17	31	11.8	31	31	30	27	24	22	19	29	13.0	29	29	28	25	22	20	17
	14	31	11.9	31	31	29	27	24	21	19	29	13.1	29	29	27	25	22	19	17
1.89	22	38	12.5	26	23	20	17	14	11	8	36	13.9	26	23	20	16	13	10	7
	19	34	12.3	33	30	27	24	21	18	15	32	13.6	32	29	26	23	20	17	14
	17	32	11.9	32	32	32	29	26	23	20	30	13.2	30	30	30	27	24	21	18
	14	32	12.0	32	32	32	29	26	23	20	30	13.2	30	30	30	27	24	21	18
2.12	22	38	12.5	29	25	22	18	15	11	8	36	13.9	28	25	21	18	14	11	7
	19	35	12.3	34	32	29	26	22	19	15	33	13.6	33	31	28	25	21	18	15
	17	33	12.0	33	33	33	29	26	22	19	31	13.2	31	31	31	27	24	20	17
	14	33	12.0	33	33	33	29	26	22	19	31	13.2	31	31	31	27	24	20	17
2.36	22	39	12.5	31	27	23	19	15	11	8	37	13.9	31	27	23	19	15	11	7
	19	36	12.3	36	35	31	27	23	20	16	33	13.6	33	33	31	27	23	19	15
	17	33	12.0	33	33	33	29	26	22	18	31	13.2	31	31	31	27	23	19	16
	14	33	12.0	33	33	33	29	25	21	17	31	13.2	31	31	31	27	23	19	15
		Outdoor Ambient Temperature (C) 52																	
1.42	22	32	14.8	20	18	16	13	11	9	7									
	19	28	14.6	25	23	21	19	16	14	12									
	17	27	14.0	27	25	23	21	18	16	14									
	14	27	14.1	27	25	23	21	18	16	14									
1.65	22	33	15.0	23	20	17	15	12	9	7									
	19	29	14.8	28	26	23	21	18	15	13									
	17	27	14.2	27	26	25	23	20	17	15									
	14	27	14.3	27	27	25	23	20	17	15									
1.89	22	34	15.2	25	22	19	16	13	10	7									
	19	30	14.9	30	29	25	22	19	16	13									
	17	28	14.4	28	28	28	25	22	19	16									
	14	28	14.4	28	28	28	25	22	19	16									
2.12	22	35	15.2	28	24	21	17	14	10	7									
	19	30	14.9	30	30	28	24	21	17	14									
	17	28	14.4	28	28	28	25	21	18	14									
	14	29	14.4	29	29	29	25	22	18	15									
2.36	22	35	15.2	30	26	22	18	14	11	7									
	19	31	14.9	31	31	30	26	22	18	14									
	17	29	14.4	29	29	29	25	21	17	13									
	14	29	14.4	29	29	29	25	21	17	14									

* These capacities are gross ratings. For net capacity, deduct air blower motor, kW. Refer to the appropriate Blower Performance Table for the kW of the supply air blower motor.

† These ratings include condenser fan motors and the compressor motors but not the supply air blower motor.

TABLE 7: HEATING APPLICATION DATA 7-1/2 TON HP HEAT (IMPERIAL)

CFM	ID DB	CAP & kW	OUTDOOR TEMPERATURE (°F) (72% RH)							
			-10	0	10	20	30	40	50	60
2250	55	MBH	26.1	31.8	38.7	47.1	57.3	69.8	85.0	103.6
		KW	5.0	5.4	5.8	6.3	6.7	7.1	7.5	8.0
	70	MBH	22.7	28.3	35.2	43.6	53.9	66.4	81.6	100.2
		KW	5.8	6.2	6.6	7.0	7.5	7.9	8.3	8.7
	80	MBH	18.9	24.6	31.5	39.9	50.1	62.6	77.8	96.4
		KW	6.2	6.6	7.0	7.4	7.9	8.3	8.7	9.1
3000	55	MBH	29.2	34.9	41.8	50.2	60.4	72.9	88.2	106.7
		KW	4.9	5.3	5.8	6.2	6.6	7.0	7.5	7.9
	70	MBH	25.8	31.4	38.3	46.7	57.0	69.5	84.7	103.3
		KW	5.7	6.1	6.5	7.0	7.4	7.8	8.2	8.7
	80	MBH	22.0	27.7	34.6	43.0	53.2	65.7	81.0	99.5
		KW	6.1	6.5	6.9	7.3	7.8	8.2	8.6	9.0
3750	55	MBH	34.0	39.6	46.5	54.9	65.2	77.7	92.9	111.5
		KW	5.0	5.5	5.9	6.3	6.7	7.2	7.6	8.0
	70	MBH	30.5	36.2	43.1	51.5	61.7	74.2	89.5	108.0
		KW	5.8	6.2	6.7	7.1	7.5	7.9	8.4	8.8
	80	MBH	26.8	32.4	39.3	47.7	58.0	70.5	85.7	104.3
		KW	6.2	6.6	7.0	7.5	7.9	8.3	8.8	9.2

THE MBH AND KW VALUES DO NOT INCLUDE THE SUPPLY AIR BLOWER MOTOR.
FOR NET CAPACITY, ADD THE SUPPLY AIR BLOWER MOTOR HEAT (MBH = 3.415 x KW)

TABLE 8: HEATING APPLICATION DATA 7 1/2 TON HP HEAT (METRIC)

M^3S	ID DB (C)	KW	OUTDOOR TEMPERATURE (C)							
			-23	-18	-12	-7	-1	4	10	16
1.06	12.8	Capacity	7.7	9.3	11.3	13.8	16.8	20.5	24.9	30.4
		Power Input	4.4	4.7	4.9	5.1	5.4	5.6	5.8	6.1
	21.1	Capacity	6.6	8.3	10.3	12.8	15.8	19.4	23.9	29.3
		Power Input	5.2	5.4	5.7	5.9	6.1	6.4	6.6	6.9
	26.7	Capacity	5.5	7.2	9.2	11.7	14.7	18.3	22.8	28.3
		Power Input	5.6	5.8	6.1	6.3	6.5	6.8	7.0	7.2
1.42	12.8	Capacity	8.6	10.2	12.2	14.7	17.7	21.4	25.8	31.3
		Power Input	4.3	4.6	4.8	5.0	5.3	5.5	5.8	6.0
	21.1	Capacity	7.6	9.2	11.2	13.7	16.7	20.4	24.8	30.3
		Power Input	5.1	5.3	5.6	5.8	6.1	6.3	6.5	6.8
	26.7	Capacity	6.5	8.1	10.1	12.6	15.6	19.3	23.7	29.2
		Power Input	5.5	5.7	6.0	6.2	6.4	6.7	6.9	7.2
1.77	12.8	Capacity	10.0	11.6	13.6	16.1	19.1	22.8	27.2	32.7
		Power Input	4.5	4.7	4.9	5.2	5.4	5.6	5.9	6.1
	21.1	Capacity	8.9	10.6	12.6	15.1	18.1	21.7	26.2	31.7
		Power Input	5.2	5.5	5.7	5.9	6.2	6.4	6.7	6.9
	26.7	Capacity	7.8	9.5	11.5	14.0	17.0	20.6	25.1	30.6
		Power Input	5.6	5.9	6.1	6.3	6.6	6.8	7.0	7.3

THE MBH AND KW VALUES DO NOT INCLUDE THE SUPPLY AIR BLOWER MOTOR.
FOR NET CAPACITY, ADD THE SUPPLY AIR BLOWER MOTOR HEAT (kW)

TABLE 9: HEATING APPLICATION DATA 10 TON HP HEAT (IMPERIAL)

CFM	ID DB	CAP & kW	OUTDOOR TEMPERATURE (°F) (72% RH)							
			-10	0	10	20	30	40	50	60
3000	55	MBH	21.2	34.2	47.3	60.3	73.3	86.4	99.4	112.4
		KW	6.0	6.4	6.8	7.1	7.5	7.9	8.3	8.6
	70	MBH	28.9	42.0	55.0	68.0	81.0	94.1	107.1	120.1
		KW	7.4	7.8	8.1	8.5	8.9	9.2	9.6	10.0
	80	MBH	30.0	43.0	56.1	69.1	82.1	95.2	108.2	121.2
		KW	8.3	8.7	9.0	9.4	9.8	10.1	10.5	10.9
4000	55	MBH	23.8	36.8	49.8	62.9	75.9	88.9	102.0	115.0
		KW	5.5	5.9	6.2	6.6	7.0	7.4	7.7	8.1
	70	MBH	31.3	44.3	57.3	70.3	83.4	96.4	109.4	122.5
		KW	6.8	7.1	7.5	7.9	8.3	8.6	9.0	9.4
	80	MBH	32.6	45.6	58.7	71.7	84.7	97.8	110.8	123.8
		KW	7.8	8.1	8.5	8.9	9.2	9.6	10.0	10.4
5000	55	MBH	22.7	35.8	48.8	61.8	74.9	87.9	100.9	113.9
		KW	5.0	5.4	5.7	6.1	6.5	6.8	7.2	7.6
	70	MBH	30.5	43.5	56.5	69.6	82.6	95.6	108.6	121.7
		KW	6.3	6.7	7.1	7.5	7.8	8.2	8.6	8.9
	80	MBH	31.5	44.6	57.6	70.6	83.7	96.7	109.7	122.8
		KW	7.2	7.6	8.0	8.3	8.7	9.1	9.5	9.8

THE MBH AND KW VALUES DO NOT INCLUDE THE SUPPLY AIR BLOWER MOTOR.
FOR NET CAPACITY, ADD THE SUPPLY AIR BLOWER MOTOR HEAT (MBH = 3.415 x KW)

TABLE 10: HEATING APPLICATION DATA 10 TON HP HEAT (METRIC)

M^3S	ID DB (C)	KW	OUTDOOR TEMPERATURE (C)							
			-23	-18	-12	-7	-1	4	10	16
1.42	12.8	Capacity	6.2	10.0	13.8	17.7	21.5	25.3	29.1	32.9
		Power Input	6.0	6.4	6.8	7.1	7.5	7.9	8.3	8.6
	21.1	Capacity	8.5	12.3	16.1	19.9	23.7	27.6	31.4	35.2
		Power Input	7.4	7.8	8.1	8.5	8.9	9.2	9.6	10.0
	26.7	Capacity	8.8	12.6	16.4	20.2	24.1	27.9	31.7	35.5
		Power Input	8.3	8.7	9.0	9.4	9.8	10.1	10.5	10.9
1.89	12.8	Capacity	7.0	10.8	14.6	18.4	22.2	26.1	29.9	33.7
		Power Input	5.5	5.9	6.2	6.6	7.0	7.4	7.7	8.1
	21.1	Capacity	9.2	13.0	16.8	20.6	24.4	28.2	32.1	35.9
		Power Input	6.8	7.1	7.5	7.9	8.3	8.6	9.0	9.4
	26.7	Capacity	9.6	13.4	17.2	21.0	24.8	28.6	32.5	36.3
		Power Input	7.8	8.1	8.5	8.9	9.2	9.6	10.0	10.4
2.36	12.8	Capacity	6.7	10.5	14.3	18.1	21.9	25.8	29.6	33.4
		Power Input	5.0	5.4	5.7	6.1	6.5	6.8	7.2	7.6
	21.1	Capacity	8.9	12.7	16.6	20.4	24.2	28.0	31.8	35.7
		Power Input	6.3	6.7	7.1	7.5	7.8	8.2	8.6	8.9
	26.7	Capacity	9.2	13.1	16.9	20.7	24.5	28.3	32.1	36.0
		Power Input	7.2	7.6	8.0	8.3	8.7	9.1	9.5	9.8

THE MBH AND KW VALUES DO NOT INCLUDE THE SUPPLY AIR BLOWER MOTOR.
FOR NET CAPACITY, ADD THE SUPPLY AIR BLOWER MOTOR HEAT (kW)

TABLE 11: ELECTRICAL DATA - 7-1/2 TON HP

Voltage	Compressors		OD Fan Motors	Supply Air BLower Motor FLA		Pwr Exh Motor	Electric Heater Model No.	Actual Kw	Heater Amps	Minimum Circuit Ampacity (Amps)		MCA with Power Exhaust (Amps)		Max Fuse Size* (Amps)		Max Fuse Size w/Pwr. Exh.* (Amps)	
	RLA ea	LRA ea	FLA ea	1.5 HP (1.1 kW)	2 HP (1.5 kW)	FLA				1.5 HP (1.1 kW)	2 HP (1.5 kW)	1.5 HP (1.1 kW)	2 HP (1.5 kW)	1.5 HP (1.1 kW)	2 HP (1.5 kW)	1.5 HP (1.1 kW)	2 HP (1.5 kW)
380	8.3	62	1.1	4.3	5.2	2.2	None	-	-	25.2	26.1	27.4	28.3	30	30	35	35
							2TP04520950	5.6	8.5	35.8	36.7	38.0	38.9	40	40	40	45
							2TP04521850	11.3	17.2	46.6	47.5	48.8	49.7	50	50	50	50
							2TP04522450	15.0	22.8	53.7	54.6	55.9	56.8	60	60	60	60
							2TP04523650	21.3	32.4	65.6	66.5	67.8	68.7	70	70	70	70
415	8.3	62	1.1	4.3	5.2	2.2	None	-	-	25.2	26.1	27.4	28.3	30	30	35	35
							2TP04520950	6.7	9.3	36.8	37.7	39.0	39.9	40	40	40	45
							2TP04521850	13.5	18.8	48.7	49.6	50.9	51.8	50	50	60	60
							2TP04522450	17.9	24.9	56.3	57.2	58.5	59.4	60	60	60	60
							2TP04523650	25.4	35.3	69.3	70.2	71.5	72.4	70	80	80	80

* Maximum HACR breaker of the same amp size is acceptable.

TABLE 12: ELECTRICAL DATA - 10 TON HP

Voltage	Compressors		OD Fan Motors	Supply Air BLower Motor FLA		Pwr Exh Motor	Electric Heater Model No.	Actual Kw	Heater Amps	Minimum Circuit Ampacity (Amps)		MCA with Power Exhaust (Amps)		Max Fuse Size* (Amps)		Max Fuse Size w/Pwr. Exh.* (Amps)	
	RLA ea	LRA ea	FLA ea	2 HP (1.5 kW)	4HP (3 kW)	FLA				2 HP (1.5 kW)	4 HP (3 kW)	2 HP (1.5 kW)	4 HP (3 kW)	2 HP (1.5 kW)	4 HP (3 kW)	2 HP (1.5 kW)	4 HP (3 kW)
380	8.1	73.0	1.1	5.2	7.5	2.2	None	--	--	25.6	27.9	27.8	30.1	30	35	35	35
							2TP04521850	11.3	17.2	47.1	49.4	49.3	51.6	50	50	50	60
							2TP04522450	15.0	22.8	54.1	56.4	56.3	58.6	60	60	60	60
							2TP04523650	21.3	32.4	66.1	68.4	68.3	70.6	70	70	70	80
							2HP04535450†	33.8	51.4	70.7	73.6	73.4	76.3	80	80	80	80
415	8.1	73.0	1.1	5.2	7.5	2.2	None	--	--	25.6	27.9	27.8	30.1	30	35	35	35
							2TP04521850	13.5	18.8	49.1	51.4	51.3	53.6	50	60	60	60
							2TP04522450	17.9	24.9	56.8	59.1	59.0	61.3	60	60	60	70
							2TP04523650	25.4	35.3	69.8	72.1	72.0	74.3	70	80	80	80
							2HP04535450†	40.4	56.2	76.8	79.6	79.5	82.4	80	80	80	90

* Maximum HACR breaker of the same amp size is acceptable.
† Only 25.4 kW of electric heat can be simultaneously energized with the mechanical heating. The full 40.4 kW operates only if both compressors are locked out.

TABLE 13: UNIT VOLTAGE LIMITATIONS

POWER RATING	MIN.	MAX.
380/415-3-50	342	456

TABLE 14: ELECTRIC HEAT MULTIPLIERS

NOMINAL VOLTAGE	RATING	kW CAP. MULTIPLIER
380	440	0.627
415	440	0.75

NOTE: Electric heaters are rated at nominal voltage. Use this table to determine the electric heat capacity for heaters supplied at lower voltages.

NOTES FOR TABLES 15 THROUGH 30:

- Blower performance includes dry coil and 2" throwaway filters.

ESP (External Static Pressure) given is that available for the supply and return air duct system. All internal resistances have been deducted from the total static pressure of the blower.

TABLE 15: BLOWER PERFORMANCE 7-1/2 TON STANDARD MOTOR - SIDE DUCT (IMPERIAL)

ESP (iwg)	Turns Open																	
	0			1			2			3			4			5		
	CFM	Watts	BHP	CFM	Watts	BHP	CFM	Watts	BHP	CFM	Watts	BHP	CFM	Watts	BHP	CFM	Watts	BHP
0.2	-	-	-	-	-	-	-	-	-	-	-	-	3698	1382	1.48	3527	1249	1.34
0.4	-	-	-	-	-	-	-	-	-	3591	1424	1.53	3288	1242	1.33	3093	1120	1.20
0.6	-	-	-	-	-	-	3430	1451	1.56	3183	1276	1.37	2819	1104	1.18	2550	977	1.05
0.8	-	-	-	3312	1490	1.60	2975	1287	1.38	2593	1101	1.18	-	-	-	-	-	-
1.0	3086	1480	1.59	2679	1269	1.36	2154	1059	1.14	-	-	-	-	-	-	-	-	-

TABLE 16: BLOWER PERFORMANCE 7-1/2 TON STANDARD MOTOR - SIDE DUCT (METRIC)

ESP (Pa)	Turns Open																	
	0			1			2			3			4			5		
	m^3/s	In (kW)	Out (kW)	m^3/s	In (kW)	Out (kW)	m^3/s	In (kW)	Out (kW)	m^3/s	In (kW)	Out (kW)	m^3/s	In (kW)	Out (kW)	m^3/s	In (kW)	Out (kW)
50	-	-	-	-	-	-	-	-	-	-	-	-	1.75	1.38	1.11	1.66	1.25	1.00
100	-	-	-	-	-	-	-	-	-	1.69	1.42	1.14	1.55	1.24	0.99	1.46	1.12	0.90
149	-	-	-	-	-	-	1.62	1.45	1.16	1.50	1.28	1.02	1.33	1.10	0.88	1.20	0.98	0.78
199	-	-	-	1.56	1.49	1.19	1.40	1.29	1.03	1.22	1.10	0.88	-	-	-	-	-	-
249	1.46	1.48	1.18	1.26	1.27	1.02	1.02	1.06	0.85	-	-	-	-	-	-	-	-	-

TABLE 17: BLOWER PERFORMANCE 7-1/2 TON OPTIONAL MOTOR - SIDE DUCT (IMPERIAL)

ESP (iwg)	Turns Open																	
	0			1			2			3			4			5		
	CFM	Watts	BHP	CFM	Watts	BHP	CFM	Watts	BHP	CFM	Watts	BHP	CFM	Watts	BHP	CFM	Watts	BHP
0.4	-	-	-	-	-	-	-	-	-	-	-	-	4052	1830	1.96	3715	1559	1.67
0.6	-	-	-	-	-	-	-	-	-	4016	1933	2.07	3677	1667	1.79	3342	1422	1.52
0.8	-	-	-	-	-	-	3991	2032	2.18	3639	1745	1.87	3270	1504	1.61	2858	1261	1.35
1.0	-	-	-	3953	2151	2.31	3576	1833	1.97	3191	1573	1.69	2702	1307	1.40	-	-	-
1.2	3802	2195	2.35	3544	1941	2.08	3040	1626	1.74	2327	1290	1.38	-	-	-	-	-	-
1.4	3379	2001	2.15	2913	1674	1.80	-	-	-	-	-	-	-	-	-	-	-	-
1.6	2552	1642	1.76	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

TABLE 18: BLOWER PERFORMANCE 7-1/2 TON OPTIONAL MOTOR - SIDE DUCT (METRIC)

ESP (Pa)	Turns Open																	
	0			1			2			3			4			5		
	m^3/s	In (kW)	Out (kW)	m^3/s	In (kW)	Out (kW)	m^3/s	In (kW)	Out (kW)	m^3/s	In (kW)	Out (kW)	m^3/s	In (kW)	Out (kW)	m^3/s	In (kW)	Out (kW)
100	-	-	-	-	-	-	-	-	-	-	-	-	1.91	1.83	1.46	1.75	1.56	1.25
149	-	-	-	-	-	-	-	-	-	1.90	1.93	1.55	1.74	1.67	1.33	1.58	1.42	1.14
199	-	-	-	-	-	-	1.88	2.03	1.63	1.72	1.75	1.40	1.54	1.50	1.20	1.35	1.26	1.01
249	-	-	-	1.87	2.15	1.72	1.69	1.83	1.47	1.51	1.57	1.26	1.28	1.31	1.05	-	-	-
299	1.79	2.20	1.76	1.67	1.94	1.55	1.43	1.63	1.30	1.10	1.29	1.03	-	-	-	-	-	-
349	1.59	2.00	1.60	1.37	1.67	1.34	-	-	-	-	-	-	-	-	-	-	-	-
399	1.20	1.64	1.31	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

TABLE 19: BLOWER PERFORMANCE 10 TON STANDARD MOTOR - SIDE DUCT (IMPERIAL)

ESP (iwg)	Turns Open																	
	0			1			2			3			4			5		
	CFM	Watts	BHP	CFM	Watts	BHP	CFM	Watts	BHP	CFM	Watts	BHP	CFM	Watts	BHP	CFM	Watts	BHP
0.4	4820	2675	2.87	4582	2362	2.53	4319	2080	2.23	4086	1842	1.98	3863	1648	1.77	3590	1430	1.53
0.6	4522	2496	2.68	4307	2215	2.38	4025	1941	2.08	3713	1678	1.80	3464	1499	1.61	3149	1291	1.38
0.8	4223	2332	2.50	3973	2062	2.21	3656	1783	1.91	3363	1550	1.66	3026	1350	1.45	-	-	-
1.0	3913	2174	2.33	3679	1923	2.06	3262	1619	1.74	2721	1330	1.43	-	-	-	-	-	-
1.2	3521	1978	2.12	3104	1693	1.82	-	-	-	-	-	-	-	-	-	-	-	-
1.4	2790	1660	1.78	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

TABLE 20: BLOWER PERFORMANCE 10 TON STANDARD MOTOR - SIDE DUCT (METRIC)

ESP (Pa)	Turns Open																	
	0			1			2			3			4			5		
	m^3/s	In (kW)	Out (kW)	m^3/s	In (kW)	Out (kW)	m^3/s	In (kW)	Out (kW)	m^3/s	In (kW)	Out (kW)	m^3/s	In (kW)	Out (kW)	m^3/s	In (kW)	Out (kW)
100	2.27	2.68	2.14	2.16	2.36	1.89	2.04	2.08	1.66	1.93	1.84	1.47	1.82	1.65	1.32	1.69	1.43	1.14
149	2.13	2.50	2.00	2.03	2.22	1.77	1.90	1.94	1.55	1.75	1.68	1.34	1.63	1.50	1.20	1.49	1.29	1.03
199	1.99	2.33	1.87	1.88	2.06	1.65	1.73	1.78	1.43	1.59	1.55	1.24	1.43	1.35	1.08	-	-	-
249	1.85	2.17	1.74	1.74	1.92	1.54	1.54	1.62	1.30	1.28	1.33	1.06	-	-	-	-	-	-
299	1.66	1.98	1.58	1.46	1.69	1.35	-	-	-	-	-	-	-	-	-	-	-	-
349	1.32	1.66	1.33	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

TABLE 21: BLOWER PERFORMANCE 10 TON OPTIONAL MOTOR - SIDE DUCT (IMPERIAL)

ESP (iwg)	Turns Open																	
	0			1			2			3			4			5		
	CFM	Watts	BHP	CFM	Watts	BHP	CFM	Watts	BHP	CFM	Watts	BHP	CFM	Watts	BHP	CFM	Watts	BHP
0.4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4960	2495	2.68
0.6	-	-	-	-	-	-	-	-	-	-	-	-	5091	2745	2.94	4646	2314	2.48
0.8	-	-	-	-	-	-	-	-	-	5078	2937	3.15	4839	2584	2.77	4347	2153	2.31
1.0	-	-	-	-	-	-	5075	3117	3.34	4767	2730	2.93	4487	2377	2.55	3946	1942	2.08
1.2	-	-	-	5068	3308	3.55	4742	2881	3.09	4427	2513	2.69	4108	2159	2.32	3501	1723	1.85
1.4	5079	3595	3.86	4787	3105	3.33	4452	2713	2.91	4012	2259	2.42	3665	1926	2.07	-	-	-
1.6	4739	3316	3.56	4482	2892	3.10	4098	2474	2.65	3543	2006	2.15	3057	1642	1.76	-	-	-
1.8	4461	3111	3.34	4070	2621	2.81	3552	2160	2.32	-	-	-	-	-	-	-	-	-
2.0	3997	2782	2.98	3400	2219	2.38	-	-	-	-	-	-	-	-	-	-	-	-
2.2	3496	2480	2.66	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

TABLE 22: BLOWER PERFORMANCE 10 TON OPTIONAL MOTOR - SIDE DUCT (METRIC)

ESP (Pa)	Turns Open																	
	0			1			2			3			4			5		
	m^3/s	In (kW)	Out (kW)	m^3/s	In (kW)	Out (kW)	m^3/s	In (kW)	Out (kW)	m^3/s	In (kW)	Out (kW)	m^3/s	In (kW)	Out (kW)	m^3/s	In (kW)	Out (kW)
100	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2.34	2.50	2.00
149	-	-	-	-	-	-	-	-	-	-	-	-	2.40	2.75	2.20	2.19	2.31	1.85
199	-	-	-	-	-	-	-	-	-	2.40	2.94	2.35	2.28	2.58	2.07	2.05	2.15	1.72
249	-	-	-	-	-	-	2.40	3.12	2.49	2.25	2.73	2.18	2.12	2.38	1.90	1.86	1.94	1.55
299	-	-	-	2.39	3.31	2.65	2.24	2.88	2.30	2.09	2.51	2.01	1.94	2.16	1.73	1.65	1.72	1.38
349	2.40	3.60	2.88	2.26	3.11	2.48	2.10	2.71	2.17	1.89	2.26	1.81	1.73	1.93	1.54	-	-	-
399	2.24	3.32	2.65	2.12	2.89	2.31	1.93	2.47	1.98	1.67	2.01	1.60	1.44	1.64	1.31	-	-	-
448	2.11	3.11	2.49	1.92	2.62	2.10	1.68	2.16	1.73	-	-	-	-	-	-	-	-	-
498	1.89	2.78	2.23	1.60	2.22	1.78	-	-	-	-	-	-	-	-	-	-	-	-
548	1.65	2.48	1.98	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

TABLE 23: BLOWER PERFORMANCE 7-1/2 TON STANDARD MOTOR - DOWNSHOT (IMPERIAL)

ESP (iwg)	Turns Open																	
	0			1			2			3			4			5		
	CFM	Watts	BHP	CFM	Watts	BHP	CFM	Watts	BHP	CFM	Watts	BHP	CFM	Watts	BHP	CFM	Watts	BHP
0.2	-	-	-	3838	1772	1.90	3530	1491	1.60	3487	1385	1.49	3260	1234	1.32	3091	1119	1.20
0.4	3299	1485	1.592	3589	1670	1.79	3361	1425	1.53	3173	1275	1.37	2846	1111	1.19	2667	1006	1.08
0.6	3355	1506	1.62	3240	1535	1.65	3012	1301	1.40	2707	1131	1.21	2333	980	1.05	2151	887	0.95
0.8	3095	1409	1.51	2791	1380	1.48	2484	1141	1.22	2088	978	1.05	-	-	-	-	-	-
1.0	2519	1219	1.31	2241	1216	1.30	-	-	-	-	-	-	-	-	-	-	-	-

TABLE 24: BLOWER PERFORMANCE 7-1/2 TON STANDARD MOTOR - DOWNSHOT (METRIC)

ESP (Pa)	Turns Open																	
	0			1			2			3			4			5		
	m^3/s	In (kW)	Out (kW)	m^3/s	In (kW)	Out (kW)	m^3/s	In (kW)	Out (kW)	m^3/s	In (kW)	Out (kW)	m^3/s	In (kW)	Out (kW)	m^3/s	In (kW)	Out (kW)
50	-	-	-	1.81	1.77	1.42	1.67	1.49	1.19	1.65	1.39	1.11	1.54	1.23	0.99	1.46	1.12	0.90
100	1.56	1.48	1.19	1.69	1.67	1.34	1.59	1.43	1.14	1.50	1.27	1.02	1.34	1.11	0.89	1.26	1.01	0.80
149	1.58	1.51	1.21	1.53	1.54	1.23	1.42	1.30	1.04	1.28	1.13	0.90	1.10	0.98	0.78	1.01	0.89	0.71
199	1.46	1.41	1.13	1.32	1.38	1.10	1.17	1.14	0.91	0.99	0.98	0.78	-	-	-	-	-	-
249	1.19	1.22	0.98	1.06	1.22	0.97	-	-	-	-	-	-	-	-	-	-	-	-

TABLE 25: BLOWER PERFORMANCE 7-1/2 TON OPTIONAL MOTOR - DOWNSHOT (IMPERIAL)

ESP (iwg)	Turns Open																	
	0			1			2			3			4			5		
	CFM	Watts	BHP	CFM	Watts	BHP	CFM	Watts	BHP	CFM	Watts	BHP	CFM	Watts	BHP	CFM	Watts	BHP
0.2	-	-	-	-	-	-	-	-	-	-	-	-	3884	1754	1.88	3611	1520	1.63
0.4	-	-	-	-	-	-	-	-	-	3837	1843	1.98	3576	1624	1.74	3282	1400	1.50
0.6	-	-	-	4054	2201	2.36	3766	1926	2.07	3491	1691	1.81	3183	1473	1.58	2862	1263	1.35
0.8	-	-	-	3735	2037	2.18	3412	1769	1.90	3083	1530	1.64	2707	1311	1.41	2352	1119	1.20
1.0	3626	2112	2.27	3362	1861	2.00	3014	1611	1.73	2614	1372	1.47	2146	1151	1.23	-	-	-
1.2	3227	1931	2.07	2938	1682	1.80	2572	1457	1.56	2082	1227	1.32	-	-	-	-	-	-
1.4	2778	1733	1.86	2461	1506	1.61	-	-	-	-	-	-	-	-	-	-	-	-
1.6	2279	1522	1.63	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

TABLE 26: BLOWER PERFORMANCE 7-1/2 TON OPTIONAL MOTOR - DOWNSHOT (METRIC)

ESP (Pa)	Turns Open																	
	0			1			2			3			4			5		
	m^3/s	In (kW)	Out (kW)	m^3/s	In (kW)	Out (kW)	m^3/s	In (kW)	Out (kW)	m^3/s	In (kW)	Out (kW)	m^3/s	In (kW)	Out (kW)	m^3/s	In (kW)	Out (kW)
50	-	-	-	-	-	-	-	-	-	-	-	-	1.83	1.75	1.40	1.70	1.52	1.22
100	-	-	-	-	-	-	-	-	-	1.81	1.84	1.47	1.69	1.62	1.30	1.55	1.40	1.12
149	-	-	-	1.91	2.20	1.76	1.78	1.93	1.54	1.65	1.69	1.35	1.50	1.47	1.18	1.35	1.26	1.01
199	-	-	-	1.76	2.04	1.63	1.61	1.77	1.42	1.46	1.53	1.22	1.28	1.31	1.05	1.11	1.12	0.90
249	1.71	2.11	1.69	1.59	1.86	1.49	1.42	1.61	1.29	1.23	1.37	1.10	1.01	1.15	0.92	-	-	-
299	1.52	1.93	1.54	1.39	1.68	1.35	1.21	1.46	1.17	0.98	1.23	0.98	-	-	-	-	-	-
349	1.31	1.73	1.39	1.16	1.51	1.20	-	-	-	-	-	-	-	-	-	-	-	-
399	1.08	1.52	1.22	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

TABLE 27: BLOWER PERFORMANCE 10 TON STANDARD MOTOR - DOWNSHOT (IMPERIAL)

ESP (iwg)	Turns Open																	
	0			1			2			3			4			5		
	CFM	Watts	BHP	CFM	Watts	BHP	CFM	Watts	BHP	CFM	Watts	BHP	CFM	Watts	BHP	CFM	Watts	BHP
0.2	4543	2511	2.69	4362	2250	2.41	4139	1996	2.14	3911	1766	1.89	3719	1594	1.71	3518	1407	1.51
0.4	4311	2381	2.55	4115	2127	2.28	3862	1871	2.01	3611	1644	1.76	3386	1471	1.58	3153	1293	1.39
0.6	4032	2232	2.39	3804	1982	2.13	3508	1720	1.84	3246	1506	1.61	2971	1332	1.43	-	-	-
0.8	3706	2068	2.22	3428	1818	1.95	3078	1548	1.66	-	-	-	-	-	-	-	-	-
1.0	3333	1892	2.03	2989	1644	1.76	-	-	-	-	-	-	-	-	-	-	-	-
1.2	2914	1711	1.83	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

TABLE 28: BLOWER PERFORMANCE 10 TON STANDARD MOTOR - DOWNSHOT (METRIC)

ESP (Pa)	Turns Open																	
	0			1			2			3			4			5		
	m^3/s	In (kW)	Out (kW)	m^3/s	In (kW)	Out (kW)	m^3/s	In (kW)	Out (kW)	m^3/s	In (kW)	Out (kW)	m^3/s	In (kW)	Out (kW)	m^3/s	In (kW)	Out (kW)
50	2.14	2.51	2.01	2.06	2.25	1.80	1.95	2.00	1.60	1.85	1.77	1.41	1.75	1.59	1.27	1.66	1.41	1.13
100	2.03	2.38	1.91	1.94	2.13	1.70	1.82	1.87	1.50	1.70	1.64	1.31	1.60	1.47	1.18	1.49	1.29	1.03
149	1.90	2.23	1.79	1.80	1.98	1.59	1.66	1.72	1.38	1.53	1.51	1.20	1.40	1.33	1.07	-	-	-
199	1.75	2.07	1.65	1.62	1.82	1.45	1.45	1.55	1.24	-	-	-	-	-	-	-	-	-
249	1.57	1.89	1.51	1.41	1.64	1.32	-	-	-	-	-	-	-	-	-	-	-	-
299	1.38	1.71	1.37	-	-	-	-	-	-	-	-	-	-	-	-	-	-	

TABLE 29: BLOWER PERFORMANCE 10 TON OPTIONAL MOTOR - DOWNSHOT (IMPERIAL)

ESP (iwg)	Turns Open																	
	0			1			2			3			4			5		
	CFM	Watts	BHP	CFM	Watts	BHP	CFM	Watts	BHP	CFM	Watts	BHP	CFM	Watts	BHP	CFM	Watts	BHP
0.2	-	-	-	-	-	-	-	-	-	-	-	-	4966	2666	2.86	4605	2290	2.46
0.4	-	-	-	-	-	-	-	-	-	4919	2473	2.65	4721	2515	2.70	4344	2145	2.30
0.6	-	-	-	-	-	-	4929	3022	3.24	4665	2324	2.49	4450	2353	2.52	4048	1991	2.13
0.8	-	-	-	4908	3197	3.43	4668	2841	3.05	4391	2171	2.33	4151	2183	2.34	3717	1829	1.96
1.0	4915	3456	3.71	4651	3013	3.23	4388	2656	2.85	4096	2015	2.16	3825	2008	2.15	3352	1664	1.78
1.2	4653	3253	3.49	4377	2823	3.03	4089	2467	2.65	3779	1858	1.99	3471	1830	1.96	2951	1499	1.61
1.4	4372	3046	3.27	4087	2631	2.82	3771	2277	2.44	3442	1703	1.83	3090	1652	1.77	-	-	-
1.6	4070	2837	3.04	3780	2437	2.61	3434	2089	2.24	3084	1552	1.66	-	-	-	-	-	-
1.8	3748	2629	2.82	3455	2243	2.41	3078	1904	2.04	-	-	-	-	-	-	-	-	-
2.0	3406	2425	2.60	3114	2051	2.20	-	-	-	-	-	-	-	-	-	-	-	-
2.2	3044	2228	2.39	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

TABLE 30: BLOWER PERFORMANCE 10 TON OPTIONAL MOTOR - DOWNSHOT (METRIC)

ESP (Pa)	Turns Open																	
	0			1			2			3			4			5		
	m^3/s	In (kW)	Out (kW)	m^3/s	In (kW)	Out (kW)	m^3/s	In (kW)	Out (kW)	m^3/s	In (kW)	Out (kW)	m^3/s	In (kW)	Out (kW)	m^3/s	In (kW)	Out (kW)
50	-	-	-	-	-	-	-	-	-	-	-	-	2.34	2.67	2.13	2.17	2.29	1.83
100	-	-	-	-	-	-	-	-	-	2.32	2.47	1.98	2.23	2.51	2.01	2.05	2.15	1.72
149	-	-	-	-	-	-	2.33	3.02	2.42	2.20	2.32	1.86	2.10	2.35	1.88	1.91	1.99	1.59
199	-	-	-	2.32	3.20	2.56	2.20	2.84	2.27	2.07	2.17	1.74	1.96	2.18	1.75	1.75	1.83	1.46
249	2.32	3.46	2.76	2.20	3.01	2.41	2.07	2.66	2.12	1.93	2.01	1.61	1.81	2.01	1.61	1.58	1.66	1.33
299	2.20	3.25	2.60	2.07	2.82	2.26	1.93	2.47	1.97	1.78	1.86	1.49	1.64	1.83	1.46	1.39	1.50	1.20
349	2.06	3.05	2.44	1.93	2.63	2.10	1.78	2.28	1.82	1.62	1.70	1.36	1.46	1.65	1.32	-	-	-
399	1.92	2.84	2.27	1.78	2.44	1.95	1.62	2.09	1.67	1.46	1.55	1.24	-	-	-	-	-	-
448	1.77	2.63	2.10	1.63	2.24	1.79	1.45	1.90	1.52	-	-	-	-	-	-	-	-	-
498	1.61	2.43	1.94	1.47	2.05	1.64	-	-	-	-	-	-	-	-	-	-	-	-
548	1.44	2.23	1.78	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

TABLE 31: ADDITIONAL STATIC RESISTANCE - IMPERIAL

CFM	Cooling Only*	Economizer† ‡	Electric Heat KW†				
			9	18	24	36	54
1900	0.06	0.02	0.05	0.06	0.07	0.08	0.10
2100	0.07	0.02	0.06	0.07	0.08	0.09	0.11
2300	0.08	0.02	0.07	0.08	0.09	0.10	0.13
2500	0.09	0.02	0.08	0.09	0.10	0.11	0.14
2700	0.11	0.03	0.09	0.10	0.12	0.13	0.16
2900	0.12	0.03	0.10	0.11	0.13	0.14	0.18
3100	0.14	0.03	0.12	0.13	0.15	0.16	0.20
3300	0.16	0.03	0.13	0.14	0.17	0.18	0.22
3500	0.18	0.04	0.15	0.16	0.19	0.20	0.24
3700	0.20	0.04	0.17	0.18	0.21	0.22	0.26
3900	0.23	0.04	0.19	0.20	0.23	0.24	0.28
4100	0.25	0.04	0.21	0.22	0.25	0.26	0.31
4300	0.28	0.05	0.23	0.24	0.28	0.29	0.34
4500	0.30	0.05	0.25	0.26	0.30	0.31	0.37
4700	0.33	0.05	0.28	0.29	0.33	0.34	0.40
4900	0.36	0.05	0.30	0.31	0.35	0.37	0.43
5100	0.39	0.06	0.33	0.34	0.38	0.40	0.46

* Add these resistance values to the available static resistance in the respective Blower Performance Tables.
† Deduct these resistance values from the available external static pressure shown in the respective Blower Performance Table.
‡ The pressure drop through the economizer is greater for 100% outdoor air than for 100% return air. If the resistance of the return air duct system is less than 0.25 IWG, the unit will deliver less CFM during full economizer operation.

TABLE 32: ADDITIONAL STATIC RESISTANCE - METRIC

M^3S	Cooling Only*	Economizer† ‡	Electric Heat kW†				
			9	18	24	36	54
0.89	14.9	5.0	12.4	14.9	17.4	19.9	24.8
0.99	17.4	5.0	14.9	17.4	19.9	22.4	27.3
1.08	19.9	5.0	17.4	19.9	22.4	24.8	32.3
1.18	22.4	5.0	19.9	22.4	24.8	27.3	34.8
1.27	27.3	7.5	22.4	24.8	29.8	32.3	39.7
1.36	29.8	7.5	24.8	27.3	32.3	34.8	44.7
1.46	34.8	7.5	29.8	32.3	37.3	39.7	49.7
1.55	39.7	7.5	32.3	34.8	42.2	44.7	54.6
1.65	44.7	9.9	37.3	39.7	47.2	49.7	59.6
1.74	49.7	9.9	42.2	44.7	52.2	49.7	64.6
1.83	57.1	9.9	47.2	49.7	57.1	59.6	69.5
1.93	62.1	9.9	52.2	54.6	62.1	64.6	77.0
1.02	69.5	12.4	57.1	59.6	69.5	72.0	84.4
2.12	74.5	12.4	62.1	64.6	74.5	77.0	91.9
2.21	82.0	12.4	69.5	72.0	82.0	84.4	99.3
2.30	89.4	12.4	74.5	77.0	86.9	91.9	106.8
2.40	96.9	14.9	82.0	84.4	94.4	99.3	114.2

* Add these resistance values to the available static resistance in the respective Blower Performance Tables.
† Deduct these resistance values from the available external static pressure shown in the respective Blower Performance Table.
‡ The pressure drop through the economizer is greater for 100% outdoor air than for 100% return air. If the resistance of the return air duct system is less than 62.1 Pa, the unit will deliver less M3S during full economizer operation.

TABLE 33: ELECTRIC HEAT MINIMUM SUPPLY AIR - IMPERIAL

HEATER		UNIT MODEL SIZE, NOMINAL TONS	
kW	VOLTAGE	7.5	10
		MINIMUM SUPPLY AIR CFM	
9	380/415	2250	N/A
18		2250	3000
24		2250	3000
36		2250	3000
54		N/A	3000

TABLE 34: ELECTRIC HEAT MINIMUM SUPPLY AIR - METRIC

HEATER		UNIT MODEL SIZE, NOMINAL TONS	
kW	VOLTAGE	7.5	10
		MINIMUM SUPPLY AIR M^3S	
9	380/415	1.06	N/A
18		1.06	1.42
24		1.06	1.42
36		1.06	1.42
54		N/A	1.42

TABLE 35: INDOOR BLOWER SPECIFICATIONS

MODEL	MOTOR					MOTOR SHEAVE			BLOWER SHEAVE			BELT
	HP	RPM	Eff.	SF	Frame	Datum Dia. (in.)	Bore (in.)	Model	Datum Dia. (in.)	Bore (in.)	Model	
BP090	1-1/2	1725	80%	1.15	56	3.4 - 4.4	7/8	1VM50	7.5	1	AK79	A55
	2	1725	80%	1.15	56	3.4 - 4.4	7/8	1VM50	6.5	1	AK69	A53
BP120	2	1725	80%	1.15	56	3.4 - 4.4	7/8	1VM50	7.0	1	AK74	A54
	3	1725	80%	1.15	184T	4.3 - 5.3	1-1/8	1VP56	6.2	1	BK72	BX56

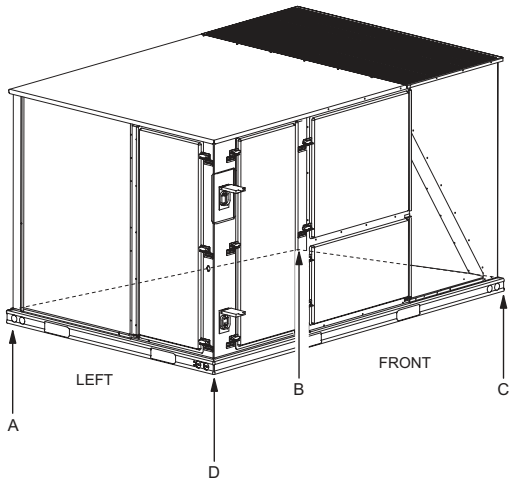


FIGURE 2 - UNIT 4 POINT LOAD

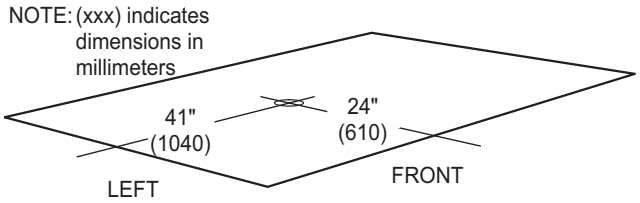


FIGURE 3 - UNIT CENTER OF GRAVITY

TABLE 36: 4 POINT LOAD WEIGHT

MODEL	LOCATION LBS. (KG)			
	A	B	C	D
BP090	242 (109)	207 (94)	301 (137)	353 (160)
BP120	265 (120)	226 (103)	330 (150)	386 (175)

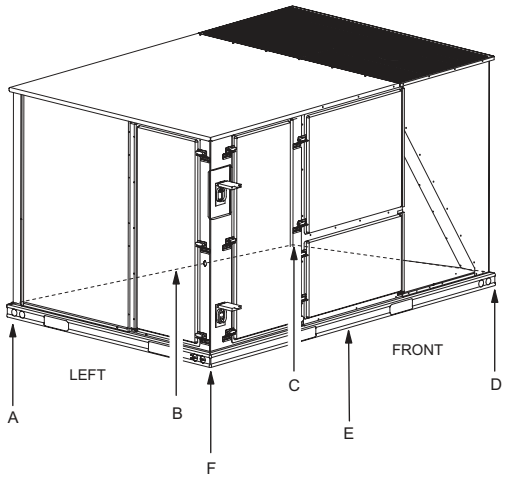


FIGURE 4 - UNIT 6 POINT LOAD

TABLE 37: 6 POINT LOAD WEIGHT

MODEL	LOCATION LBS. (KG)					
	A	B	C	D	E	F
BP090	166 (75)	149 (68)	134 (61)	196 (89)	217 (98)	242 (110)
BP120	181 (82)	163 (80)	147 (67)	214 (97)	237 (108)	264 (120)

TABLE 38: UNIT WEIGHTS

MODEL	SHIPPING WEIGHT LB. (kg)	OPERATING WEIGHT LB. (kg)
BP090	1108 (503)	1103 (500)
BP120	1212 (550)	1207 (547)
Econ.	85 (39)	84 (38)
w/ PE	150 (68)	148 (67)
Elec. Heat*	49 (22)	49 (22)

* 54kW heater.

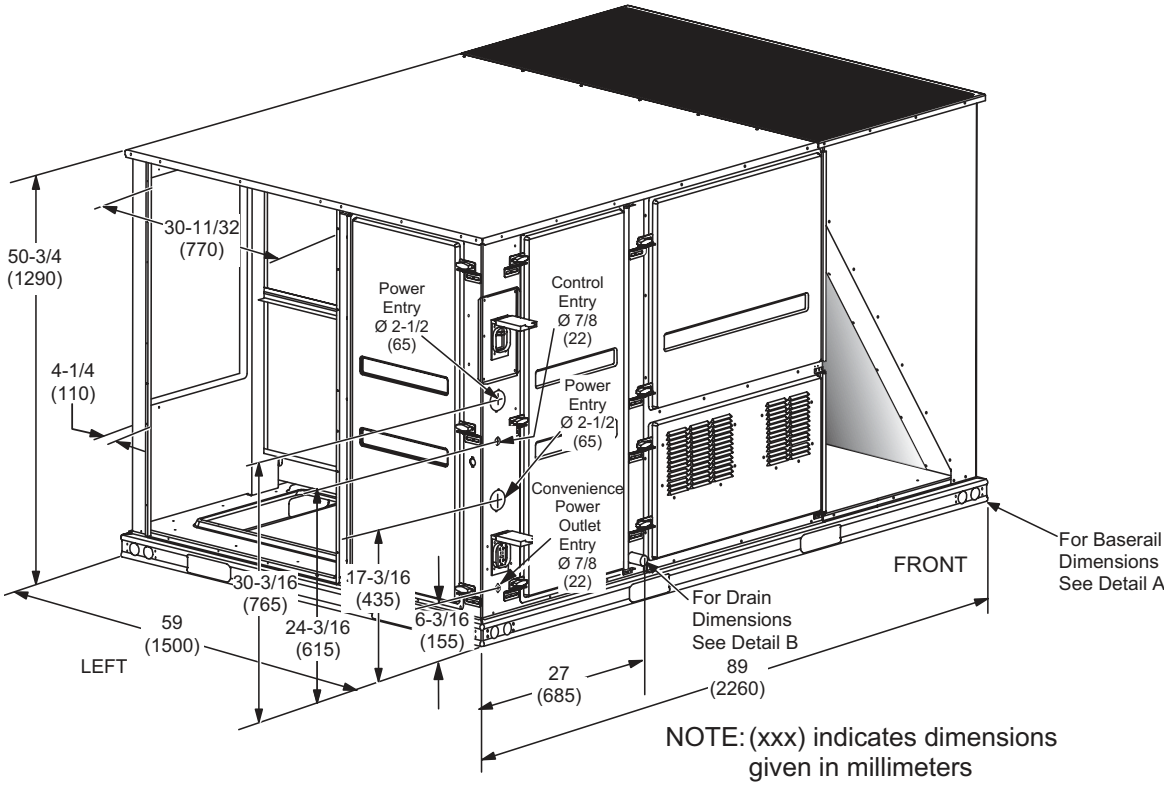


FIGURE 5 - UNIT DIMENSIONS

TABLE 39: UNIT CLEARANCES*

Top†	72 (1830)	Right	12 (305)
Front	36 (915)	Left	36 (915)
Rear‡	36 (915)	Bottom**	0 (0)

* In inches and millimeters, in.(mm).

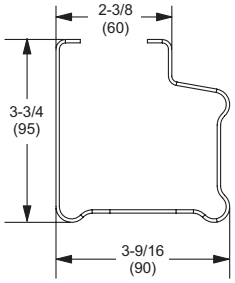
† Units must be installed outdoors. Overhanging structure or shrubs should not obstruct condenser air discharge outlet.

‡ To remove the slide-out drain pan, a rear clearance of 60" (1525 mm) is required. If space is unavailable, the drain pan can be removed through the front by separating the corner wall.

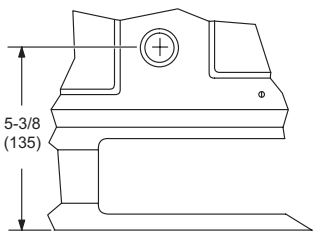
** Units may be installed on combustible floors.

NOTE: A one-inch clearance must be provided between any combustible material and the supply ductwork for a distance of 3 feet from the unit.

DETAIL A



DETAIL B



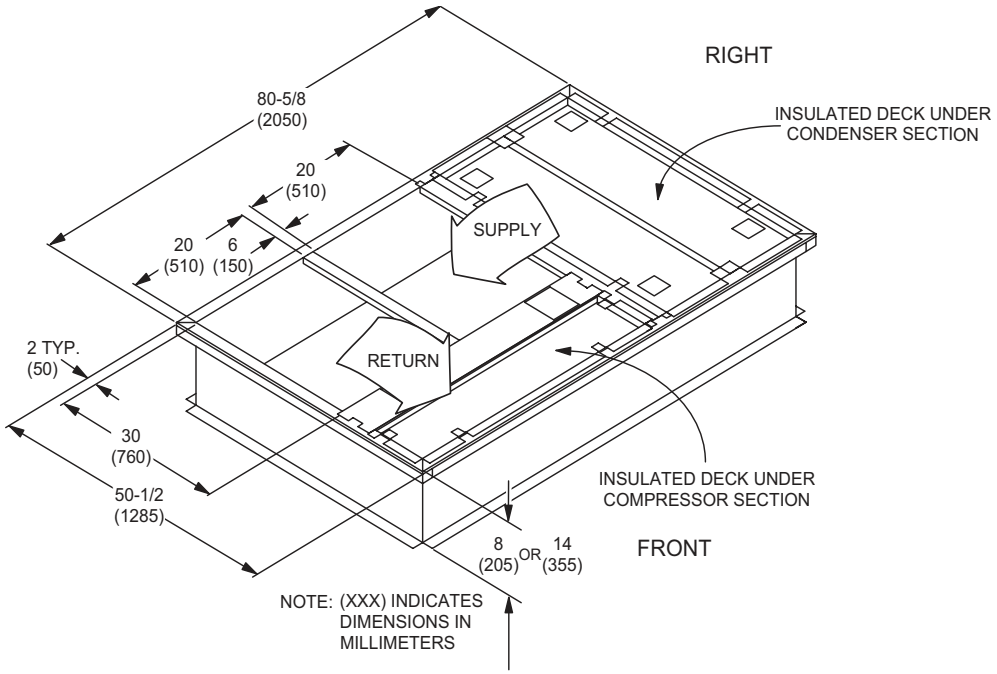


FIGURE 6 - PREDATOR® ROOF CURB DIMENSIONS

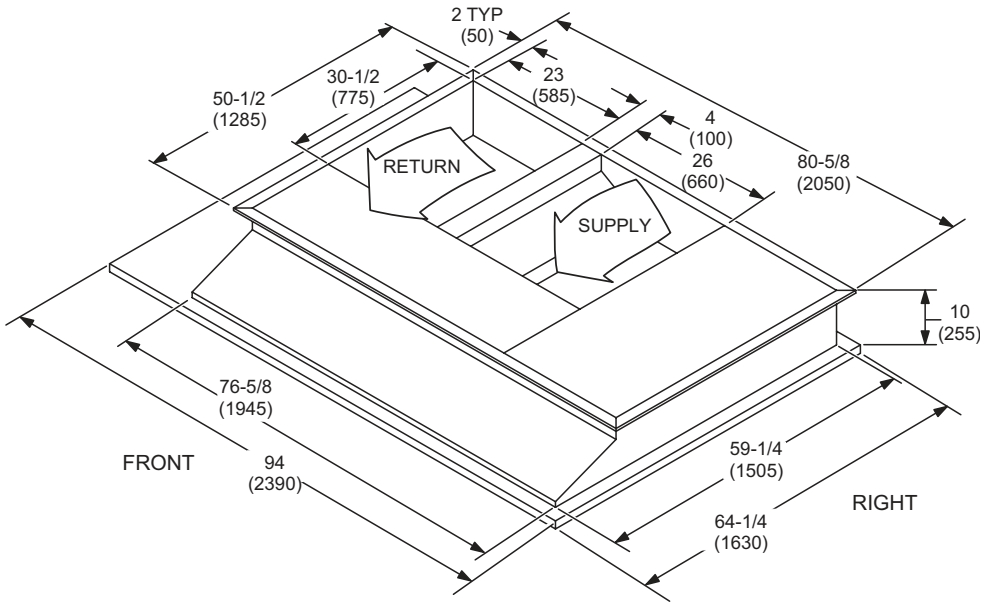


FIGURE 7 - SUNLINE™ TO PREDATOR ® TRANSITION ROOF CURBS

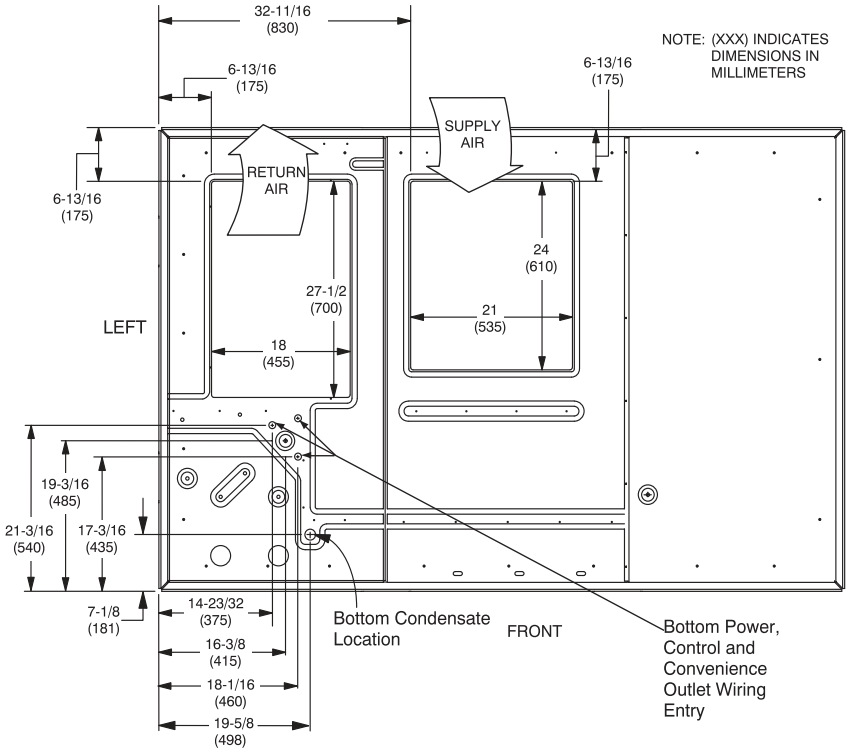


FIGURE 8 - BOTTOM DUCT OPENINGS (FROM ABOVE)

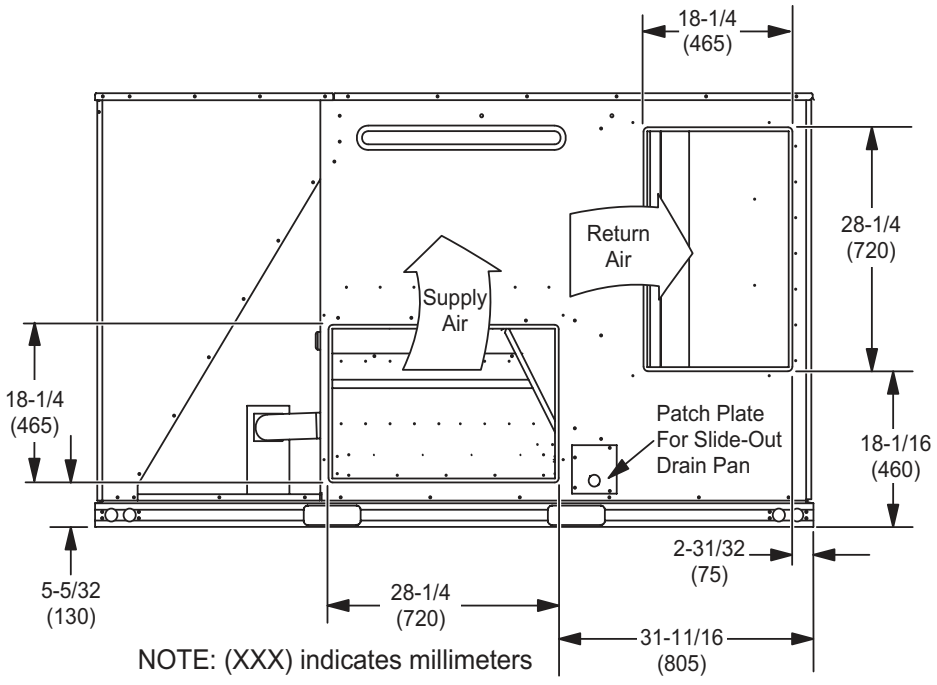


FIGURE 9 - REAR DUCT DIMENSIONS

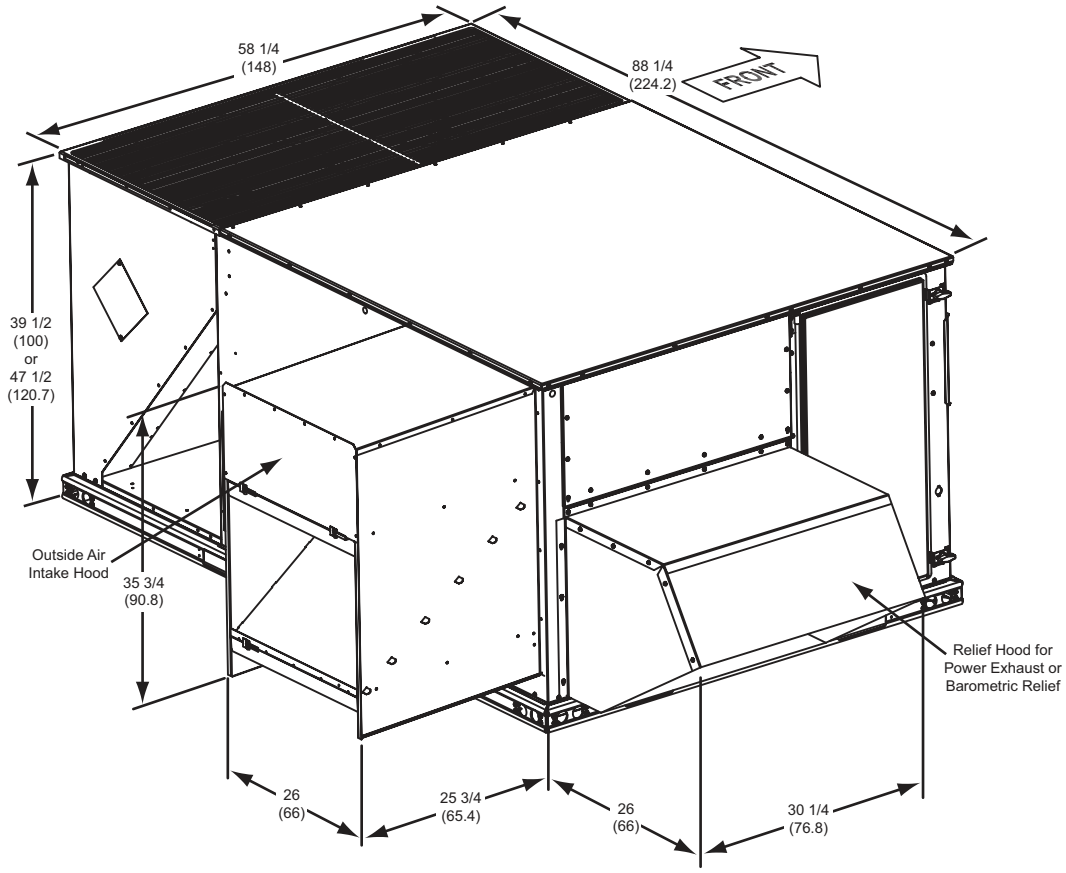


FIGURE 10 -DOWNFLOW ECONOMIZER HOOD DETAIL

TABLE 41: ECONOMIZER USAGE

Application	Cabinet Height	Description	Model
Bottom Return	All	Downflow economizer with barometric relief	2EE04705424
Side Return	All	Horizontal economizer without barometric relief	2EE04705524*
ERV or End Return	42"	Slab Economizer, 42" tall cabinet	2EE04705624†
	50"	Slab Economizer, 50" tall cabinet	2EE04705224†

* Barometric relief must be ordered seperately and installed in duct work.

† Barometric relief or fresh air hood notincluded. Must be ordered seperately.

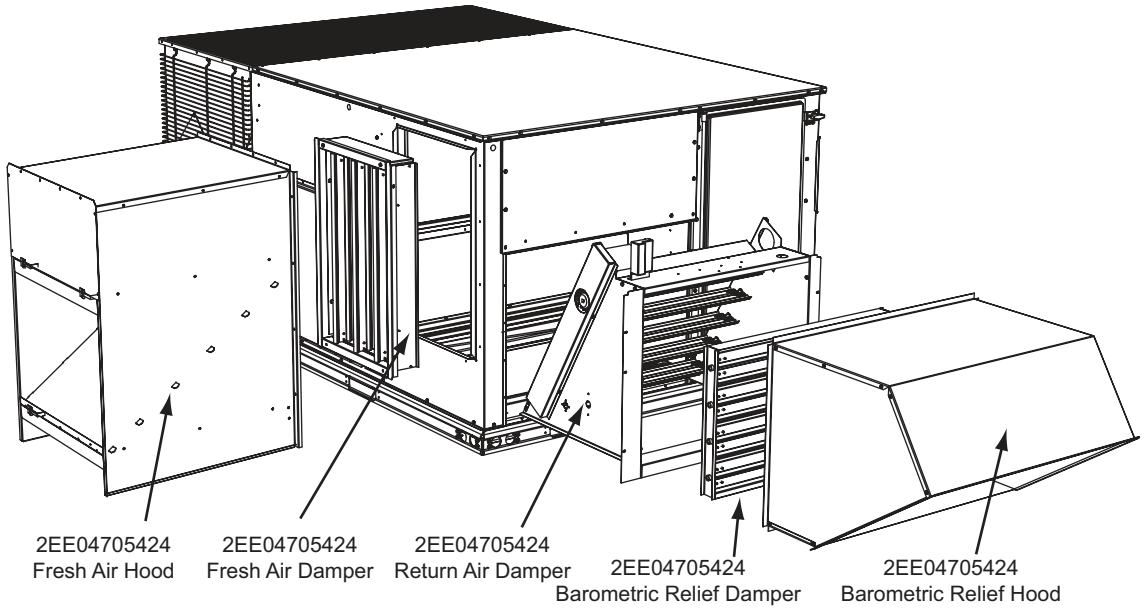


FIGURE 11 - FACTORY INSTALLED DOWNFLOW ECONOMIZER

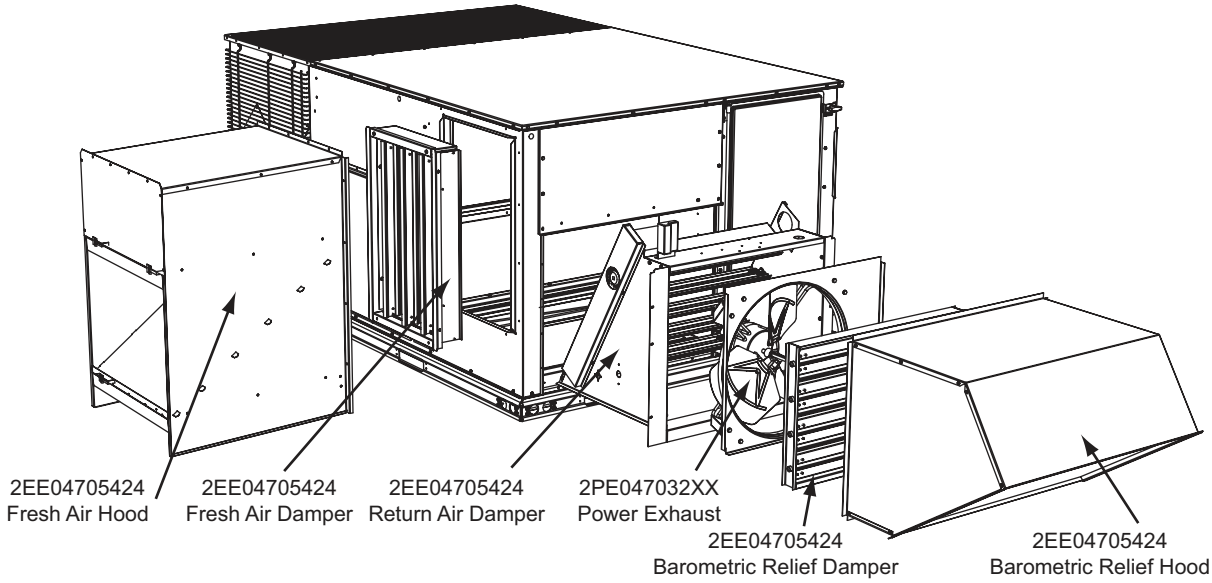


FIGURE 12 - FIELD INSTALLED DOWNFLOW ECONOMIZER W/POWER EXHAUST

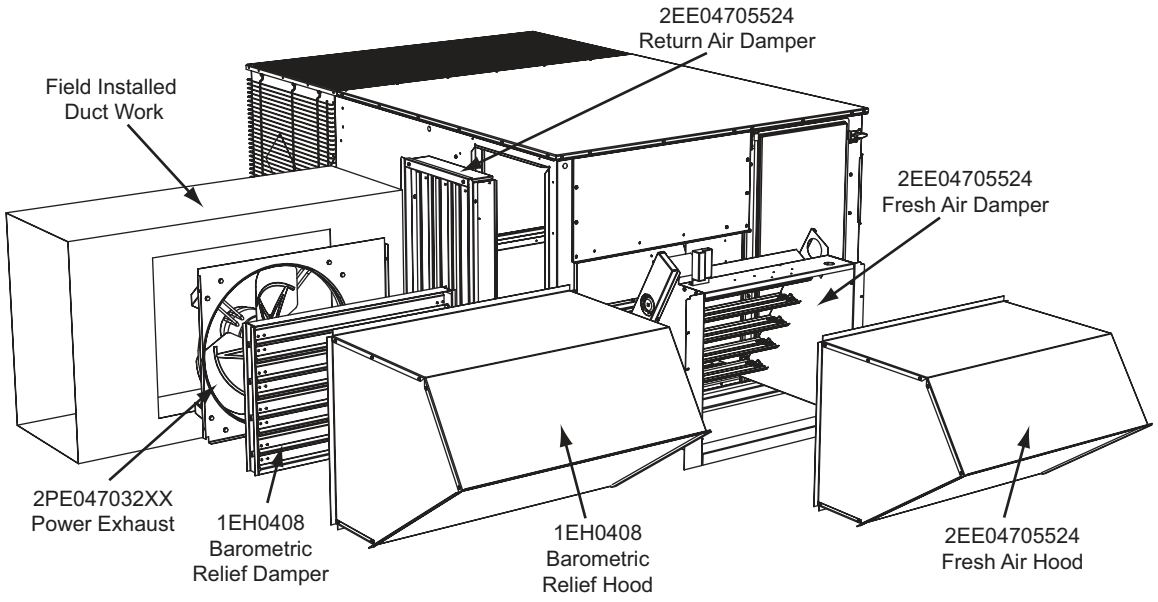


FIGURE 13 - FIELD INSTALLED HORIZONTAL ECONOMIZER W/POWER EXHAUST

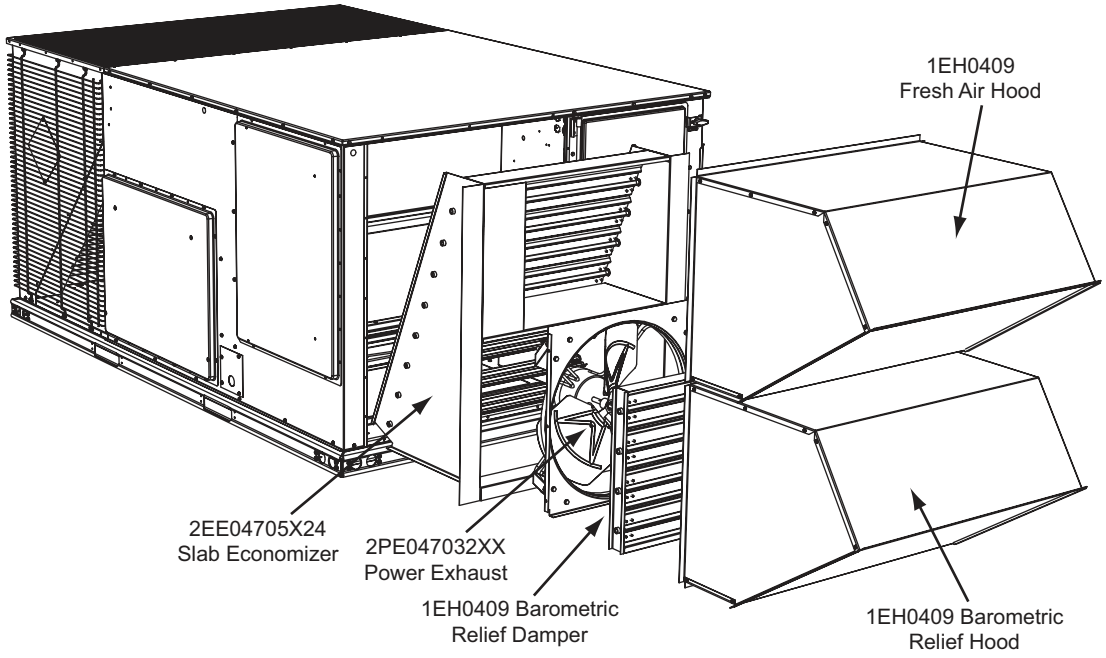


FIGURE 14 - SLAB ECONOMIZER DOWNFLOW W/POWER EXHAUST

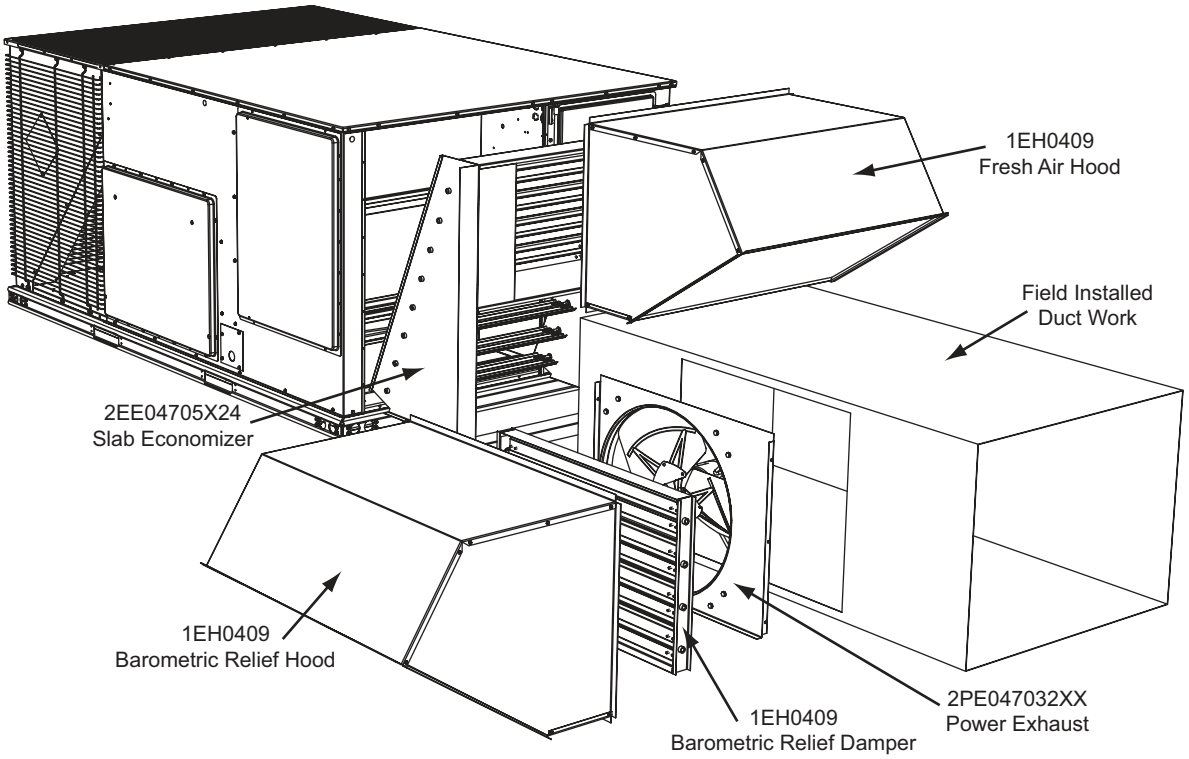


FIGURE 15 - SLAB ECONOMIZER END RETURN W/POWER EXHAUST

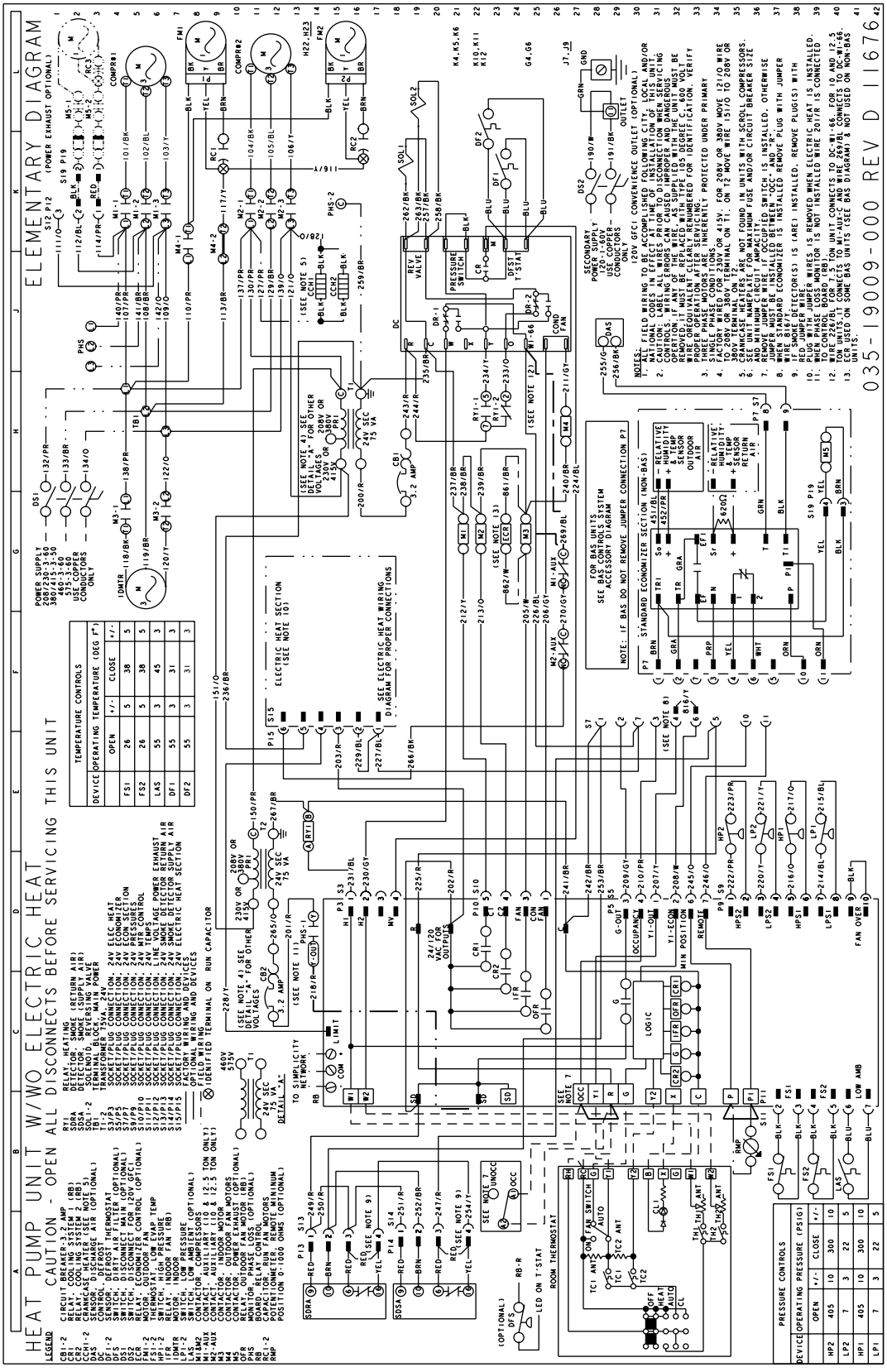


FIGURE 16 - 7-1/2 & 10 TON HEAT PUMP WITH OR WITHOUT ELECTRIC HEAT WIRING DIAGRAM

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