Product catalog

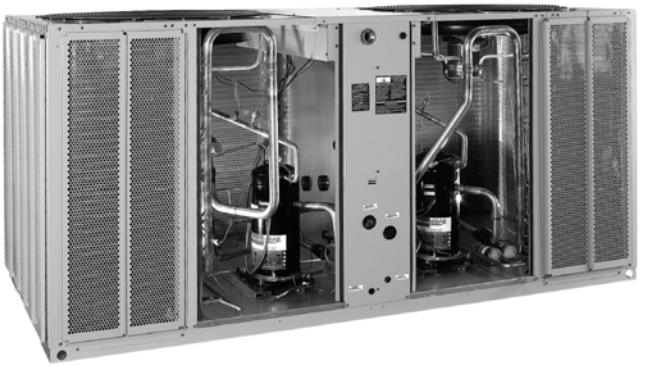
Split System Heat Pump
Odyssey™ — TWA, TWE

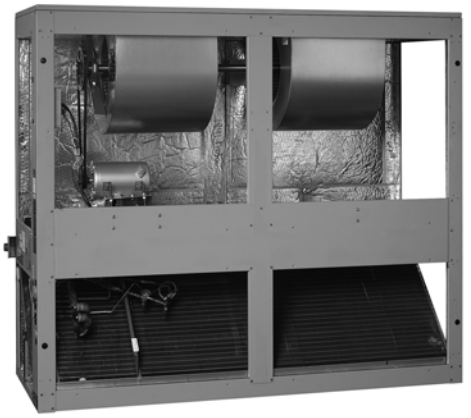
Heat Pump Units — 6 - 20 Tons — 60 Hz
Air Handlers — 5 - 20 Tons — 60 Hz

April 2011

SSP-PRC023-EN

Introduction





Trane's reputation for providing quality comfort solutions continues with the development of the next generation Light Commercial Odyssey Split Systems.

With wide network availability, flexible applications, installation ease, built-in reliability and easy servicing, Odyssey will meet any number of customer applications. Add to that Trane's outstanding customer service and you have the formula to make Odyssey the clear choice for continued customer satisfaction.

Wide network availability

A broad distribution network provides owners, maintenance personnel, contractors, etc., the means to get their hands on equipment when they need it. Whether it's an emergency replacement or a new construction project in its infancy stages, Trane's Odyssey products meet an array of needs at the right time and right price.

Flexible applications

No matter what the application, Odyssey provides the solution. A broad array of models and tonnages are available with single or dual compressors, single or dual circuits and numerous accessories. Condensing units can be installed on the ground or on a rooftop along with extended piping runs, while air handlers can be free discharge on the ground or horizontally suspended with long duct runs from a ceiling. Should application challenges arise, Odyssey delivers.

Easy to install

Small footprints and low weights combined with factory installed components like TXVs, filter driers, etc., reduce installation time and cost. Colored and numbered wiring and factory tested units make Odyssey the right choice.

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Built-in reliability

Keeping in mind that productivity only occurs when equipment is operational, Trane has taken the steps to ensure that Odyssey is up and running. Early indicators such as phase/reversal monitors and loss of charge protection provide diagnostics which prevent failure and provide years of worry-free service and operation.

Easy to service

When preventive maintenance or service is required, technicians will find efficient access to both air handlers and condensers. Panels provide complete, easy access coupled with standardized cabinets in which all components are located in proximity. Odyssey's improved design results in minimum service times and costs.

With these capabilities, Odyssey provides customers high efficiency and superior performance for the best all-around value in the market today.

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Features & Benefits

Standard Features

- 5-year Limited Compressor Warranty[1]
- 1-year Limited Parts Warranty
- Anti-Short Cycle Timer
- Colored and Numbered Wiring
- Convertible Airflow
- Crankcase Heaters
- Easy Access Low Voltage Terminal Board (LTB)
- ReliaTel™ Microprocessor Controls
- Filters are Standard on all Units
- Foil-Faced and Edge Captured Insulation
- High Pressure Control
- IAQ Dual Sloped and Removable Drain Pans
- Liquid Line Refrigerant Drier
- Low Ambient Cooling to 0°F
- Low Pressure Control
- Belt Drive Motors
- Phase Loss/Reversal Monitor
- Quick Access Panels
- Single Point Power
- Single Side Service
- Standardized Components
- Thermal Expansion Valve
- Scroll Compressors
- FrostStat™ - Evaporator Defrost Control (EDC)
- Low Voltage Circuit Protection
- Compressor Discharge Temperature Limit (DTL)

Options

Note: *Refer to Model Number Description for option availability.*

Factory Installed Options

- Black Epoxy Pre-Coated Coils

Factory or Field Installed Options

- LonTalk® Communications Interface (LCI)
- Hail/Vandal Guards

[1] Not available for 20 Ton.

Field Installed Options

- High Static Motor Kit
- Low Static Motor Kit
- Electric Heaters
- Trane Communications Interface (TCI)
- Vibration Isolators
- Hot Gas Bypass
- Zone Sensor
- Wireless Zone Sensor
- Thermostat
- Low Ambient

Other Benefits

- Cabinet design ensures water integrity
- Ease of Service, Installation and Maintenance
- Mixed model build enables “fastest in the industry” ship cycle times
- Outstanding Airflow Distribution
- ReliaTel Controls
- Unmatched Product Support is one of our finest assets. Trane Sales Representatives are a Support Group that can assist you with:
  - Product
  - Application
  - Service
  - Training
  - Special Applications
  - Specifications
  - Computer Programs and much more

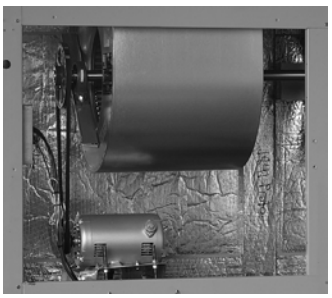
Standard Features

Anti-Short Cycle Timer

Provides a 3 minute minimum “ON” time and 3 minute “OFF” time for compressors to enhance compressor reliability by assuring proper oil return.

Belt Drive Motors

For additional static requirements, Odyssey 5-20 ton units offer standard belt drive motors to meet and exceed a wide range of airflow needs.



Colored And Numbered Wiring

Save time and money tracing wires and diagnosing the unit.

Compressors

Odyssey contains the best compressor technology available to achieve the highest possible performance. Dual compressors perform very well under part load cooling conditions and system back-up applications. Dual compressors are available on 15-20 ton models and allow for efficient cooling utilizing 2-stages of compressor operation.

Controls – ReliaTel

ReliaTel microprocessor controls provide unit control for heating, cooling and ventilating - utilizing input from sensors that measure indoor and outdoor temperature and other zone sensors. ReliaTel also provides outputs for building automation systems and expanded diagnostics. For a complete list of ReliaTel offerings, refer to the "Other Benefits" section within the Features and Benefits section of this catalog.

Convertible Units

The units ship in a horizontal configuration. They can be easily converted to vertical by simply repositioning the drain pan. Units come complete with duct flanges so the contractor doesn't have to field fabricate them. These duct flanges are a time and cost saver.

Crankcase Heaters

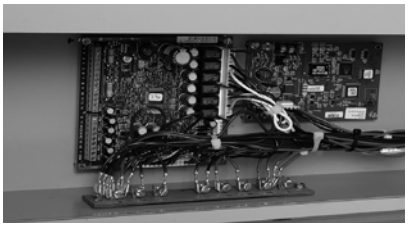
These band heaters provide improved compressor reliability by warming the oil to prevent migration during off-cycles or low ambient conditions.

Dual Sloped Drain Pans

Every Odyssey unit has a non-corrosive, removable, double sloped drain pan that's easy to clean and reversible to allow installation of drain trap in two positions on either side of the unit.

Easy Access Low Voltage Terminal Board

Odyssey's Low Voltage Terminal Board is external to the line voltage electrical cabinet. It is extremely easy to locate and attach the thermostat wire and test operation of all unit functions. This is another cost and time saving installation feature.



Foil Faced Insulation

All internal air handler surfaces have cleanable foil-faced insulation. All edges are either captured or sealed to ensure insulation fibers do not get into the airstream.

Frostat™

This control utilizes a capillary bulb embedded in the face of the evaporator coil which monitors coil temperature to inhibit evaporator icing and protect the compressor. Recommended for applications with low leaving air temperatures, low airflow and/or high latent load applications.

High Pressure Control

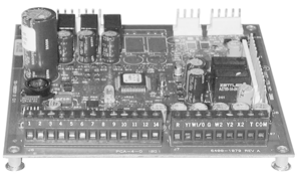
All units include High Pressure Control as standard.

Low Ambient Cooling

All Odyssey microprocessor units have cooling capabilities down to 0°F as standard.

Low Voltage Connections

The wiring of the low voltage connections to the unit and the zone sensors is as simple as 1-1, 2-2, and 3-3. This simplified system makes it easy for the installer to wire.



Phase Monitor/Reversal Protection

Phase monitor shall provide 100% protection for motors and compressors against problems caused by phase loss, phase imbalance, and phase reversal. Phase monitors are equipped with an LED that provides an ON or FAULT indicator.

Quick-Access Panels

Remove a few screws for access to the standardized internal components and wiring.

Single Point Power

A single electrical connection powers the unit.

Single Side Service

Single side service is standard on all units.

Standardized Components

Components are placed in the same location on all Odyssey units. Because of these standardized components throughout the Odyssey line, contractors/owners can stock fewer parts.

Thermal Expansion Valve with Bypass Check Valves

This feature is standard on all indoor units.

Variety of Options

Factory Installed Options

Note: *Refer to Model Number Description or Mechanical Specifications for availability.*

Black Epoxy Pre-Coated Coils

The pre-coated coils are an economical option for protection in mildly corrosive environments.

Factory or Field Installed Options

Note: *Refer to Model Number Description for option availability.*

LonTalk® Communications Interface

The LonTalk communications interface allows the unit to communicate as a Tracer™ LCI-V device or directly with generic LonTalk Network Building Automation System Controls.

Hail/Vandal Guards

These coil guards shall be either factory or field installed for condenser coil protection. This feature protects the condenser coil from vandalism and/or hail damage. When ordered factory installed, it also adds additional shipping protection.

Field Installed Options

Note: *Refer to Model Number Description or Mechanical Specifications for availability.*

Trane Communication Interface (TCI)

This module, when applied with ReliaTel™, easily interfaces with Trane's Integrated Comfort™ System.

Electric Heaters

Electric heat modules are available in a variety of voltages and capacities.

High/Low Static Motor

Available on many models, this high static motor accessory extends the capability of the standard unit.

Low Ambient

Provides ability to cool space when outdoor ambient is below 50°F. Choice of fan on/off or modulating control.

Zone Sensors/Thermostats

Available in wireless, programmable, automatic and manual styles.

Other Benefits

Airflow Distribution

Airflow is outstanding. Odyssey can replace an older machine with old ductwork and, in many cases, improve the comfort through better air distribution.

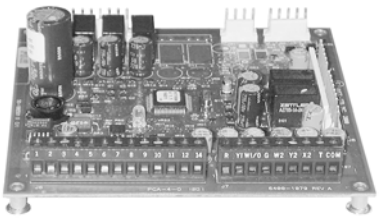
Easy to Install, Service and Maintain

Because today's owners are very cost-conscious when it comes to service and maintenance, the Trane Odyssey was designed with direct input from service contractors. This valuable information helped to design a product that would get the service person off the job quicker and save the owner money. Odyssey offers outstanding standard features enhanced by a variety of factory and field installed options, multiple control options, rigorously tested proven designs and superior product and technical support.

Flexibility

Odyssey offers ultimate flexibility. Units are built to order in our standard "shortest in the industry" ship cycle time.

ReliaTel™ Controls



ReliaTel controls provide unit control for heating and cooling, utilizing input from sensors that measure outdoor and indoor temperature.

ReliaTel Control Logic Enhances Quality and Reliability

- prevents the unit from short cycling, considerably improving compressor life.
- ensures that the compressor will run for a specific amount of time which allows oil to return for better lubrication, enhancing the reliability of the compressor.

Odyssey units with ReliaTel reduces the number of components required to operate the unit, thereby reducing possibilities for component failure.

ReliaTel Makes Installing and Servicing Easy

ReliaTel eliminates the need for field installed time delay relays.

ReliaTel controls provide these functions as an integral part of the unit. The contractor no longer has to purchase these controls as options and pay to install them.

The wiring of the low voltage connections to the unit and the zone sensors is as easy as 1-1, 2-2, and 3-3. This simplified system makes wiring easier for the installer.

ReliaTel Makes Testing Easy

ReliaTel requires no special tools to run the Odyssey unit through its paces. Simply place a jumper between Test 1 (T1) and Test 2 (T2) terminals on the Low Voltage Terminal Board and the unit will walk through its operational steps automatically.

The unit automatically returns control to the zone sensor after stepping through the test mode a single time, even if the jumper is left on the unit.

As long as the unit has power and the "system" LED is lit, ReliaTel is operational. The light indicates that the controls are functioning properly.

ReliaTel features expanded diagnostic capabilities when utilized with Trane Integrated Comfort™ Systems.

Some zone sensor options have central control panel lights which indicate the mode the unit is in and possible diagnostic information.

Other ReliaTel Benefits

The ReliaTel built-in anti-short cycle timer, time delay relay and minimum “on” time control functions are factory tested to assure proper operation.

ReliaTel softens electrical “spikes” by staging on fans, compressors and heaters.

Intelligent Fallback is a benefit to the building occupant. If a component fails, the unit will continue to operate at predetermined temperature setpoint.

Intelligent Anticipation is a standard ReliaTel feature. It functions continuously as ReliaTel and zone sensor(s) work together in harmony to provide much tighter comfort control than conventional electromechanical thermostats.

The same ReliaTel Board fits all Split System Cooling and Heat Pump models. This provides standardization of parts for contractors. Less money is tied up in inventory with ReliaTel.

Unit Cabinet

The compact cabinet takes up less room and is less costly to ship.

Rigorous Testing

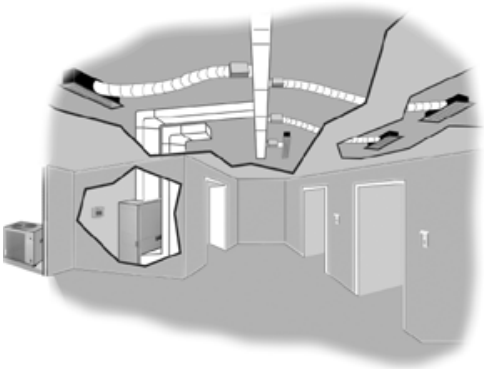
All of Odyssey’s designs are rigorously rain tested to ensure water integrity. Actual shipping tests are performed to determine packaging requirements. Units are test shipped around the country to determine the best packaging. Factory shake and drop tests are used as part of the package design process to help assure that the unit arrives at the job site in top condition.

Rigging tests include lifting a unit into the air and letting it drop one foot, assuring that the lifting lugs and rails hold up under stress. A 100% coil leak test is performed at the factory. The condenser coils are leak tested at 660 psig and evaporators to 450 psig.

All parts are inspected at the point of final assembly. Sub-standard parts are identified and rejected immediately. Every unit receives a 100% unit run test before leaving the production line to ensure it lives up to rigorous Trane requirements.

VariTrac – Building Automation System

When Trane’s changeover VAV System for light commercial applications is coupled with Odyssey, it provides the latest in technological advances for comfort management systems and can allow thermostat control in every zone served by VariTrac.



Accessories

TWA Accessories

MODEL	DESCRIPTION	USED WITH
Coil Guard		
BAYGARD058A	Hail/Vandal Guard	TWA073, TWA090
BAYGARD060A	Hail/Vandal Guard	TWA120
BAYGARD061A	Hail/Vandal Guard	TWA180, TWA240
Isolators		
BAYISLT005A	Rubber Isolator Floor (black)	TWA073D-TWA120D
BAYISLT009A	Rubber Isolator Floor (red)	TWA180E
BAYISLT010A	Rubber Isolator Floor (green)	TWA240E
BAYISLT023A	Steel Spring Isolator Floor (red)	TWA073D, TWA090D, TWA120D
BAYISLT024A	Steel Spring Isolator Floor (black)	TWA180E
BAYISLT025A	Steel Spring Isolator Floor (yellow)	TWA240E
Low Ambient		
BAYLOAMU01A[(a)(b)(c)(d)(e)]	On/Off Fan Control Mounted in External Enclosure (small cabinets)	TWA073-090 (all voltages)
BAYLOAMU02A[(b)(c)(d)(e)]	On/Off Fan Control Mounted in Unit Control Box (large cabinets)	TWA120-240 (all voltages)
BAYLOAM335A[(c)]	Head Pressure Control w/ 208-230V 0.5 HP Hi-Eff Motor	TWA073D3, TWA090D3
BAYLOAM336A[(c)]	Head Pressure Control w/ 208-230V 1 HP Hi-Eff Motor	TWA120D3, TWA180E3, TWA240E3
BAYLOAM435A[(c)]	Head Pressure Control w/ 380-460V 60 or 50hz 0.5HP Hi-Eff Motor	TWA061DD, TWA073D4, TWA076DD, TWA090D4
BAYLOAM436A[(c)]	Head Pressure Control w/ 380-460V 60 or 50hz 1 HP Hi-Eff Motor	TWA120D4,TWA180E4,TTA240E4
BAYLOAMW36A[(c)]	Head Pressure Control w/ 575V 1 HP Hi-Eff Motor	TWA120DW, TWA180EW, TTA240EW
BAYLOTR001A[(c)]	Transducer Kit for Head Pressure Control (BAYLOAM335, 336, 435, 436, W36)	TWA073-240
Trane Communication Interface		
BAYICSI003A	Comm 3/4 Communications Interface	TWA073D-TWA240E
LonTalk Communications Interface		
BAYLTCI002B	LonTalk Communications Interface	TWA073D-TWA240E
Time Delay Relay		
BAYRLAY002	Time Delay Relay	TWA090D-TWA240E
BAYRLAY005	Heat Pump interlock relay	All TWA units with Bayloam application requirements
Wire Kit		
BAYWRKT003A[(f)]	Heat Pump configuration wiring harness	TWA180E, TWA240E

(a) Kit mounts external to the outdoor unit and operates by sensing ambient and liquid line temperatures.
(b) Cycles fan on/off, (no modulating).
(c) Quantity of 1 required for each fan (2 total for TTA/TWA180-240).
(d) Heat pumps require BAYRLAY005 for BAYLOAM applications.
(e) Reliatel requires onboard EDC function to be disabled when BAYLOAM is used, remove OA sensor from terminal J8-1&2.
(f) Used on dual circuit heat pump condensers with a field installed LCI card for independent mechanical heating operation configuration.

TWE Accessories

MODEL	DESCRIPTION	USED WITH
Base (Subbase)		
BAYBASE009A	Subbase	TWE061D/E
BAYBASE0010A		TWE090D/E
BAYBASE0011A		TWE120D/E
BAYBASE0012A		TWE150E, TWE180E
BAYBASE0013A		TWE240E
Drip Kit		
BAYDRKT006A	Drip Kit	TWE061D/E
BAYDRKT007A		TWE090D/E
BAYDRKT008A		TWE120D/E
BAYDRKT009A		TWE150E, TWE180E
BAYDRKT010A		TWE240E
Isolators		
BAYISLT004A[(a)(b)(c)(d)]	Rubber Isolator Floor (blue)	TWE061D-TWE120E
BAYISLT009A[(a)(b)(c)]	Rubber Isolator Floor (red)	TWE150E, TWE180E
BAYISLT010A[(a)(b)(c)]	Rubber Isolator Floor (green)	TWE240E
BAYISLT012B[(c)]	Rubber Isolator Suspended (red/green)	TWE150E, TWE180E
BAYISLT013B[(c)(d)]	Rubber Suspended (red/green)	TWE061D/E
BAYISLT014A[(c)(d)]	Rubber Suspended (green)	TWE090D/E
BAYISLT015B[(c)(d)]	Rubber Suspended (green/black)	TWE120D/E
BAYISLT016B[(c)]	Rubber Suspended (red/green)	TWE240E
BAYISLT019A[(a)(b)(c)]	Steel Spring Isolator Floor (red)	TWE061D/E, TWE090D/E, TWE120D/E
BAYISLT021A[(a)(b)(c)]	Steel Spring Isolator Floor (black)	TWE150E, TWE180E
BAYISLT032A[(a)(b)(c)]	Steel Spring Isolator Floor (black/yellow)	TWE240E
BAYISLT028A[(c)]	Steel Spring Isolator Suspended (tan)	TWE061D/E
BAYISLT029A[(c)]	Steel Spring Isolator Suspended (red)	TWE090D/E, TWE120D/E
BAYISLT030A[(c)]	Steel Spring Isolator Suspended (black)	TWE150E, TWE180E
BAYISLT031B[(c)]	Steel Spring Isolator Suspended (black/yellow)	TWE240E
Low Static Drive Kit		
BAYLSMT001A	Low Static Drive Kit	TWE240E
Plenum		
BAYPLNM015B[(e)]	Discharge Plenum & Grille	TWE061D/E
BAYPLNM016B[(e)]		TWE090D/E
BAYPLNM017B[(e)]		TWE120D/E
BAYPLNM018B[(e)]	Discharge Plenum/Hydronic Coil Plenum & Grille	TWE150E, TWE180E
BAYPLNM019B[(e)]		TWE240E
BAYPLNM020B[(e)]	Hydronic Coil Discharge Plenum & Grille	TWE061D/E
BAYPLNM021B[(e)]		TWE090D/E
BAYPLNM022B[(e)]		TWE120D/E
BAYPLNM030A[(e)]	Electric Heat Discharge Plenum & Grille	TWE061D/E
BAYPLNM031A[(e)]		TWE090D/E
BAYPLNM032A[(e)]		TWE120D/E
BAYPLNM033A[(e)]		TWE150E, TWE180E
BAYPLNM034A[(e)]		TWE240E

TWE Accessories (continued)

MODEL	DESCRIPTION	USED WITH
Return Air Grille		
BAYGRLE001A	Return Air Grille	TWE061D/E
BAYGRLE002A		TWE090D/E
BAYGRLE003A		TWE120D/E
BAYGRLE004A		TWE150E, TWE180E
BAYGRLE005A		TWE240E
Transformer		
BAYTFMR011A(f)	75va transformer (230V)	TWE090D3, TWE090E3, TWE120D3, TWE120E3
BAYTFMR012A(f)	75va transformer	TWE090D4/W, TWE090E4/W, TWE120D4/W, TWE120E4/W
Water Kits		
BAYWATR022A(e)	Steam Coil Enclosure	TWE061D/E
BAYWATR023A(e)		TWE090D/E
BAYWATR024A(e)		TWE120D/E
BAYWATR025A(e)		TWE150E, TWE180E
BAYWATR026A(e)		TWE240E
BAYWATR027A(e)	Hot Water Coil Enclosure	TWE061D/E
BAYWATR028A(e)		TWE090D/E
BAYWATR029A(e)		TWE120D/E
BAYWATR030A(e)		TWE150E, TWE180E
BAYWATR031A(e)		TWE240E
Wire Kit		
BAYWRKT002A(g)	180° Blower Discharge Reversal Kit	TWE061D-TWE120E

(a) When the air handler is in the vertical position and close proximity trapping of condensate is required, use of subbase is required.
(b) Requires use of subbase accessory.
(c) In units with steam or hot water coils applied vertically or horizontally, check IOM for proper Isolator Kit selection.
(d) Do not use if blower will operate less than 600 RPM.
(e) When installed horizontally, plenum/water coil must be self-supported.
(f) Required when 6 -10 ton air handlers are matched with 3-6 ton condensing units.
(g) Cannot be used on TWE150-240, due to motor mount location.

Electric Heaters

MODEL	DESCRIPTION	USED WITH
6-10 Ton Electric Heater Selection		
BAYHTRL106A	4.33/5.76 KW Heater 208/240/1 Phase	TWE061D1-TWE120E1
BAYHTRL112A	8.65/11.52 KW Heater 208/240/1 Phase	TWE061D1-TWE120E1
BAYHTRL117A	12.98/17.28 KW Heater 208/240/1 Phase	TWE061D1-TWE120E1
BAYHTRL123A	17.30/23.04 KW Heater 208/240/1 Phase	TWE061D1-TWE120E1
BAYHTRL129A	21.65/28.80 KW Heater 208/240/1 Phase	TWE061D1-TWE120E1
BAYHTRL305A	3.75/5.00 KW Heater 208/240/3 Phase	TWE061D3-TWE120E3
BAYHTRL310A	7.45/9.96 KW Heater 208/240/3 Phase	TWE061D3-TWE120E3
BAYHTRL315A	11.25/14.96 KW Heater 208/240/3 Phase	TWE061D3-TWE120E3
BAYHTRL325A	18.71/24.92KW Heater 208/240/3 Phase	TWE061D3-TWE120E3
BAYHTRL335A	26.20/34.88 KW Heater 208/240/3 Phase	TWE061D3-TWE120E3
BAYHTRL405A	5.00 KW Heater 460/3 Phase	TWE061D4-TWE120E4
BAYHTRL410A	9.96 KW Heater 460/3 Phase	TWE061D4-TWE120E4
BAYHTRL415A	14.96 KW Heater 460/3 Phase	TWE061D4-TWE120E4
BAYHTRL425A	24.92 KW Heater 460/3 Phase	TWE061D4-TWE120E4
BAYHTRL435A	34.88 KW Heater 460/3 Phase	TWE061D4-TWE120E4
BAYHTRLW05A	5 KW Heater 575/3 Phase	TWE061DW-TWE120EW
BAYHTRLW10A	9.96 KW Heater 575/3 Phase	TWE061DW-TWE120EW
BAYHTRLW15A	14.96 KW Heater 575/3 Phase	TWE061DW-TWE120EW
BAYHTRLW25A	24.92 KW Heater 575/3 Phase	TWE061DW-TWE120EW
BAYHTRLW35A	34.88 KW Heater 575/3 Phase	TWE061DW-TWE120EW
12½ - 20 Ton Electric Heater Selection		
BAYHTRM310A	7.50/10.0 KW Heater 208/230 3 Phase	TWE150E3-TWE240E3
BAYHTRM320A	14.96/19.92 KW Heater 208/230 3 Phase	TWE150E3-TWE240E3
BAYHTRM330A	22.50/29.92 KW Heater 208/230 3 Phase	TWE150E3-TWE240E3
BAYHTRM350A	37.42/49.84 KW Heater 208/230 3 Phase	TWE150E3-TWE240E3
BAYHTRM410A	10.0 KW Heater 460/3 Phase	TWE150E4-TWE240E4
BAYHTRM420A	19.92 KW Heater 460/3 Phase	TWE150E4-TWE240E4
BAYHTRM430A	29.92 KW Heater 460/3 Phase	TWE150E4-TWE240E4
BAYHTRM450A	49.84 KW Heater 460/3 Phase	TWE150EW-TWE240EW
BAYHTRMW10A	10.0 KW Heater 575/3 Phase	TWE150EW-TWE240EW
BAYHTRMW20A	19.92 KW Heater 575/3 Phase	TWE150EW-TWE240EW
BAYHTRMW30A	29.92 KW Heater 575/3 Phase	TWE150EW-TWE240EW
BAYHTRMW50A	49.84 KW Heater 575/3 Phase	TWE150EW-TWE240EW

Application Considerations

Application of this product should be within the cataloged airflow and performance considerations.

Clearance Requirements

The recommended clearances identified with unit dimensions should be maintained to assure adequate serviceability, maximum capacity and peak operating efficiency. Actual clearances which appear inadequate should be reviewed with a local Trane Representative.

180° Blower Rotation

The 5, 7½ and 10 ton air handler blower section can be rotated 180° to change the discharge pattern. This modification must be done in the field and requires an additional kit. See unit installer's guide.

Low Ambient Cooling

As manufactured, these units can operate to 50°F in the cooling mode of operation. An accessory head pressure control will allow operation to 0°F outdoor ambient. When using these units with control systems such as bypass changeover Variable Air Volume, make sure to consider the requirement for a head pressure control to allow low ambient cooling.

Figure 1. Typical Split System Application

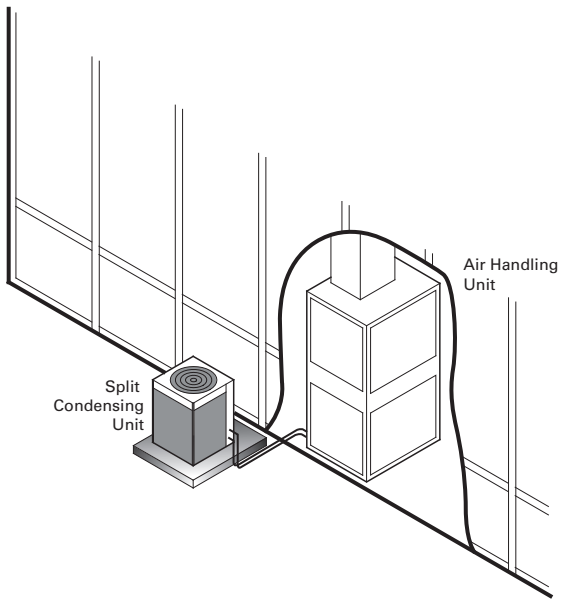


Figure 2. Typical Horizontal Air Handler Application

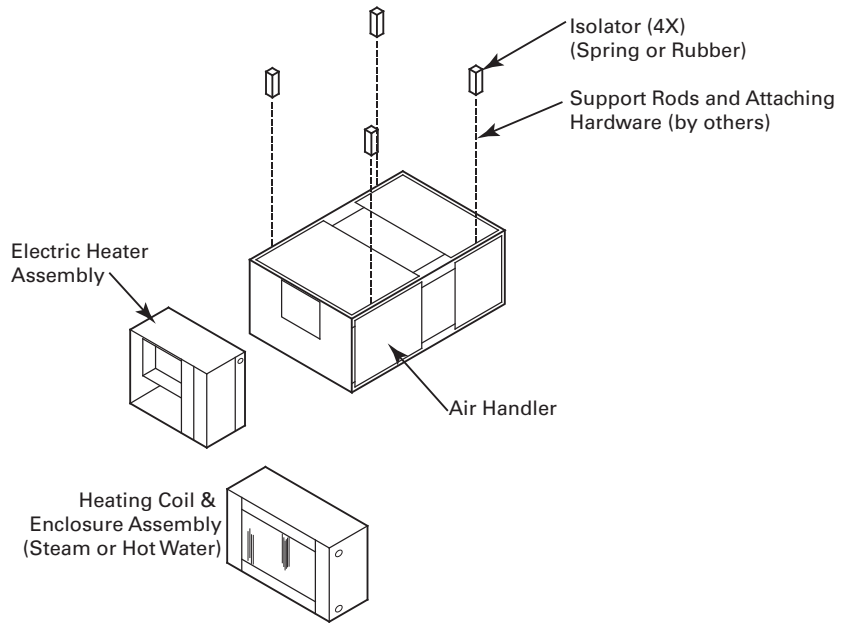
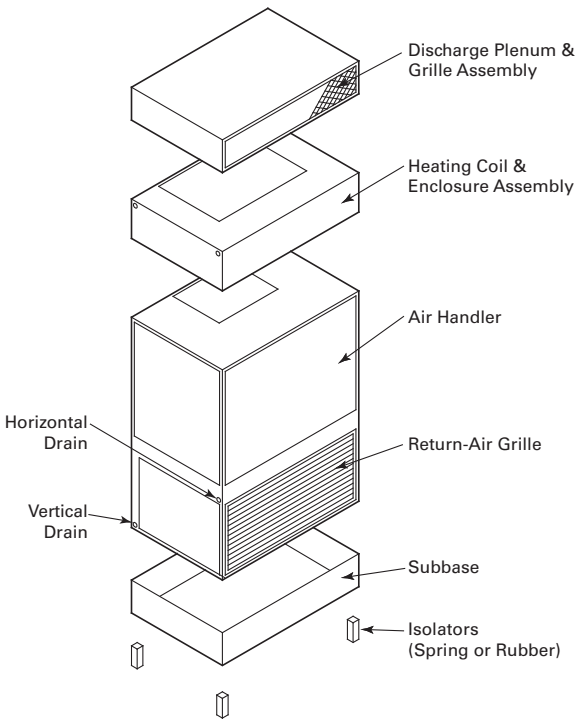


Figure 3. Typical Vertical Air Handler Application



Selection Procedure

Cooling Capacity

Step 1.

Calculate the building's total and sensible cooling loads at design conditions.

Step 2.

Size the equipment using Table 6, p. 28. Match the cooling loads at design conditions.

Example: The following are the building cooling requirements:

a. Electrical Characteristics: 460/60/3
b. Summer Design Conditions:
   Entering Evaporator Coil:
   80°F DB/67°F WB Outdoor Ambient: 95°F
   Total Cooling Load: 82 MBh
c. Sensible Cooling Load: 60 MBh
d. Airflow: 3000 cfm
   External Static Pressure: 0.77 inches of water gauge

Table 6, p. 28 shows that TWA090D with TWE090D has a gross cooling capacity of 93.0 MBh and 72.9 MBh sensible capacity at 95°F DBambient and 3000 cfm with 80°F DB/67°F WB air entering the evaporator.

To find the net cooling capacities, fan motor heat must be subtracted. Determine the total unit static pressure:

External Static Duct System	0.77 in.
Standard Filter 1 in.	0.10 in.
Supplementary Electric Heat	0.23 in.
Total Static Pressure	1.1 in.

Note: The Evaporator Fan Performance Table has included the effect of a 1 in. filter already. Therefore, the actual Total Static Pressure is 1.1 - 0.10 = 1 in. with 3000 *cfm and 1 in., Table 21, p. 41 shows a 1.97 bhp (high static drive).*

Note: The formula below the table can be used to calculate Fan Motor Heat:

3.15 X bhp = MBh

3.15 X 1.97 = 6.2 MBh

Net Total Cooling Capacity =
93 MBh - 6.2 = 86.8 MBh

Net Sensible Cooling Capacity =
72.9 MBh - 6.2 = 66.7 MBh

Heating Capacity

Step 1.

Calculate the building heating load using the Trane calculation form or any other standard accepted method.

Step 2.

Size the equipment using Table 16, p. 37 to match the heating loads at design conditions. The following are building heating requirements:

a. Total Heating Load: 95.0 MBh
b. Outdoor Ambient (Winter): 17°F DB
c. Indoor Return Temperature: 70°F DB
d. Airflow: 3000 cfm

Table 16, p. 37 indicates the mechanical heating portion of the heat pump will provide 48 MBh for the winter design conditions.

Step 3.

Full heat load must be carried by the supplementary heater in the unlikely event the heat pump malfunctions. From Table 33, p. 51, the 34.88 kW heater at 460V has a capacity of 119,045.

From Table 39, p. 57, the 34.88 kW heater at 460V indicates the heater model is BAYHTRL435A.

Air Delivery Selection

External static pressure drop through the air distribution system has been calculated to be 0.77 in. of water gauge.

From Table 32, p. 50 static pressure drop through the electric heater is 0.23 in. of water (0.77 + 0.23 = 1 in.)

Enter Table 21, p. 41 for TWE090D4 at 3000 cfm and 1.0 static pressure. The ultra high static motor at 1020 RPM will give the desired airflow.

Model Number Description

TWA	090	D	3	0R	A	A
1 2 3	4 5 6	7	8	9 10	11	12

All products are identified by a multiple-character model number that precisely identifies a particular type of unit. An explanation of the alphanumeric identification code is provided. Its use will enable the owner/operator, installing contractors, and service engineers to define the operation, specific components, and other options for any specific unit.

Note: *When ordering replacement parts or requesting service, be sure to refer to the specific model number, serial number, and DL number (if applicable) stamped on the unit nameplate.*

DIGITS 1 - 3: Product Type

TWA = Split System Heat Pump

DIGITS 4 - 6: Nominal Gross Cooling Capacity (MBh)

073 = 6 Tons
090 = 7½ Tons
120 = 10 Tons
180 = 15 Tons
240 = 20 Tons

DIGIT 7: Major Development Sequence

D = Single Circuit
E = Dual Circuit

DIGIT 8: Electrical Characteristics

3 = 208-230/60/3
4 = 460/60/3
W = 575/60/3
D = 380-415/50/3
K = 380/60/3

DIGITS 9 - 10: Factory Installed Options

0R = ReliaTel, no LCI Board
0T = ReliaTel, no LCI Board with Black Epoxy Coated Coil
0U = ReliaTel, with LCI Board
0W = ReliaTel, with LCI Board and Black Epoxy Coated Coil
HR = Hail Guard with ReliaTel, no LCI Board
HT = Hail Guard with ReliaTel, no LCI Board with Black Epoxy Coated Coil
HU = Hail Guard with ReliaTel, with LCI Board
HW = Hail Guard withReliaTel, with LCI Board and Black Epoxy Coated Coil

DIGITS 11: Minor Design Sequence

* = Current Design Sequence[1]

DIGITS 12: Service Digit

* = Current Design Sequence[1]

[1] * = sequential alpha character

TWE	240	E	3	00	*	*
1 2 3	4 5 6	7	8	9 10	11	12

All products are identified by a multiple-character model number that precisely identifies a particular type of unit. An explanation of the alphanumeric identification code is provided. Its use will enable the owner/operator, installing contractors, and service engineers to define the operation, specific components, and other options for any specific unit.

Note: *When ordering replacement parts or requesting service, be sure to refer to the specific model number, serial number, and DL number (if applicable) stamped on the unit nameplate.*

DIGITS 1 - 3: Product Type

TWE = Split System Heat Pump/Cooling Air Handler

DIGITS 4 - 6: Nominal Gross Cooling Capacity (MBh)

061 = 5 Tons
090 = 7½ Tons
120 = 10 Tons
150 = 12½ Tons
180 = 15 Tons
240 = 20 Tons

DIGIT 7: Major Development Sequence

D = Single Circuit
E = Dual Circuit

DIGIT 8: Electrical Characteristics

1 = 208-230/60/1	W = 575/60/3
3 = 208-230/60/3	D = 380-415/50/3
4 = 460/60/3	K = 380/60/3

DIGITS 9 - 10: Factory Installed Options

00 = Packed Stock

DIGITS 11: Minor Design Sequence

* = Current Design Sequence[1]

DIGITS 12: Service Digit

* = Current Design Sequence[1]

[1] * = sequential alpha character

General Data

Table 1. R-410A Combinations - 60 Hz

TWE061D	TWE061E	TWE090D	TWE090E	TWE120D	TWE120E	TWE150E	TWE180E	TWE240E
See Note	See Note	TWA073D TWA090D	See Note	TWA120D	See Note	(2) TWA073D[a]	(2) TWA090D[a] TWA180E	(2) TWA120D[a] TWA240E

Note: See ComfortSite for more information on small outdoor unit combinations.

(a) Rated combination is not available at this time.

Table 2. General Data — 6 - 20 Ton Condensing Units— 60 Hz

	6 Tons	7½ Tons	10 Tons	15 Tons	20 Tons
	Single Compressor TWA073D	Single Compressor TWA090D	Single Compressor TWA120D	Dual Compressor TWA180E	Dual Compressor TWA240E
Cooling Performance					
Gross Cooling Capacity					
Matched Air Handler	80,000	93,000	123,000	185,000	255,000
Condensing Unit Only	74,000	86,000	114,000	176,000	264,000
ARI Net Cooling Capacity	78,000	90,000	120,000	180,000	246,000
Efficiency					
Matched Air Handler (EER)	11.0	11.0	11.0	10.6	10.0
Condensing Unit Only (EER)	12.5	12.2	12.7	12.2	12.2
System Integrated Part Load Value (IPLV)	N/A	N/A	N/A	12.6	10.6
System (IEER)	12.6	11.7	11.8	12.3	10.5
Condensing Unit Only (IPLV)	N/A	N/A	N/A	N/A	N/A
System kW/Condensing Unit kW	7.09/5.92	8.18/7.05	10.91/8.98	16.98/14.43	24.59/21.64
Heating Performance					
ARI Heating and Matched Air Handler					
High Temperature Capacity	69,000	82,000	105,000	174,000	236,000
System kW	6.13	7.28	9.32	15.93	21.61
COP	3.3	3.3	3.3	3.2	3.2
Low Temperature Capacity	40,000	49,000	75,000	109,000	134,000
System kW	5.10	6.24	9.98	13.89	19.63
COP	2.3	2.3	2.2	2.3	2.0
Compressor					
Type	Scroll	Scroll	Scroll	Scroll	Scroll
No./Tons	1/5.6	1/6.9	1/8.6	2/6.9	2/10.1
System Data					
No. Refrigerant Circuits	1	1	1	2	2
Suction Line (in.) OD	1 1/8	1 3/8	1 3/8	1 3/8	1 3/8
Liquid Line (in.) OD	1/2	5/8	1/2	1/2	5/8
Outdoor Coil - Type	Lanced	Lanced	Lanced	Lanced	Lanced
Tube Size (in.) OD	0.375	0.375	0.375	0.375	0.375
Face Area (sq ft)	19.24	19.24	29.02	52.6	52.6
Rows/FPI	2/18	2/18	2/18	2/18	2/18
Outdoor Fan - Type	Propeller	Propeller	Propeller	Propeller	Propeller
No. Used/Diameter (in.)	1/26	1/26	1/28	2/28	2/28
Drive Type/No. Speeds	Direct/1	Direct/1	Direct/1	Direct/1	Direct/1
CFM	6530	6530	9800	19500	19500
No. Motor/HP	1/0.5	1/0.5	1/1	2/1	2/1
Motor RPM	1100	1100	1100	1100	1100
Refrigerant Charge (Field Supplied) (lbs of R410A)	20.4	20.6	27.9	47.1	47.0
Shipping Dimensions (HxWxD)	43.54” x 43” x 36.5”	43.54” x 43” x 36.5”	49.48” x 53.25” x 41”	49.48” x 94.75” x 47”	49.48” x 94.75” x 47”

Table 3. General Data — 5-10 Ton Air Handler — 60 Hz

	5 Tons		7½ Tons		10 Tons			
	Single Circuit TWE061D1, D3, D4, DW, DK	**Dual Circuit, TWE061E1, E3, E4**	**Single Circuit TWE090D1, D3, DW**	**Dual Circuit, TWE090E1, E3**	**Single Circuit TWE120D1**	**Single Circuit, TWE120D3, DW, DK**	**Dual Circuit, TWE120E1**	**Dual Circuit, TWE120E3, EW, EK**
System Data								
No. Refrigerant Circuits	1	2	1	2	1	1	2	2
Suction Line Connection (in.) OD	1 1/8	1 1/8	1 3/8	1 1/8	1 3/8	1 3/8	1 1/8	1 1/8
Liquid Line Connection (in.) OD	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2
Indoor Coil - Type	Lanced	Lanced	Lanced	Lanced	Lanced	Lanced	Lanced	Lanced
Tube Size (in.)	0.375	0.375	0.375	0.375	0.375	0.375	0.375	0.375
Face Area (sq. ft.)	5.0	5.0	8.1	8.1	11.2	11.2	11.2	11.2
Rows/FPI	4/14	4/14	4/14	4/14	4/14	4/14	4/14	4/14
Refrigerant Control	Expansion Valve	Expansion Valve	Expansion Valve	Expansion Valve	Expansion Valve	Expansion Valve	Expansion Valve	Expansion Valve
Drain Connection Size (in.)	1 PVC	1 PVC	1 PVC	1 PVC	1 PVC	1 PVC	1 PVC	1 PVC
Indoor Fan - Type	Centrifugal	Centrifugal	Centrifugal	Centrifugal	Centrifugal	Centrifugal	Centrifugal	Centrifugal
No. Used/Diameter x Width (in.)	1/12 x 12	1/12 x 12	1/15 x 15	1/15 x 15	1/15 x 15	1/15 x 15	1/15 x 15	1/15 x 15
Drive Type/ No. Speeds	Belt/ Adjustable	Belt/ Adjustable	Belt/ Adjustable	Belt/ Adjustable	Belt/ Adjustable	Belt/ Adjustable	Belt/ Adjustable	Belt/ Adjustable
CFM	2000	2000	3000	3000	4000	4000	4000	4000
No. Motors	1	1	1	1	1	1	1	1
Motor HP - Standard/Oversized	0.75/1.5	0.75/1.5	1.5/2.0/3.0	1.5/2.0/3.0	2.0	2.0/3.0	2.0	2.0/3.0
Motor RPM	1725	1725	1725	1725	1725	1725	1725	1725
Motor Frame Size	56	56	56H	56H	56HZ	56HZ	56HZ	56HZ
Filters - Type/ Furnished	Throwaway/ Yes	Throwaway/ Yes	Throwaway/ Yes	Throwaway/ Yes	Throwaway/ Yes	Throwaway/ Yes	Throwaway/ Yes	Throwaway/ Yes
(No.)/Size Recommended	(1) 16 x 20 x 1 "(1) 16 x 20 x 1 (1) 20 x 20 x 1 (1) 20 x 20 x 1		(3) 16 X 25 X 1 (3) 16 X 25 X 1		(4) 16 X 25 X 1 (4) 16 X 25 X 1 (4) 16 X 25 X 1 (4) 16 X 25 X 1			
Shipping Dimensions (HxWxD)	52.53” x 25.5” x 41.5”		58.6” x 28.5” x 51”		58.55” x 28.5” x 67”			

Table 4. General Data — 12½ - 20 Ton Air Handler — 60 Hz

	12½ Tons	15 Tons	20 Tons
	Dual Circuit, TWE150E3, EW, EK	**Dual Circuit, TWE180E3, EW, EK**	**Dual Circuit, TWE240E3, E4, EW, EK**
System Data			
No. Refrigerant Circuits	2	2	2
Suction Line Connection (in.) OD	1 3/8	1 3/8	1 3/8
Liquid Line Connection (in.) OD	1/2	1/2	5/8
Indoor Coil - Type	Lanced	Lanced	Lanced
Tube Size (in.)	0.375	0.375	0.375
Face Area (sq. ft.)	16.3	16.3	21.7
Rows/FPI	4/14	4/14	3/14
Refrigerant Control	Expansion Valve	Expansion Valve	Expansion Valve
Drain Connection Size (in.)	1 PVC	1 PVC	1 PVC
Indoor Fan - Type	Centrifugal	Centrifugal	Centrifugal
No. Used/Diameter x Width (in.)	2/15 x 15	2/15 x 15	2/15 x 15
Drive Type/No. Speeds	Belt/Adjustable	Belt/Adjustable	Belt/Adjustable
CFM	5000	6000	8000
No. Motors	1	1	1
Motor HP - Standard/Oversized	2.0/3.0/5.0	3.0/5.0	3.0/5.0/7.5
Motor RPM	1755	1728/1750	1750/3470
Motor Frame Size	145T	56HZ	184T
Filters - Type/Furnished	Throwaway/Yes	Throwaway/Yes	Throwaway/Yes
(No.)/Size Recommended	(8) 15 X 20 X 2	(8) 15 X 20 X 2	(4) 16 X 25 X 2 (4) 16 X 20 X 2
Shipping Dimensions (HxWxD)	73.7” x 31.25” x 83”	73.7” x 31.25” x 83”	76.53” x 33.75” x 95”

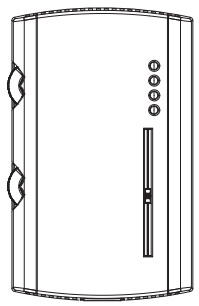
Controls

ReliaTel™ Controlled Units

Zone Sensors are the building occupant's comfort control devices. The following zone sensor options are available for Odyssey units with ReliaTel control:

Manual/Automatic Changeover

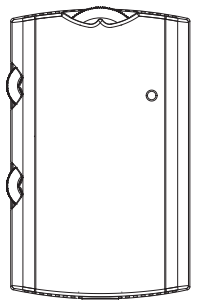
BAYSENS109*
X1379084701
SEN01523



Auto, Heat, Cool, EM Heat or Off System Switch. Fan Auto or Off Switch. Two temperature setpoint levers. Status Indication LED lights, System On, Heat, Cool, or Service.

Manual Changeover

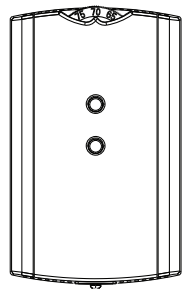
BAYSENS107*
X1379085201
SEN01528



Auto, Heat, Cool, EM Heat or Off System Switch. Fan Auto or Off Switch. Two temperature setpoint levers.

Integrated Comfort™ System

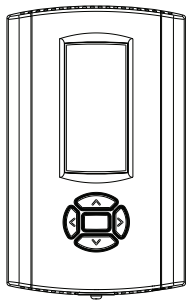
BAYSENS074*
X1351152701
SEN01447



Sensor(s) available with optional temperature adjustment and override buttons to provide central control through a Trane Integrated Comfort™ system.

Programmable Night Setback

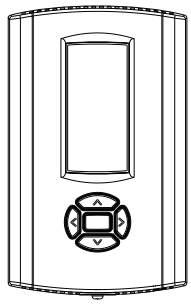
BAYSENS119*
X1379088401
SEN01577



Auto or manual changeover with seven-day programming. Keyboard selection of Heat, Cool, Fan, Auto, EM Heat or On. All programmable sensors have System On, Heat, Cool, Service LED/indicators as standard. Night Setback Sensors have one (1) Occupied, one (1) Un-occupied, and one (1) Override program per day.

Wireless Zone Sensor

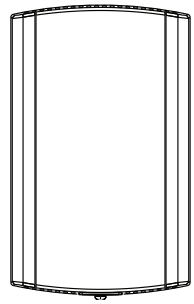
BAYSENS050*
X1379082401
SEN01430



LCD display that provides heat, cool, auto or off. Includes two temperature setpoints and a lockable setting with °F or °C indicators.

Remote Sensor

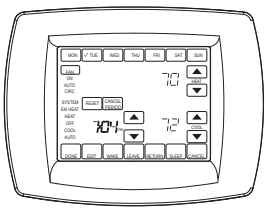
BAYSENS077
X1351152801
SEN01448



Sensor(s) available for all zone sensors to provide remote sensing capabilities.

Touchscreen Programmable Thermostat (2H/2C)

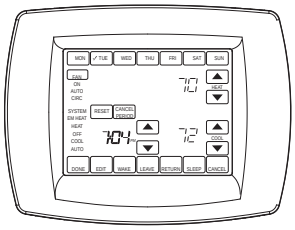
TCONT802*



Two Heat/Two Cool programmable thermostat with touch screen digital display. Menu-driven programming. Effortless set-up. Program each day separately with no need to copy multiple days. All programming can be done on one screen. Easy to read and use. Large, clear backlit digital display.

Digital Display Programmable Thermostat with Built-In Relative Humidity Sensing (3H/2C)

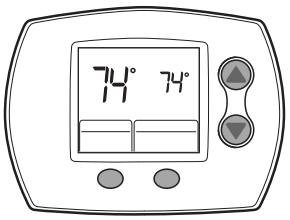
TCONT803*



Three Heat/Two Cool digital display thermostat with built-in humidity control and display. This thermostat combines both humidity and dry bulb into one. Fully programmable with night setback.

Digital Display Thermostat (2H/2C)

TCONT602*



Two Heat, Two Cool digital display thermostat. Easy access battery replacement. Flip-out door for easy battery replacement without removing or disassembling the thermostat.

RA Remote Sensor

BAYSTAT170*

Return Air Remote Sensor which can be mounted in the return air duct to report return air temperature.

Performance Data

Table 5. Gross Cooling Capacities (MBH) 6 Tons TWA073D Heat Pump with 7.5 Tons TWE090D Air Handler (IP)

		Ambient Temperature (°F)																	
		85						95						105					
	Ent DB	Entering Wet Bulb (°F)																	
		61		67		73		61		67		73		61		67		73	
CFM	(°F)	MBH	SHC	MBH	SHC	MBH	SHC	MBH	SHC	MBH	SHC	MBH	SHC	MBH	SHC	MBH	SHC	MBH	SHC
2160	75	75.0	63.0	82.1	48.1	89.9	33.1	71.0	61.1	78.1	46.5	85.5	31.5	67.1	59.6	73.8	44.7	81.0	29.9
	80	75.7	74.5	82.2	59.5	90.0	44.7	72.2	72.2	78.2	57.9	85.7	43.1	68.8	68.8	74.0	56.1	81.1	41.4
	85	79.3	79.3	82.6	71.0	90.1	56.1	76.1	76.1	78.7	69.3	85.8	54.4	72.7	72.7	74.5	67.6	81.2	52.8
	90	83.3	83.3	83.7	82.6	90.3	67.4	80.0	80.0	79.9	79.9	86.0	65.8	76.5	76.5	76.5	76.5	81.5	64.1
2400	75	76.4	66.4	83.3	50.2	91.1	33.6	72.3	64.5	79.2	48.6	86.6	32.0	68.3	62.7	74.9	46.8	82.0	30.4
	80	77.6	77.6	83.5	62.7	91.2	46.4	74.4	74.4	80.0	61.3	86.8	44.8	70.9	70.9	75.1	59.3	82.1	43.1
	85	81.8	81.8	84.1	75.3	91.4	58.9	78.4	78.4	80.1	73.6	86.9	57.3	74.9	74.9	75.9	71.9	82.2	55.6
	90	85.9	85.9	85.9	85.9	91.7	71.5	82.4	82.4	82.4	82.4	87.2	69.8	78.8	78.8	78.7	78.7	82.6	68.0
2640	75	77.6	69.8	84.3	52.3	92.0	34.1	73.4	67.9	80.1	50.6	87.5	32.5	69.4	66.1	75.7	48.9	82.8	30.9
	80	79.7	79.7	84.6	65.9	92.3	48.1	76.3	76.3	80.4	64.2	87.7	46.5	72.7	72.7	76.0	62.3	83.0	44.8
	85	84.0	84.0	85.4	79.5	92.4	61.7	80.4	80.4	81.3	77.9	87.8	60.1	76.8	76.8	77.1	76.1	83.1	58.4
	90	88.2	88.2	88.2	88.2	92.8	75.2	84.6	84.6	84.5	84.5	88.3	73.6	80.8	80.8	80.7	80.7	83.6	71.9
2880	75	78.7	73.2	85.2	54.4	92.8	34.6	74.4	71.2	80.9	52.7	88.2	33.0	70.4	69.5	76.4	51.0	83.5	31.4
	80	81.4	81.4	85.5	68.8	93.1	49.7	77.9	77.9	81.3	67.1	88.5	48.1	74.2	74.2	76.9	65.3	83.7	46.4
	85	85.8	85.8	86.6	83.7	93.3	64.5	82.2	82.2	82.5	82.0	88.6	62.9	78.4	78.4	78.4	78.4	83.8	61.2
	90	90.2	90.2	90.2	90.2	93.8	79.0	86.4	86.4	86.4	86.4	89.2	77.3	82.5	82.5	82.5	82.5	84.5	75.6

		Ambient Temperature (°F)											
		115						125					
	Ent DB	Entering Wet Bulb (°F)											
		61		67		73		61		67		73	
CFM	(°F)	MBH	SHC	MBH	SHC	MBH	SHC	MBH	SHC	MBH	SHC	MBH	SHC
2160	75	63.0	57.7	69.4	42.9	76.2	28.2	58.5	55.3	64.5	41.0	71.1	26.4
	80	65.3	65.3	69.6	54.3	76.4	39.7	61.4	61.4	64.7	52.4	71.2	37.9
	85	69.0	69.0	70.2	65.7	76.4	51.0	65.0	65.0	65.5	63.8	71.3	49.2
	90	72.7	72.7	72.7	72.7	76.7	62.4	68.6	68.6	68.6	68.6	71.6	60.5
2400	75	64.1	60.8	70.3	45.0	77.1	28.7	59.6	58.8	65.3	43.1	71.8	26.9
	80	67.2	67.2	70.6	57.5	77.3	41.4	63.1	63.1	65.6	55.5	72.0	39.6
	85	71.1	71.1	71.5	70.1	77.4	53.9	66.9	66.9	66.9	66.9	72.1	52.1
	90	74.9	74.9	74.8	74.8	77.8	66.3	70.6	70.6	70.6	70.6	72.6	64.4
2640	75	65.2	64.3	71.1	47.1	77.8	29.2	60.8	60.8	66.0	45.2	72.5	27.4
	80	68.8	68.8	71.4	60.5	78.0	43.1	64.7	64.7	66.5	58.5	72.6	41.2
	85	72.8	72.8	72.8	72.8	78.2	56.7	68.5	68.5	68.5	68.5	72.8	54.9
	90	76.7	76.7	76.7	76.7	78.7	70.1	72.3	72.3	72.3	72.3	73.5	68.2
2880	75	66.2	66.2	71.7	49.2	78.4	29.7	62.0	62.0	66.6	47.2	73.0	27.9
	80	70.3	70.3	72.2	63.5	78.6	44.7	66.0	66.0	67.2	61.5	73.2	42.9
	85	74.3	74.3	74.3	74.3	78.8	59.5	69.9	69.9	69.9	69.9	73.4	57.5
	90	78.3	78.3	78.3	78.3	79.5	73.9	73.7	73.7	73.7	73.7	74.3	72.0

Notes:

1. All capacities shown are gross and have not considered indoor fan heat. To obtain net cooling, subtract indoor fan heat.
2. MBH = Total Gross Capacity
3. SHC = Sensible Heat Capacity

Table 6. Gross Cooling Capacities (MBH) 7.5 Tons TWA090D Heat Pump with 7.5 Tons TWE090D Air Handler (IP)

		Ambient Temperature (°F)																	
		85						95						105					
	Ent DB	Entering Wet Bulb (°F)																	
		61		67		73		61		67		73		61		67		73	
CFM	(°F)	MBH	SHC	MBH	SHC	MBH	SHC	MBH	SHC	MBH	SHC	MBH	SHC	MBH	SHC	MBH	SHC	MBH	SHC
2700	75	88.0	75.1	95.3	57.2	103.5	38.2	83.3	72.8	90.8	55.3	98.7	36.5	79.0	70.9	86.1	53.5	93.7	34.7
	80	88.6	88.6	95.4	70.6	103.6	52.3	85.0	85.0	91.0	68.8	98.8	50.5	81.3	81.3	86.3	66.9	93.8	48.7
	85	93.0	93.0	95.9	84.4	103.7	66.1	89.3	89.3	91.6	82.6	98.9	64.3	85.5	85.5	87.0	80.7	93.9	62.5
	90	97.4	97.4	97.3	97.3	103.9	79.9	93.6	93.6	93.5	93.5	99.1	78.1	89.6	89.6	89.6	89.6	94.2	76.3
3000	75	89.4	79.1	96.5	59.7	104.6	38.8	84.6	76.8	91.9	57.9	99.8	37.1	80.3	74.9	87.2	56.0	94.7	35.3
	80	91.0	91.0	96.7	74.3	104.8	54.3	87.3	87.3	93.0	72.9	99.9	52.5	83.4	83.4	87.4	70.6	94.8	50.7
	85	95.5	95.5	97.4	89.4	104.9	69.4	91.7	91.7	93.0	87.6	100.0	67.7	87.7	87.7	88.4	85.7	94.9	65.8
	90	100.0	100.0	100.0	100.0	105.2	84.4	96.1	96.1	96.0	96.0	100.3	82.6	91.9	91.9	91.8	91.8	95.3	80.7
3300	75	90.7	83.0	97.5	62.3	105.6	39.4	85.8	80.7	92.9	60.5	100.6	37.7	81.5	78.8	88.0	58.6	95.5	35.9
	80	93.1	93.1	97.7	77.7	105.8	56.2	89.2	89.2	93.1	75.9	100.8	54.4	85.1	85.1	88.3	73.9	95.7	52.6
	85	97.7	97.7	98.8	94.3	105.9	72.7	93.7	93.7	94.3	92.4	100.9	70.9	89.6	89.6	89.5	89.5	95.7	69.1
	90	102.3	102.3	102.2	102.2	106.4	88.8	98.2	98.2	98.1	98.1	101.4	87.0	93.9	93.9	93.9	93.9	96.3	85.2
3600	75	91.9	86.8	98.4	64.8	106.4	40.0	86.9	84.5	93.7	63.0	101.4	38.3	82.3	82.3	88.7	61.1	96.2	36.6
	80	94.8	94.8	98.7	81.1	106.7	58.0	90.9	90.9	94.0	79.2	101.6	56.3	86.8	86.8	89.2	77.3	96.4	54.5
	85	99.6	99.6	100.1	99.0	106.8	75.9	95.5	95.5	95.5	95.5	101.7	74.1	91.2	91.2	91.2	91.2	96.5	72.3
	90	104.3	104.3	104.2	104.2	107.4	93.1	100.0	100.0	100.0	100.0	102.4	91.3	95.6	95.6	95.6	95.6	97.3	89.5

		Ambient Temperature (°F)											
		115						125					
	Ent DB	Entering Wet Bulb (°F)											
		61		67		73		61		67		73	
CFM	(°F)	MBH	SHC	MBH	SHC	MBH	SHC	MBH	SHC	MBH	SHC	MBH	SHC
2700	75	74.5	68.8	81.2	51.5	88.4	32.9	69.7	66.6	75.8	49.4	82.8	30.9
	80	77.3	77.3	81.4	64.9	88.5	46.9	72.8	72.8	76.1	62.8	82.9	44.9
	85	81.4	81.4	82.2	78.7	88.6	60.6	76.8	76.8	77.1	76.6	83.0	58.6
	90	85.3	85.3	85.3	85.3	88.9	74.3	80.7	80.7	80.7	80.7	83.4	72.2
3000	75	75.8	72.8	82.1	54.1	89.3	33.5	70.9	70.6	76.7	52.0	83.6	31.6
	80	79.2	79.2	82.4	68.4	89.5	48.8	74.7	74.7	77.0	66.3	83.7	46.9
	85	83.4	83.4	83.3	83.3	89.5	64.0	78.7	78.7	78.7	78.7	83.8	62.0
	90	87.5	87.5	87.5	87.5	90.0	78.8	82.7	82.7	82.7	82.7	84.5	76.8
3300	75	76.9	76.7	82.9	56.6	90.0	34.1	72.0	72.0	77.4	54.5	84.2	32.2
	80	80.9	80.9	83.3	71.9	90.2	50.7	76.2	76.2	77.9	69.7	84.4	48.8
	85	85.1	85.1	85.1	85.1	90.3	67.2	80.3	80.3	80.3	80.3	84.6	65.3
	90	89.3	89.3	89.3	89.3	91.0	83.2	84.4	84.4	84.4	84.4	85.4	81.2
3600	75	78.0	78.0	83.5	59.2	90.7	34.7	73.3	73.3	77.9	57.1	84.8	32.8
	80	82.4	82.4	84.1	75.3	90.8	52.6	77.5	77.5	78.7	73.2	85.0	50.7
	85	86.7	86.7	86.6	86.6	91.0	70.1	81.7	81.7	81.7	81.7	85.2	68.1
	90	90.9	90.9	90.9	90.9	91.9	87.6	85.9	85.9	85.9	85.9	86.3	85.6

Notes:

1. All capacities shown are gross and have not considered indoor fan heat. To obtain net cooling, subtract indoor fan heat.
2. MBH = Total Gross Capacity
3. SHC = Sensible Heat Capacity

Table 7. Gross Cooling Capacities (MBH) 10 Tons TWA120D Heat Pump with 10 Tons TWE120D Air Handler (IP)

		Ambient Temperature (°F)																	
		85						95						105					
	Ent DB	Entering Wet Bulb (°F)																	
		61		67		73		61		67		73		61		67		73	
CFM	(°F)	MBH	SHC	MBH	SHC	MBH	SHC	MBH	SHC	MBH	SHC	MBH	SHC	MBH	SHC	MBH	SHC	MBH	SHC
3600	75	116.3	99.2	128.0	77.7	140.1	51.7	110.9	96.6	121.9	75.2	133.3	49.3	105.2	93.9	115.5	72.7	126.2	46.8
	80	118.3	118.2	128.3	94.3	140.3	70.3	113.3	113.3	122.2	91.7	133.6	67.8	108.3	108.3	115.8	89.0	126.4	65.2
	85	124.3	124.3	128.8	112.5	140.6	88.7	119.5	119.5	122.9	109.9	133.8	86.2	114.3	114.3	116.6	107.2	126.7	83.5
	90	130.7	130.7	130.6	130.6	140.9	107.0	125.6	125.6	125.5	125.5	134.1	104.4	120.1	120.1	120.0	120.0	127.0	101.8
4000	75	118.3	104.3	129.8	81.3	141.8	52.6	112.8	101.6	123.5	78.9	134.8	50.2	106.9	98.9	116.9	76.3	127.5	47.7
	80	121.3	121.3	130.1	99.0	142.1	72.8	116.4	116.4	123.8	96.4	135.1	70.3	111.2	111.2	117.2	93.4	127.8	67.6
	85	127.9	127.9	131.0	118.9	142.4	93.0	122.7	122.7	124.9	116.2	135.4	90.4	117.3	117.3	118.5	113.5	128.1	87.7
	90	134.4	134.4	134.3	134.3	142.6	112.7	129.0	129.0	129.0	129.0	135.7	110.0	123.2	123.2	123.2	123.2	128.5	107.3
4400	75	120.0	109.2	131.3	84.9	143.2	53.5	114.4	106.5	124.9	82.5	136.1	51.1	108.5	103.8	118.2	79.9	128.6	48.6
	80	124.2	124.2	131.5	103.3	143.6	75.3	119.1	119.1	125.1	100.6	136.5	72.7	113.6	113.6	118.5	97.8	129.0	70.0
	85	131.0	131.0	132.9	125.0	143.9	97.0	125.6	125.6	126.7	122.3	136.7	94.4	119.9	119.9	120.3	119.6	129.3	91.7
	90	137.6	137.6	137.6	137.6	144.2	118.2	132.0	132.0	131.9	131.9	137.2	115.6	126.0	126.0	125.9	125.9	129.8	112.8
4800	75	121.6	113.9	132.6	88.5	144.4	54.4	115.9	111.3	126.1	86.0	137.1	52.0	109.9	108.5	119.2	83.4	129.6	49.4
	80	126.7	126.7	132.9	107.5	144.8	77.6	121.4	121.4	126.4	104.8	137.6	75.0	115.7	115.7	119.7	101.9	130.0	72.3
	85	133.6	133.6	134.7	130.9	145.1	101.0	128.1	128.1	128.5	128.2	137.9	98.4	122.1	122.1	122.0	122.0	130.2	95.7
	90	140.4	140.4	140.3	140.3	145.7	123.6	134.6	134.6	134.4	134.4	138.5	120.9	128.3	128.3	128.3	128.3	131.1	118.1

		Ambient Temperature (°F)											
		115						125					
	Ent DB	Entering Wet Bulb (°F)											
		61		67		73		61		67		73	
CFM	(°F)	MBH	SHC	MBH	SHC	MBH	SHC	MBH	SHC	MBH	SHC	MBH	SHC
3600	75	99.1	91.0	108.7	70.0	118.7	44.3	92.6	87.9	101.3	67.1	110.7	41.5
	80	102.9	102.9	108.9	86.2	118.9	62.4	96.9	96.9	101.6	83.0	110.9	59.6
	85	108.6	108.6	110.0	104.4	119.2	80.7	102.4	102.4	103.0	101.4	111.1	77.9
	90	114.2	114.2	114.1	114.1	119.5	98.7	107.7	107.7	107.7	107.7	111.6	95.7
4000	75	100.7	96.0	110.0	73.6	119.9	45.1	94.1	93.0	102.4	70.7	111.7	42.4
	80	105.5	105.5	110.2	90.5	120.2	64.9	99.3	99.3	102.8	87.5	112.0	62.0
	85	111.3	111.3	111.8	110.6	120.4	84.9	104.9	104.9	104.9	104.9	112.2	82.0
	90	117.1	117.1	116.9	116.9	120.9	104.4	110.3	110.3	110.3	110.3	112.9	101.4
4400	75	102.2	100.9	111.0	77.1	120.9	46.0	95.6	95.6	103.4	74.3	112.6	43.3
	80	107.7	107.7	111.5	94.8	121.2	67.2	101.4	101.4	103.9	91.7	112.9	64.3
	85	113.7	113.7	113.6	113.6	121.4	88.9	107.0	107.0	107.0	107.0	113.0	85.7
	90	119.5	119.5	119.5	119.5	122.2	109.9	112.5	112.5	112.5	112.5	114.0	106.9
4800	75	103.6	103.6	111.9	80.7	121.7	46.9	97.3	97.3	104.2	77.8	113.3	44.1
	80	109.7	109.7	112.5	99.0	122.1	69.5	103.2	103.2	104.9	95.9	113.6	66.6
	85	115.8	115.8	115.7	115.7	122.2	92.4	108.8	108.8	108.8	108.8	113.8	89.4
	90	121.6	121.6	121.6	121.6	123.3	115.2	114.4	114.4	114.4	114.4	115.1	112.2

Notes:

1. All capacities shown are gross and have not considered indoor fan heat. To obtain net cooling, subtract indoor fan heat.
2. MBH = Total Gross Capacity
3. SHC = Sensible Heat Capacity

Table 8. Gross Cooling Capacities (MBH) 15 Tons TWA180E Heat Pump with 15 Tons TWE180E Air Handler (IP)

		Ambient Temperature (°F)																	
				85				95						105					
	Ent DB	Entering Wet Bulb (°F)																	
		61		67		73		61		67		73		61		67		73	
CFM	(°F)	MBH	SHC	MBH	SHC	MBH	SHC	MBH	SHC	MBH	SHC	MBH	SHC	MBH	SHC	MBH	SHC	MBH	SHC
5400	75	173.8	145.4	192.2	115.4	211.8	77.9	165.2	141.3	182.8	111.6	201.7	74.3	156.0	137.0	172.7	107.6	190.7	70.5
	80	176.4	173.1	192.4	138.4	212.0	104.7	167.7	167.7	183.0	134.4	201.9	100.8	159.9	159.9	172.8	130.1	190.9	96.8
	85	184.6	184.6	193.0	165.0	212.2	130.9	177.1	177.1	183.8	161.0	202.0	127.0	169.1	169.1	174.0	156.8	191.1	122.9
	90	194.3	194.3	195.8	192.2	212.4	157.0	186.5	186.5	186.5	186.5	202.2	153.1	178.3	178.3	178.2	178.2	191.2	148.9
6000	75	176.8	152.8	195.1	120.8	214.8	79.3	168.1	148.7	185.4	117.0	204.4	75.7	158.8	144.4	175.1	112.9	193.2	71.9
	80	180.2	180.2	195.4	145.1	215.0	108.3	172.6	172.6	185.6	141.0	204.6	104.4	164.4	164.4	175.2	136.7	193.4	100.3
	85	190.1	190.1	196.5	174.2	215.2	136.9	182.3	182.3	187.1	170.2	204.8	133.0	174.0	174.0	177.1	166.0	193.5	128.8
	90	200.2	200.2	200.1	200.1	215.5	165.4	192.2	192.2	192.1	192.1	205.0	161.5	183.4	183.4	183.4	183.4	194.0	157.3
6600	75	179.6	160.0	197.5	126.2	217.3	80.7	170.7	155.9	187.6	122.3	206.7	77.1	161.2	151.5	177.1	118.2	195.3	73.3
	80	184.7	184.7	197.8	151.5	217.5	111.7	176.8	176.8	187.9	147.4	206.9	107.9	168.4	168.4	177.4	143.1	195.5	103.7
	85	195.0	195.0	199.5	183.1	217.8	142.7	186.9	186.9	190.0	179.1	207.1	138.8	178.2	178.2	179.9	175.0	195.6	134.6
	90	205.4	205.4	205.2	205.2	218.1	173.5	197.0	197.0	196.9	196.9	207.6	169.6	188.0	188.0	187.9	187.9	196.4	165.5
7200	75	182.0	166.9	199.6	131.5	219.4	82.1	173.0	162.8	189.5	127.6	208.6	78.4	163.5	158.5	178.8	123.5	197.0	74.6
	80	188.7	188.7	199.9	157.7	219.6	115.1	180.6	180.6	190.0	153.6	208.8	111.2	171.8	171.8	179.4	149.3	197.2	107.0
	85	199.3	199.3	202.3	191.6	219.9	148.3	191.0	190.9	192.7	187.7	209.0	144.3	181.9	181.9	181.8	181.8	197.4	140.1
	90	209.9	209.9	209.8	209.8	220.6	181.5	201.3	201.3	201.2	201.2	209.9	177.6	192.0	192.0	192.0	191.9	198.5	173.4

		Ambient Temperature (°F)											
		115						125					
	Ent DB	Entering Wet Bulb (°F)											
		61		67		73		61		67		73	
CFM	(°F)	MBH	SHC	MBH	SHC	MBH	SHC	MBH	SHC	MBH	SHC	MBH	SHC
5400	75	146.3	132.5	161.8	103.3	179.1	66.4	135.9	127.7	150.0	98.7	166.2	62.1
	80	151.5	151.5	162.0	125.6	179.2	92.5	142.2	142.2	150.3	120.9	166.3	87.9
	85	160.4	160.4	163.6	152.4	179.3	118.6	150.8	150.8	152.4	147.8	166.5	113.9
	90	169.3	169.3	169.2	169.2	179.7	144.6	159.5	159.5	159.3	159.3	167.1	140.0
6000	75	148.9	139.9	163.9	108.6	181.3	67.8	138.3	135.1	151.8	104.0	168.1	63.5
	80	155.6	155.6	164.3	132.2	181.4	96.0	145.9	145.9	152.4	127.4	168.3	91.4
	85	164.9	164.9	166.6	161.6	181.5	124.5	154.9	154.9	154.7	154.7	168.4	119.8
	90	174.1	174.1	174.0	174.0	182.2	153.0	163.8	163.8	163.8	163.8	169.4	148.4
6600	75	151.3	147.0	165.7	113.9	183.1	69.2	140.1	140.1	153.4	109.2	169.8	64.8
	80	159.2	159.2	166.3	138.6	183.2	99.4	149.3	149.3	154.3	133.8	169.9	94.7
	85	168.8	168.8	168.6	168.6	183.3	130.2	158.4	158.4	158.3	158.3	170.0	125.5
	90	178.2	178.2	178.2	178.2	184.4	161.2	167.6	167.6	167.6	167.6	171.5	156.6
7200	75	152.7	152.7	167.3	119.1	184.7	69.4	142.8	142.8	154.7	114.5	171.1	66.1
	80	162.5	162.5	168.1	144.8	184.8	102.7	152.2	152.1	155.9	140.0	171.2	98.0
	85	172.2	172.2	172.1	172.1	184.9	135.7	161.5	161.5	161.4	161.4	171.4	131.0
	90	181.9	181.9	181.9	181.9	186.4	169.1	170.9	170.9	170.9	170.9	173.4	164.5

Notes:

1. All capacities shown are gross and have not considered indoor fan heat. To obtain net cooling, subtract indoor fan heat.
2. MBH = Total Gross Capacity
3. SHC = Sensible Heat Capacity

Table 9. Gross Cooling Capacities (MBH) 20 Tons TWA240E Heat Pump with 20 Tons TWE240E Air Handler (IP)

		Ambient Temperature (°F)																	
		85						95						105					
	Ent DB	Entering Wet Bulb (°F)																	
		61		67		73		61		67		73		61		67		73	
CFM	(°F)	MBH	SHC	MBH	SHC	MBH	SHC	MBH	SHC	MBH	SHC	MBH	SHC	MBH	SHC	MBH	SHC	MBH	SHC
7200	75	238.3	188.2	263.4	157.3	290.4	106.7	226.4	182.2	250.7	152.2	276.7	101.8	213.5	175.8	236.8	146.6	261.7	96.3
	80	239.7	220.5	263.8	179.8	290.6	139.1	228.4	214.7	251.1	174.0	276.9	133.6	216.3	208.7	237.2	167.8	261.9	127.7
	85	246.7	246.7	264.1	211.2	290.9	170.5	236.7	236.7	251.3	205.4	277.1	165.0	225.8	225.8	237.5	199.3	262.1	159.0
	90	259.1	259.1	265.8	243.3	291.2	201.8	248.9	248.9	253.7	237.7	277.4	196.2	237.7	237.7	240.7	231.7	262.3	190.1
8000	75	242.5	196.3	267.8	164.8	294.9	108.8	230.3	190.2	254.7	159.6	280.8	103.6	217.0	183.8	240.4	153.9	265.4	97.7
	80	244.8	231.6	268.2	187.2	295.1	143.2	233.4	225.9	255.1	181.4	281.0	137.6	220.0	220.0	240.8	175.1	265.6	131.7
	85	254.0	254.0	268.5	221.3	295.4	177.2	243.6	243.6	255.6	215.5	281.3	171.6	232.3	232.3	241.5	209.3	265.9	165.6
	90	266.9	266.9	271.3	256.2	295.7	211.0	256.3	256.3	259.1	250.6	281.6	205.4	244.6	244.6	244.4	244.4	266.1	199.3
8800	75	246.1	204.0	271.5	172.1	298.8	110.5	233.6	198.0	258.1	166.9	284.4	104.9	220.2	191.5	243.5	161.2	268.6	99.0
	80	249.6	242.3	272.0	194.2	299.0	147.1	236.8	236.8	258.6	188.4	284.5	141.5	225.3	225.3	243.9	182.0	268.8	135.4
	85	260.4	260.4	272.5	230.9	299.3	183.6	249.7	249.7	259.3	225.1	284.8	177.9	238.0	238.0	245.1	218.9	269.0	171.8
	90	273.7	273.7	276.5	268.6	299.6	219.8	262.7	262.7	262.6	262.6	285.1	214.1	250.7	250.7	250.5	250.5	269.3	208.0
9600	75	249.2	211.4	274.7	179.4	302.0	111.8	236.7	205.4	261.0	174.1	287.3	106.2	223.1	199.0	246.1	168.4	271.3	100.2
	80	252.6	252.6	275.2	201.0	302.3	150.8	241.9	241.9	261.5	195.0	287.6	145.1	230.0	230.0	246.6	188.7	271.5	139.0
	85	266.2	266.2	276.0	240.2	302.6	189.6	255.2	255.2	262.7	234.4	287.8	183.9	243.0	243.0	248.4	228.2	271.7	177.8
	90	279.8	279.8	279.6	279.6	302.9	228.3	268.5	268.5	268.3	268.3	288.1	222.6	256.0	256.0	255.9	255.9	272.0	216.4

		Ambient Temperature (°F)											
		115						125					
	Ent DB	Entering Wet Bulb (°F)											
		61		67		73		61		67		73	
CFM	(°F)	MBH	SHC	MBH	SHC	MBH	SHC	MBH	SHC	MBH	SHC	MBH	SHC
7200	75	199.5	169.0	221.6	140.6	245.1	90.0	184.3	161.8	204.7	134.0	227.0	83.2
	80	202.3	202.3	221.9	161.2	245.4	121.3	189.3	189.3	205.1	154.0	227.3	114.5
	85	213.8	213.8	222.5	192.7	245.6	152.6	200.5	200.5	206.3	185.8	227.5	145.7
	90	225.4	225.4	225.2	225.2	245.8	183.7	211.7	211.7	211.6	211.6	227.7	176.7
8000	75	202.8	177.0	224.7	147.8	248.5	91.3	187.5	169.8	207.6	141.3	229.9	84.5
	80	207.8	207.8	225.2	168.4	248.7	125.3	194.4	194.4	208.0	161.1	230.1	118.4
	85	219.8	219.8	226.4	202.8	248.9	159.1	205.9	205.9	209.9	195.8	230.4	152.2
	90	231.8	231.8	231.6	231.6	249.2	192.8	217.5	217.5	217.4	217.4	230.7	185.8
8800	75	205.9	184.8	227.5	155.1	251.2	92.5	190.3	177.5	209.9	148.4	232.2	88.5
	80	212.7	212.7	227.9	175.2	251.5	129.0	198.8	198.8	210.3	167.9	232.6	122.0
	85	225.0	225.0	229.8	212.4	251.7	165.3	210.7	210.7	213.2	205.4	232.8	158.3
	90	237.3	237.3	237.2	237.2	252.0	201.5	222.6	222.6	222.5	222.5	233.4	194.6
9600	75	208.7	192.2	229.8	162.2	253.6	96.6	193.0	184.9	212.0	155.5	234.4	90.3
	80	217.1	217.1	230.3	181.8	253.9	132.5	202.7	202.7	212.5	174.5	234.7	125.5
	85	229.7	229.7	233.0	221.6	254.2	171.3	214.9	214.9	214.7	214.7	234.9	164.2
	90	242.3	242.3	242.2	242.2	254.7	209.9	227.1	227.1	227.0	227.0	235.8	203.0

Notes:

1. All capacities shown are gross and have not considered indoor fan heat. To obtain net cooling, subtract indoor fan heat.
2. MBH = Total Gross Capacity
3. SHC = Sensible Heat Capacity

Table 10. Gross Cooling Capacities (MBH) 6 Tons TWA073D Condensing Unit Only (IP)

Outdoor Temp (°F)		Suction Temperature (°F)					
		30	35	40	45	50	55
65	Head Press (psig)	255.3	270.1	277.5	285.2	293.2	301.4
	Capacity (Btuh/1000)	66.3	73.4	81.0	88.8	96.9	105.3
	Unit Power (kW)	4.4	4.4	4.4	4.5	4.5	4.6
75	Head Press (psig)	300.7	308.1	315.8	323.8	332.0	340.4
	Capacity (Btuh/1000)	62.4	69.3	76.4	83.9	91.5	99.4
	Unit Power (kW)	4.7	4.8	4.8	4.9	5.0	5.0
85	Head Press (psig)	341.9	349.6	357.6	365.8	374.2	382.8
	Capacity (Btuh/1000)	58.4	64.9	71.7	78.7	86.0	93.4
	Unit Power (kW)	5.2	5.3	5.3	5.4	5.5	5.6
95	Head Press (psig)	386.6	394.7	402.9	411.4	420.0	428.8
	Capacity (Btuh/1000)	54.1	60.3	66.7	73.4	80.3	87.3
	Unit Power (kW)	5.8	5.8	5.9	6.0	6.0	6.1
105	Head Press (psig)	435.0	443.6	452.3	461.2	470.2	479.3
	Capacity (Btuh/1000)	49.6	55.5	61.6	68.0	74.5	81.1
	Unit Power (kW)	6.4	6.4	6.5	6.6	6.6	6.7
115	Head Press (psig)	488.0	497.2	506.4	515.7	525.0	534.5
	Capacity (Btuh/1000)	44.8	50.5	56.3	62.3	68.5	74.8
	Unit Power (kW)	7.1	7.1	7.2	7.3	7.3	7.4
125	Head Press (psig)	546.3	556.4	566.1	576.1	586.2	596.2
	Capacity (Btuh/1000)	39.8	45.2	50.7	56.5	62.3	68.2
	Unit Power (kW)	7.9	7.9	8.0	8.0	8.1	8.1

Note: Performance data calculated at 15°F subcooling and 15°F superheat and does not include capacity loss due to refrigerant lines.

Figure 4. TWA073D Capacity Curves

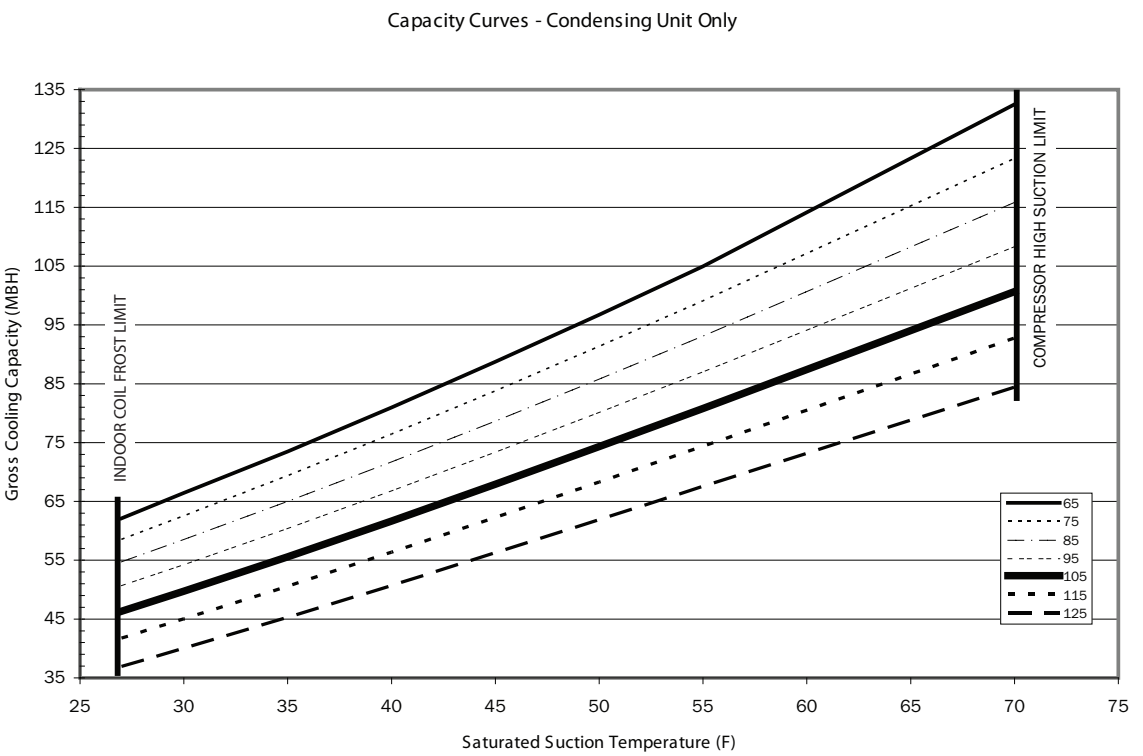


Table 11. Gross Cooling Capacities (MBH) 7.5 Tons TWA090D Condensing Unit Only (IP)

Outdoor Temp (°F)		Suction Temperature (°F)					
		30	35	40	45	50	55
65	Head Press (psig)	264.2	280.4	288.4	296.8	305.5	314.6
	Capacity (Btuh/1000)	79.0	86.2	94.3	102.6	111.2	120.0
	Unit Power (kW)	5.1	5.2	5.3	5.5	5.6	5.8
75	Head Press (psig)	310.5	318.5	326.8	335.5	344.6	353.9
	Capacity (Btuh/1000)	74.0	81.3	89.0	96.9	105.1	113.5
	Unit Power (kW)	5.5	5.7	5.8	5.9	6.1	6.2
85	Head Press (psig)	351.7	360.0	368.6	377.6	386.9	396.5
	Capacity (Btuh/1000)	69.3	76.3	83.5	91.1	98.8	106.8
	Unit Power (kW)	6.1	6.2	6.4	6.5	6.7	6.8
95	Head Press (psig)	396.3	404.9	413.8	423.0	432.6	442.5
	Capacity (Btuh/1000)	64.4	71.0	77.9	85.0	92.3	99.8
	Unit Power (kW)	6.7	6.8	7.0	7.1	7.3	7.4
105	Head Press (psig)	444.8	453.6	462.9	472.5	482.3	492.5
	Capacity (Btuh/1000)	59.4	65.6	72.1	78.7	85.6	92.6
	Unit Power (kW)	7.4	7.6	7.7	7.9	8.0	8.2
115	Head Press (psig)	497.4	506.6	516.1	526.0	536.2	546.6
	Capacity (Btuh/1000)	54.3	60.0	66.0	72.3	78.7	85.3
	Unit Power (kW)	8.2	8.3	8.5	8.6	8.8	8.9
125	Head Press (psig)	554.8	564.3	574.2	584.5	595.0	605.8
	Capacity (Btuh/1000)	48.9	54.2	59.8	65.6	71.6	77.7
	Unit Power (kW)	9.1	9.2	9.4	9.5	9.7	9.8

Note: Performance data calculated at 15°F subcooling and 15°F superheat and does not include capacity loss due to refrigerant lines.

Figure 5. TWA090D Capacity Curves

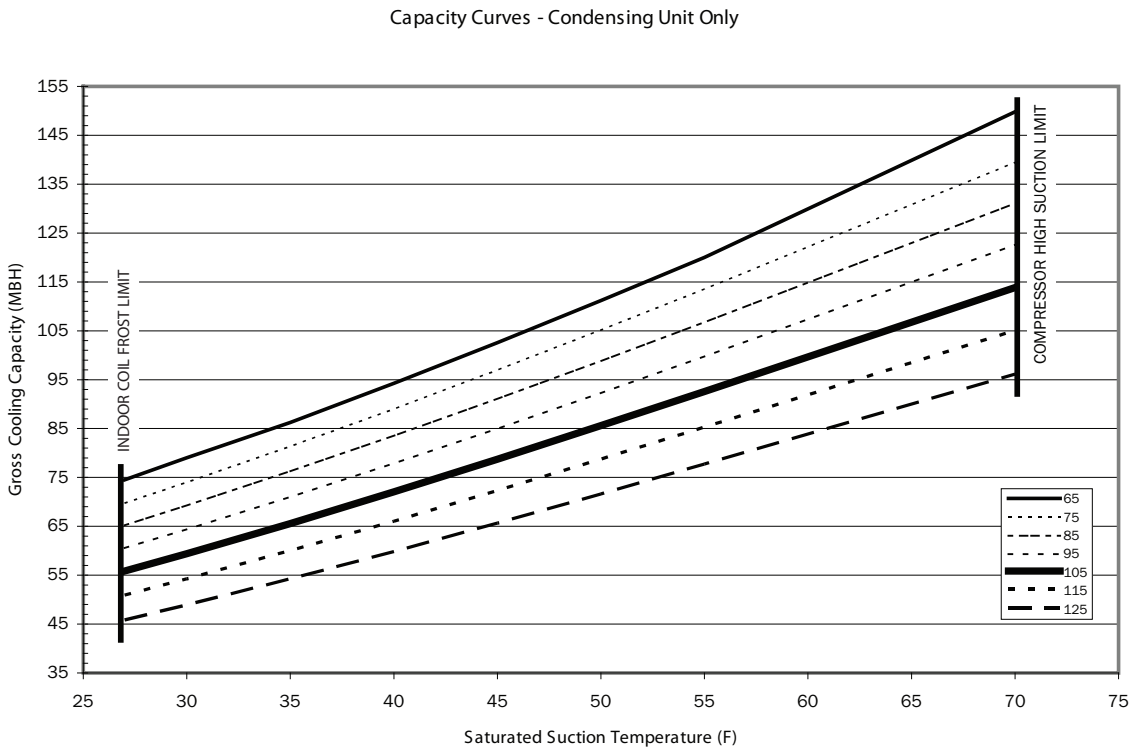


Table 12. Gross Cooling Capacities (MBH) 10 Tons TWA120D Condensing Unit Only (IP)

Outdoor Temp (°F)		Suction Temperature (°F)					
		30	35	40	45	50	55
65	Head Press (psig)	257.6	264.8	272.3	280.2	288.4	297.0
	Capacity (Btuh/1000)	99.2	110.1	121.4	133.3	145.6	158.2
	Unit Power (kW)	6.5	6.6	6.8	6.9	7.1	7.3
75	Head Press (psig)	293.8	301.0	308.6	316.5	324.7	333.2
	Capacity (Btuh/1000)	94.9	105.2	116.0	127.2	138.7	150.6
	Unit Power (kW)	7.0	7.2	7.3	7.5	7.7	7.8
85	Head Press (psig)	333.4	340.8	348.4	356.4	364.5	372.9
	Capacity (Btuh/1000)	90.2	100.0	110.2	120.7	131.6	142.7
	Unit Power (kW)	7.7	7.9	8.0	8.2	8.3	8.5
95	Head Press (psig)	376.6	384.1	391.8	399.8	407.9	416.2
	Capacity (Btuh/1000)	85.1	94.4	104.0	114.0	124.2	134.5
	Unit Power (kW)	8.5	8.7	8.8	9.0	9.1	9.3
105	Head Press (psig)	423.4	431.1	438.9	446.9	455.1	463.3
	Capacity (Btuh/1000)	79.6	88.5	97.6	106.9	116.4	126.1
	Unit Power (kW)	9.4	9.6	9.7	9.8	10.0	10.1
115	Head Press (psig)	474.3	482.2	490.2	498.3	506.3	514.4
	Capacity (Btuh/1000)	73.9	82.2	90.8	99.5	108.4	117.3
	Unit Power (kW)	10.4	10.6	10.7	10.8	10.9	11.0
125	Head Press (psig)	529.4	537.5	545.6	553.8	561.8	569.8
	Capacity (Btuh/1000)	67.7	75.6	83.6	91.7	99.9	108.1
	Unit Power (kW)	11.5	11.7	11.8	11.9	12.0	12.1

Note: Performance data calculated at 15°F subcooling and 15°F superheat and does not include capacity loss due to refrigerant lines.

Figure 6. TWA120D Capacity Curves

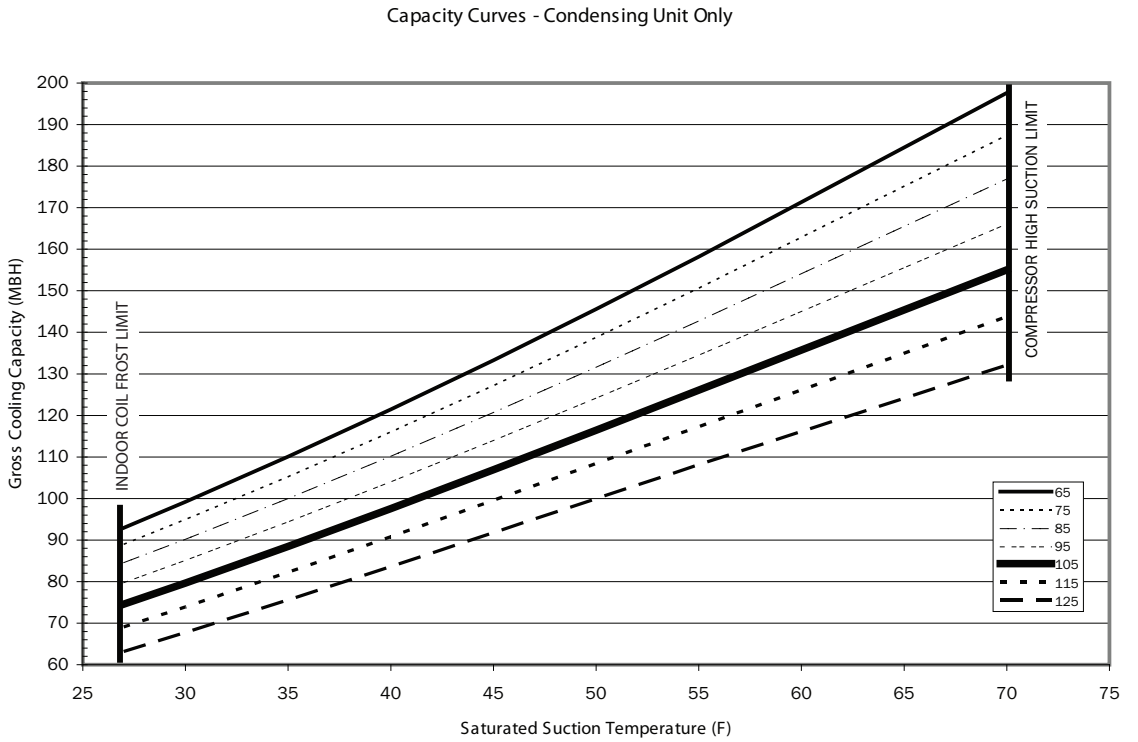


Table 13. Gross Cooling Capacities (MBH) 15 Tons TWA180E Condensing Unit Only (IP)

Outdoor Temp (°F)		Suction Temperature (°F)					
		30	35	40	45	50	55
65	Head Press (psig)	240.5	245.6	251.0	256.7	262.7	269.0
	Capacity (Btuh/1000)	158.4	175.2	193.4	212.6	232.6	253.3
	Unit Power (kW)	10.9	11.1	11.3	11.5	11.7	12.0
75	Head Press (psig)	275.8	281.1	286.7	292.6	298.8	305.3
	Capacity (Btuh/1000)	148.9	165.1	182.4	200.9	220.1	240.1
	Unit Power (kW)	11.7	11.9	12.1	12.3	12.6	12.8
85	Head Press (psig)	314.7	320.2	326.0	332.1	338.4	345.1
	Capacity (Btuh/1000)	139.0	154.7	171.2	188.6	207.1	226.3
	Unit Power (kW)	12.6	12.8	13.1	13.3	13.5	13.8
95	Head Press (psig)	357.3	363.0	368.9	375.1	381.6	388.3
	Capacity (Btuh/1000)	128.9	143.8	159.5	176.0	193.6	211.8
	Unit Power (kW)	13.8	14.0	14.2	14.4	14.7	14.9
105	Head Press (psig)	403.7	409.6	415.6	421.8	428.4	435.2
	Capacity (Btuh/1000)	118.3	132.4	147.3	163.0	179.3	196.6
	Unit Power (kW)	15.1	15.3	15.5	15.7	15.9	16.2
115	Head Press (psig)	454.2	460.2	466.3	472.6	479.2	486.1
	Capacity (Btuh/1000)	107.3	120.6	134.6	149.3	164.6	180.7
	Unit Power (kW)	16.6	16.8	17.0	17.2	17.4	17.6
125	Head Press (psig)	508.8	514.9	521.0	527.4	534.0	540.8
	Capacity (Btuh/1000)	95.8	108.1	121.1	134.8	149.0	163.8
	Unit Power (kW)	18.2	18.4	18.6	18.8	19.0	19.2

Note: Performance data calculated at 15°F subcooling and 15°F superheat and does not include capacity loss due to refrigerant lines.

Figure 7. TWA180E Capacity Curves

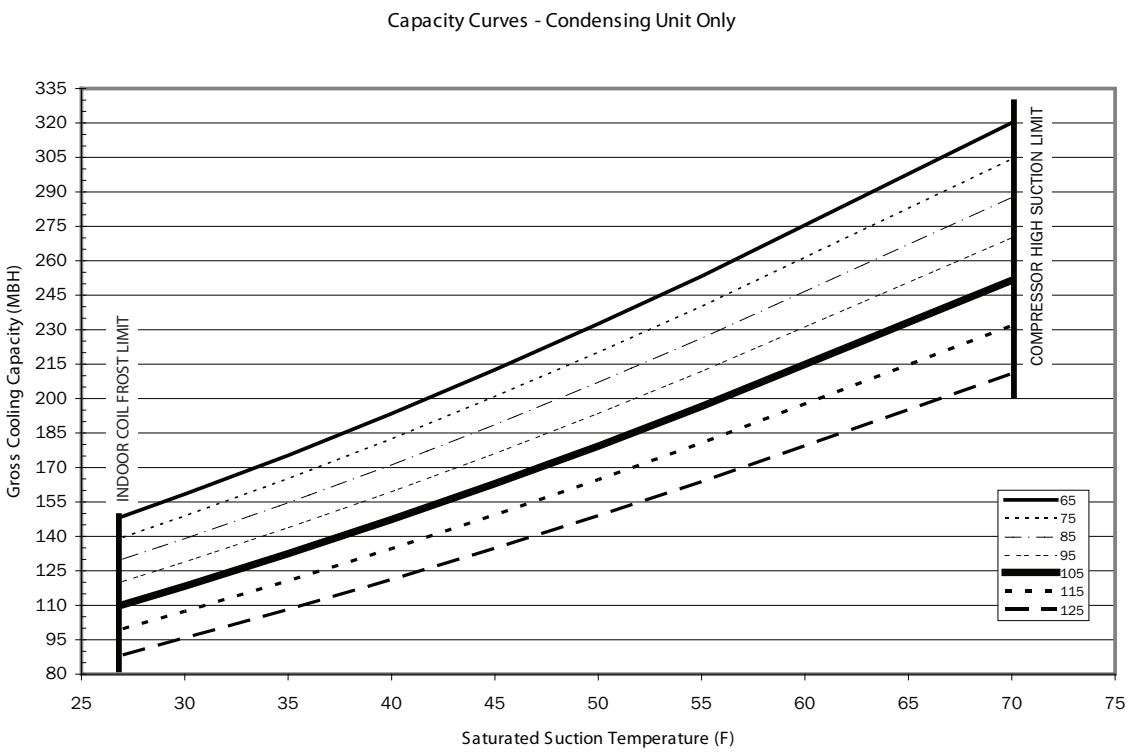


Table 14. Gross Cooling Capacities (MBH) 20 Tons TWA240E Condensing Unit Only (IP)

Outdoor Temp (°F)		Suction Temperature (°F)					
		30	35	40	45	50	55
65	Head Press (psig)	269.1	277.0	285.5	294.6	304.2	314.4
	Capacity (Btuh/1000)	240.3	264.7	290.5	317.6	345.9	375.5
	Unit Power (kW)	16.0	16.3	16.7	17.0	17.4	17.9
75	Head Press (psig)	304.6	312.9	321.7	331.1	341.0	351.6
	Capacity (Btuh/1000)	225.9	249.9	275.0	301.3	328.8	357.4
	Unit Power (kW)	17.1	17.5	17.9	18.3	18.7	19.2
85	Head Press (psig)	343.5	352.1	361.2	370.9	381.1	391.8
	Capacity (Btuh/1000)	210.7	233.8	258.1	283.5	309.8	337.2
	Unit Power (kW)	18.6	19.0	19.4	19.8	20.3	20.9
95	Head Press (psig)	385.9	394.7	404.0	413.9	424.2	435.2
	Capacity (Btuh/1000)	194.7	216.6	239.8	264.0	289.1	315.1
	Unit Power (kW)	20.4	20.8	21.2	21.6	22.2	22.7
105	Head Press (psig)	431.8	440.9	450.4	460.4	470.9	482.0
	Capacity (Btuh/1000)	178.0	198.7	220.5	243.3	267.0	291.5
	Unit Power (kW)	22.5	22.9	23.3	23.7	24.2	24.8
115	Head Press (psig)	481.8	490.9	500.4	510.5	521.0	532.2
	Capacity (Btuh/1000)	160.7	179.9	200.1	221.4	243.6	266.5
	Unit Power (kW)	25.0	25.3	25.6	26.1	26.6	27.1
125	Head Press (psig)	535.6	544.8	554.3	564.2	574.7	585.8
	Capacity (Btuh/1000)	142.7	160.2	178.8	198.3	218.8	240.0
	Unit Power (kW)	27.7	28.0	28.3	28.7	29.2	29.7

Note: Performance data calculated at 15°F subcooling and 15°F superheat and does not include capacity loss due to refrigerant lines.

Figure 8. TWA240E Capacity Curves

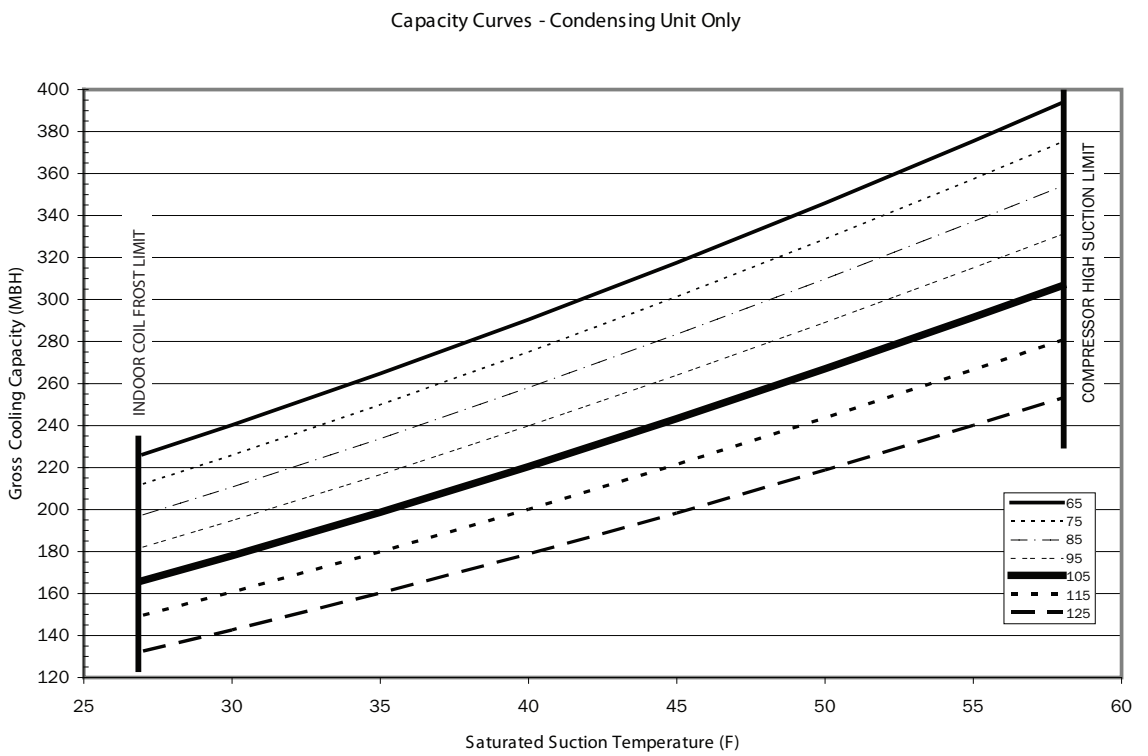


Table 15. Gross Heating Capacities (MBH) 6.25 Tons TWA073D Heat Pump with 7.5 Tons TWE090D Air Handler at 2400 CFM (IP)

Outdoor	Integrated Heating Capacity (MBH) at Indicated Indoor Dry Bulb Temp (°F)				Total Power (kW) at Indicated Indoor Dry Bulb Temp (°F)			
Temp (°F)	60	70	75	80	60	70	75	80
-18	22.7	23.0	22.9	22.6	5.1	5.4	5.7	5.9
-13	24.8	24.9	24.7	24.4	5.1	5.5	5.7	5.9
-8	27.0	27.0	26.8	26.5	5.1	5.5	5.7	6.0
-3	29.5	29.3	29.1	28.8	5.2	5.5	5.8	6.0
2	32.2	31.9	31.6	31.2	5.2	5.6	5.8	6.1
7	35.1	34.6	34.2	33.8	5.2	5.6	5.9	6.1
12	38.1	37.4	36.9	36.4	5.3	5.7	5.9	6.2
17	41.3	40.4	39.9	39.3	5.3	5.7	6.0	6.2
22	44.6	43.5	42.9	42.3	5.4	5.8	6.0	6.3
27	48.1	46.8	46.1	45.4	5.4	5.9	6.1	6.4
32	51.7	50.1	49.3	48.5	5.5	5.9	6.2	6.4
37	61.3	59.3	58.3	57.3	5.5	6.0	6.2	6.5
42	65.2	63.0	61.9	60.7	5.6	6.0	6.3	6.6
47	69.3	66.8	65.6	64.3	5.6	6.1	6.4	6.7
52	73.5	70.8	69.7	68.5	5.7	6.2	6.5	6.8
57	77.9	75.4	74.1	72.8	5.8	6.3	6.6	6.9
62	82.8	80.0	78.6	77.1	5.9	6.4	6.7	7.0
67	87.6	84.5	82.8	81.2	6.0	6.5	6.8	7.1
72	92.0	88.7	87.0	85.3	6.1	6.7	6.9	7.2

Notes:
1. Net heating capacity and power include indoor fan heat at ARI ESP. To obtain net heating at other conditions, subtract fan heat at this condition and add fan heat at new condition.
2. Integrated heating capacities and power include the effects of defrost in the frost region. All heating capacities and power are at 70% outdoor relative humidity and demand defrost cycle.

Table 16. Gross Heating Capacities (MBH) 7.5 Tons TWA090D Heat Pump with 7.5 Tons TWE090D Air Handler at 3000 CFM (IP)

Outdoor	Integrated Heating Capacity (MBH) at Indicated Indoor Dry Bulb Temp (°F)				Total Power (kW) at Indicated Indoor Dry Bulb Temp (°F)			
Temp (°F)	60	70	75	80	60	70	75	80
-18	30.9	29.7	29.2	28.9	5.8	6.2	6.4	6.7
-13	32.7	31.5	31.1	30.8	5.9	6.2	6.5	6.7
-8	34.9	33.7	33.2	32.9	5.9	6.3	6.5	6.8
-3	37.3	36.0	35.6	35.2	5.9	6.3	6.6	6.8
2	40.0	38.7	38.2	37.8	5.9	6.4	6.6	6.9
7	42.9	41.6	41.1	40.6	6.0	6.4	6.7	7.0
12	46.1	44.7	44.1	43.6	6.1	6.5	6.8	7.1
17	49.5	48.0	47.4	46.8	6.1	6.6	6.9	7.2
22	53.1	51.5	50.9	50.2	6.2	6.7	7.0	7.3
27	56.9	55.3	54.5	53.8	6.3	6.8	7.1	7.4
32	61.0	59.1	58.3	57.4	6.4	6.9	7.2	7.5
37	72.2	69.9	68.9	67.9	6.5	7.0	7.3	7.6
42	76.7	74.3	73.1	72.0	6.6	7.1	7.4	7.8
47	81.4	78.7	77.4	76.4	6.7	7.3	7.6	7.9
52	86.4	83.8	82.6	81.4	6.9	7.4	7.8	8.1
57	92.0	89.3	88.0	86.7	7.0	7.6	7.9	8.3
62	97.8	94.9	93.5	92.0	7.2	7.8	8.1	8.5
67	103.5	100.4	98.8	97.3	7.4	8.0	8.3	8.7
72	109.1	105.7	104.1	102.4	7.5	8.2	8.5	8.9

Notes:
1. Net heating capacity and power include indoor fan heat at ARI ESP. To obtain net heating at other conditions, subtract fan heat at this condition and add fan heat at new condition.
2. Integrated heating capacities and power include the effects of defrost in the frost region. All heating capacities and power are at 70% outdoor relative humidity and demand defrost cycle.

Table 17. Gross Heating Capacities (MBH) 10 Tons TWA120D Heat Pump with 10 Tons TWE120D Air Handler at 4000 CFM (IP)

Outdoor	Integrated Heating Capacity (MBH) at Indicated Indoor Dry Bulb Temp (°F)				Total Power (kW) at Indicated Indoor Dry Bulb Temp (°F)			
Temp (°F)	60	70	75	80	60	70	75	80
-18	34.4	34.0	33.6	33.0	7.5	7.9	8.2	8.5
-13	37.1	36.7	36.2	35.7	7.5	7.9	8.2	8.5
-8	40.1	39.7	39.3	38.8	7.5	8.0	8.3	8.6
-3	43.6	43.1	42.6	42.1	7.6	8.1	8.4	8.7
2	47.1	46.5	46.0	45.5	7.6	8.1	8.5	8.8
7	51.2	50.4	50.0	49.4	7.7	8.2	8.6	8.9
12	55.7	54.8	54.2	53.6	7.8	8.3	8.7	9.0
17	60.6	59.4	58.8	58.1	7.9	8.4	8.8	9.2
22	65.7	64.3	63.6	62.8	8.0	8.6	8.9	9.3
27	71.1	69.5	68.6	67.8	8.1	8.7	9.1	9.5
32	76.7	74.8	73.8	72.8	8.2	8.8	9.2	9.6
37	91.3	88.8	87.6	86.4	8.3	9.0	9.4	9.8
42	97.4	94.6	93.2	91.9	8.4	9.1	9.5	10.0
47	103.7	100.7	99.2	97.6	8.6	9.3	9.7	10.1
52	110.4	107.2	105.7	104.2	8.8	9.5	9.9	10.4
57	117.9	114.5	112.8	111.2	9.0	9.7	10.1	10.6
62	125.6	121.9	120.0	118.1	9.2	10.0	10.4	10.8
67	132.4	128.8	126.7	124.6	9.4	10.2	10.6	11.0
72	140.5	135.9	133.5	131.1	9.6	10.4	10.8	11.2

Notes:
1. Net heating capacity and power include indoor fan heat at ARI ESP. To obtain net heating at other conditions, subtract fan heat at this condition and add fan heat at new condition.
2. Integrated heating capacities and power include the effects of defrost in the frost region. All heating capacities and power are at 70 % outdoor relative humidity and demand defrost cycle.

Table 18. Gross Heating Capacities (MBH) 15 Tons TWA180E Heat Pump with 15 Tons TWE180E Air Handler at 6000 CFM (IP)

Outdoor	Integrated Heating Capacity (MBH) at Indicated Indoor Dry Bulb Temp (°F)				Total Power (kW) at Indicated Indoor Dry Bulb Temp (°F)			
Temp (°F)	60	70	75	80	60	70	75	80
-18	61.6	58.5	57.4	56.4	12.9	13.8	14.3	14.8
-13	66.3	63.2	62.0	61.0	13.0	13.8	14.3	14.9
-8	71.8	68.6	67.3	66.2	13.0	13.9	14.4	15.0
-3	77.9	74.6	73.3	72.0	13.1	14.0	14.5	15.1
2	84.6	81.2	79.7	78.4	13.2	14.1	14.6	15.2
7	91.7	88.1	86.5	85.0	13.2	14.2	14.8	15.3
12	99.4	95.5	93.7	92.1	13.4	14.4	14.9	15.5
17	107.3	103.1	101.1	99.2	13.6	14.5	15.1	15.7
22	115.6	110.9	108.7	106.5	13.7	14.7	15.3	15.9
27	124.1	118.9	116.4	113.9	13.9	14.9	15.5	16.1
32	132.7	127.0	124.2	121.3	14.1	15.1	15.7	16.3
37	156.9	149.9	146.3	142.8	14.3	15.4	15.9	16.6
42	166.5	158.7	154.8	151.3	14.6	15.6	16.2	16.8
47	176.5	168.5	164.8	161.3	14.8	15.9	16.5	17.2
52	187.2	179.3	175.4	171.5	15.1	16.3	16.9	17.6
57	198.8	190.5	186.3	182.1	15.5	16.6	17.3	17.9
62	210.7	201.6	197.0	192.4	15.8	17.0	17.6	18.3
67	222.7	213.0	208.0	203.1	16.2	17.4	18.0	18.7
72	234.4	224.1	218.8	213.5	16.6	17.8	18.4	19.1

Notes:
1. Net heating capacity and power include indoor fan heat at ARI ESP. To obtain net heating at other conditions, subtract fan heat at this condition and add fan heat at new condition.
2. Integrated heating capacities and power include the effects of defrost in the frost region. All heating capacities and power are at 70% outdoor relative humidity and demand defrost cycle.

Table 19. Gross Heating Capacities (MBH) 20 Tons TWA240E Heat Pump with 20 Tons TWE240E Air Handler at 8000 CFM (IP)

Outdoor	Integrated Heating Capacity (MBH) at Indicated Indoor Dry Bulb Temp (°F)				Total Power (kW) at Indicated Indoor Dry Bulb Temp (°F)			
Temp (°F)	60	70	75	80	60	70	75	80
-18	77.3	69.0	65.9	63.5	15.9	17.3	18.1	19.1
-13	84.7	76.7	73.7	71.4	16.3	17.6	18.5	19.4
-8	92.6	85.0	82.1	79.9	16.6	17.9	18.8	19.7
-3	101.1	93.8	91.0	88.8	16.9	18.3	19.1	20.0
2	110.1	103.1	100.4	98.2	17.3	18.6	19.4	20.3
7	119.7	112.7	109.9	107.6	17.6	18.9	19.7	20.6
12	129.9	122.9	120.0	117.6	17.9	19.2	20.0	20.9
17	140.6	133.5	130.5	127.8	18.2	19.5	20.3	21.2
22	151.7	144.4	141.3	138.4	18.5	19.8	20.6	21.5
27	163.4	155.7	152.3	149.2	18.8	20.1	21.0	21.8
32	175.4	167.4	163.8	160.3	19.1	20.5	21.3	22.2
37	208.0	198.7	194.3	190.1	19.4	20.8	21.6	22.5
42	221.3	211.5	206.8	202.3	19.7	21.2	22.0	22.9
47	235.3	225.3	220.6	215.9	20.1	21.6	22.4	23.3
52	250.5	240.2	235.2	230.5	20.5	22.0	22.9	23.9
57	266.7	256.1	251.0	245.9	21.0	22.6	23.5	24.4
62	283.9	273.0	267.5	262.0	21.5	23.2	24.1	25.1
67	300.4	289.3	283.5	277.7	22.1	23.8	24.8	25.7
72	317.6	305.2	299.0	292.7	22.7	24.5	25.4	26.4

Notes:

1. Net heating capacity and power include indoor fan heat at ARI ESP. To obtain net heating at other conditions, subtract fan heat at this condition and add fan heat at new condition.
2. Integrated heating capacities and power include the effects of defrost in the frost region. All heating capacities and power are at 70% outdoor relative humidity and demand defrost cycle.

Table 20. Evaporator Fan Performance —TWE061 — Air Handler

	External Static Pressure (Inches of Water Gauge)																			
	.10"		.20"		.30"		.40"		.50"		.60"		.70"		.80"		.90"		1.00"	
CFM	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
3/4 HP Standard Motor																				
1600	—	—	738	0.33	790	0.38	840	0.44	888	0.50	936	0.56	980	0.62	1025	0.69	1070	0.76	1111	0.83
1700	719	0.33	771	0.38	821	0.44	869	0.50	914	0.56	959	0.62	1003	0.68	1047	0.75	1089	0.82	1129	0.90
1800	756	0.39	804	0.44	853	0.50	898	0.56	942	0.62	985	0.69	1028	0.75	1068	0.82	1109	0.89	1149	0.97
1900	792	0.45	838	0.51	884	0.57	928	0.63	971	0.69	1012	0.76	1052	0.83	1092	0.90	1131	0.97	1170	1.05
2000	829	0.52	873	0.58	917	0.64	959	0.71	1000	0.77	1040	0.84	1079	0.91	1117	0.98	1155	1.06	1192	1.14
2100	866	0.60	908	0.66	950	0.72	991	0.79	1030	0.86	1069	0.93	1106	1.00	1144	1.08	1179	1.15	1215	1.23
2200	903	0.68	944	0.74	983	0.81	1023	0.88	1061	0.95	1099	1.02	1134	1.10	1170	1.18	1206	1.26	1241	1.34
2300	940	0.78	979	0.84	1017	0.90	1055	0.97	1093	1.05	1129	1.13	1164	1.21	1198	1.28	1232	1.37	1266	1.45
2400	978	0.88	1015	0.94	1052	1.01	1089	1.08	1125	1.16	1160	1.24	1194	1.32	1227	1.40	1259	1.48	1292	1.57

	External Static Pressure (Inches of Water Gauge)							
	1.10"		1.20"		1.30"		1.40"	
CFM	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
1.5 HP High Static Motor								
1600	1152	0.91	1191	0.99	1229	1.07	1264	1.14
1700	1170	0.98	1208	1.06	1246	1.14	1281	1.22
1800	1187	1.05	1226	1.13	1263	1.22	1300	1.30
1900	1207	1.13	1245	1.21	1281	1.30	1317	1.39
2000	1227	1.21	1265	1.30	1300	1.39	1335	1.48
2100	1250	1.31	1285	1.39	1319	1.48	—	—
2200	1274	1.42	1308	1.50	—	—	—	—
2300	1299	1.53	—	—	—	—	—	—
2400	—	—	—	—	—	—	—	—

Notes:
1. Data includes pressure drop due to wet coil and 1" filter.
2. Fan motor heat (MBh) = 3.15 x BHP.
3. Trane's factory supplied motors, in commercial equipment, are definite purpose motors, specifically designed and tested to operate reliably and continuously at all cataloged conditions. Using the full horsepower range of our fan motors as shown in our tabular data will not result in nuisance tripping or premature motor failure. Our product's warranty will not be affected.
4. For TWE061 Standard Motor use Table 27, p. 46, for High Static Motor use Table 28, p. 47.

Table 21. Evaporator Fan Performance —TWE090 — Air Handler

External Static Pressure (Inches of Water Gauge)																				
	.10"		.20"		.30"		.40"		.50"		.60"		.70"		.80"		.90"		1.00"	
CFM	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
	1.5 HP Standard Motor														2 HP High Static Motor					
2400	—	—	572	0.52	634	0.62	691	0.74	744	0.85	795	0.96	844	1.08	892	1.21	939	1.35	982	1.49
2550	—	—	592	0.59	652	0.70	707	0.82	759	0.95	809	1.06	856	1.18	902	1.31	947	1.45	990	1.59
2700	—	—	612	0.67	670	0.79	724	0.91	774	1.05	822	1.18	868	1.29	913	1.42	957	1.56	999	1.71
2850	575	0.68	633	0.73	689	0.89	741	1.01	790	1.15	837	1.29	882	1.42	925	1.55	967	1.68	1008	1.83
3000	599	0.76	654	0.82	709	0.99	760	1.13	807	1.26	853	1.41	896	1.56	939	1.69	980	1.82	1020	1.97
3150	623	0.85	675	0.93	729	1.11	778	1.25	825	1.39	869	1.54	911	1.70	953	1.85	992	1.98	1031	2.12
3300	647	0.95	697	1.09	749	1.22	797	1.38	842	1.52	886	1.67	927	1.83	967	2.00	1007	2.15	1045	2.30
3450	673	1.08	724	1.26	770	1.32	816	1.52	861	1.67	903	1.82	943	1.98	983	2.16	1020	2.33	1058	2.48
3600	698	1.21	746	1.43	790	1.43	836	1.67	880	1.83	922	1.98	961	2.14	999	2.32	1037	2.51	1073	2.68
															3 HP Ultra High Static Motor					

External Static Pressure (Inches of Water Gauge)																				
	1.10"		1.20"		1.30"		1.40"		1.50"		1.60"		1.70"		1.80"		1.90		2.00	
CFM	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
	2 HP High Static Motor								3 HP Ultra High Static Motor											
2400	1023	1.62	1062	1.75	1101	1.89	1137	2.03	1172	2.16	1207	2.30	1241	2.44	1273	2.58	1303	2.71	1334	2.85
2550	1032	1.74	1071	1.88	1109	2.03	1145	2.17	1181	2.32	1215	2.46	1248	2.61	1281	2.75	1311	2.89	1341	3.04
2700	1040	1.86	1079	2.01	1117	2.17	1154	2.32	1189	2.47	1223	2.62	1255	2.77	1288	2.93	—	—	—	—
2850	1048	1.99	1087	2.14	1126	2.31	1161	2.47	1198	2.63	1232	2.79	1264	2.95	—	—	—	—	—	—
3000	1058	2.12	1096	2.29	1135	2.46	1171	2.63	1206	2.80	1239	2.96	—	—	—	—	—	—	—	—
3150	1069	2.27	1105	2.43	1142	2.60	1179	2.79	1214	2.96	—	—	—	—	—	—	—	—	—	—
3300	1082	2.45	1118	2.61	1154	2.78	1187	2.95	—	—	—	—	—	—	—	—	—	—	—	—
3450	1094	2.63	1130	2.79	1164	2.96	—	—	—	—	—	—	—	—	—	—	—	—	—	—
3600	1107	2.84	1144	3.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Notes:

1. Data includes pressure drop due to wet coil and 1" filter.
2. Fan motor heat (MBh) = 3.15 x BHP.
3. Trane's factory supplied motors, in commercial equipment, are definite purpose motors, specifically designed and tested to operate reliably and continuously at all cataloged conditions. Using the full horsepower range of our fan motors as shown in our tabular data will not result in nuisance tripping or premature motor failure. Our product's warranty will not be affected.
4. For TWE090 Standard Motor use Table 27, p. 46, for High Static Motor use Table 28, p. 47, for Ultra High Static Motor use Table 29, p. 48.

Table 22. Evaporator Fan Performance —TWE120 — Air Handler

External Static Pressure (Inches of Water Gauge)																				
	.10"		.20"		.30"		.40"		.50"		.60"		.70"		.80"		.90"		1.00"	
CFM	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
	2 HP Standard Motor																			
3200	—	—	—	—	588	0.87	625	0.95	658	1.03	691	1.13	722	1.22	753	1.32	783	1.40	812	1.48
3400	—	—	—	—	611	1.01	646	1.09	679	1.18	711	1.27	742	1.38	771	1.48	799	1.57	828	1.67
3600	—	—	598	1.04	634	1.16	668	1.26	700	1.34	731	1.44	761	1.54	789	1.65	817	1.76	844	1.86
3800	588	1.17	624	1.24	658	1.29	691	1.43	722	1.53	752	1.62	781	1.72	809	1.83	835	1.95	862	2.07
4000	616	1.34	651	1.47	682	1.45	714	1.63	745	1.73	774	1.83	801	1.93	829	2.04	855	2.16	880	2.28
4200	643	1.52	677	1.70	706	1.65	738	1.81	767	1.95	795	2.05	823	2.15	849	2.26	874	2.38	899	2.50
4400	670	1.74	703	1.94	731	1.90	761	2.00	790	2.19	818	2.29	844	2.40	870	2.51	895	2.63	919	2.75
4600	698	1.97	729	2.19	756	2.20	785	2.21	814	2.44	840	2.56	866	2.67	891	2.78	915	2.90	—	—
4800	726	2.23	755	2.46	785	2.53	809	2.47	837	2.65	863	2.85	889	2.96	—	—	—	—	—	—

External Static Pressure (Inches of Water Gauge)																				
	1.10"		1.20"		1.30"		1.40"		1.50"		1.60"		1.70"		1.80"		1.90		2.00	
CFM	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
	3 HP Hi Static Motor										3 HP High Static Motor w/ Field Supplied Sheave & Belt									
3200	839	1.58	866	1.67	893	1.77	920	1.88	946	1.99	971	2.10	996	2.21	1019	2.32	1044	2.43	1066	2.54
3400	854	1.75	881	1.85	906	1.95	931	2.05	957	2.16	982	2.28	1007	2.40	1030	2.51	1054	2.63	1076	2.74
3600	871	1.96	896	2.05	922	2.15	946	2.25	970	2.36	993	2.47	1018	2.59	1042	2.72	1065	2.84	1087	2.96
3800	887	2.18	912	2.28	937	2.38	961	2.48	985	2.58	1008	2.70	1030	2.81	1053	2.93	—	—	—	—
4000	905	2.40	930	2.52	953	2.62	977	2.73	1000	2.83	1022	2.94	—	—	—	—	—	—	—	—
4200	923	2.63	947	2.76	970	2.89	993	3.00	—	—	—	—	—	—	—	—	—	—	—	—
4400	942	2.88	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
4600	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
4800	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

External Static Pressure (Inches of Water Gauge)				
	2.10"		2.20"	
CFM	RPM	BHP	RPM	BHP
	3 HP High Static Motor w/ Field Supplied Sheave & Belt			
3200	1088	2.64	1109	2.75
3400	1098	2.86	1120	2.97
3600	—	—	—	—
3800	—	—	—	—
4000	—	—	—	—
4200	—	—	—	—
4400	—	—	—	—
4600	—	—	—	—
4800	—	—	—	—

Notes:

1. Data includes pressure drop due to wet coil and 1" filter.
2. Fan motor heat (MBh) = 3.15 x BHP.
3. Trane's factory supplied motors, in commercial equipment, are definite purpose motors, specifically designed and tested to operate reliably and continuously at all cataloged conditions. Using the full horsepower range of our fan motors as shown in our tabular data will not result in nuisance tripping or premature motor failure. Our product's warranty will not be affected.
4. For TWE120 Standard Motor use Table 27, p. 46, for High Static Motors use Table 28, p. 47.

Table 23. Evaporator Fan Performance —TWE150 — Air Handler

External Static Pressure (Inches of Water Gauge)																				
	.10"		.20"		.30"		.40"		.50"		.60"		.70"		.80"		.90"		1.00"	
CFM	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
							2 HP Standard Motor				2 HP Standard Motor w/ Field Supplied Sheave & Belt									
4000	—	—	—	—	—	—	614	0.85	658	0.98	698	1.12	728	1.22	756	1.32	786	1.43	817	1.56
4200	—	—	—	—	581	0.80	627	0.93	669	1.05	710	1.21	744	1.34	772	1.44	799	1.55	827	1.66
4400	—	—	—	—	595	0.88	640	1.02	682	1.15	722	1.29	758	1.45	789	1.58	814	1.68	840	1.79
4600	—	—	563	0.82	609	0.96	653	1.11	695	1.25	732	1.38	771	1.55	804	1.71	831	1.83	856	1.94
4800	—	—	579	0.90	624	1.05	667	1.20	707	1.35	745	1.50	783	1.66	817	1.83	847	1.98	872	2.10
5000	—	—	595	0.99	639	1.15	681	1.31	721	1.47	759	1.62	794	1.77	828	1.94	861	2.12	888	2.27
5200	568	0.95	612	1.09	655	1.25	695	1.42	735	1.58	771	1.74	806	1.90	840	2.06	873	2.25	903	2.43
5400	587	1.05	628	1.20	670	1.36	710	1.53	748	1.71	784	1.88	819	2.04	852	2.20	885	2.38	915	2.58
5600	605	1.16	645	1.31	686	1.48	724	1.66	762	1.83	798	2.01	832	2.19	864	2.35	896	2.52	928	2.73
5800	624	1.28	662	1.43	702	1.60	740	1.79	777	1.97	812	2.15	845	2.34	877	2.51	908	2.68	938	2.87
6000	643	1.40	679	1.56	719	1.74	755	1.92	791	2.12	826	2.30	858	2.49	891	2.68	920	2.86	950	3.03
									3 HP High Static Motor											

External Static Pressure (Inches of Water Gauge)																				
	1.10"		1.20"		1.30"		1.40"		1.50"		1.60"		1.70"		1.80"		1.90		2.00	
CFM	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
	2 HP Standard Motor w/ Field Supplied Sheave & Belt										3 HP High Static Motor									
4000	849	1.70	882	1.85	915	2.02	947	2.19	976	2.36	1002	2.52	1028	2.69	1053	2.86	1078	3.03	1101	3.20
4200	858	1.80	888	1.95	919	2.11	950	2.28	980	2.45	1010	2.64	1036	2.81	1061	2.98	1085	3.15	1109	3.33
4400	867	1.92	896	2.06	925	2.21	955	2.38	985	2.55	1013	2.73	1044	2.93	1070	3.11	1094	3.30	1117	3.47
4600	880	2.05	906	2.19	934	2.33	961	2.49	989	2.66	1018	2.84	1045	3.02	1074	3.22	1101	3.43	1125	3.61
4800	896	2.22	918	2.33	944	2.47	970	2.63	996	2.79	1023	2.96	1051	3.15	1078	3.34	1105	3.55	1131	3.74
5000	911	2.39	934	2.51	956	2.64	980	2.78	1005	2.93	1031	3.11	1057	3.28	1083	3.48	1109	3.67	1135	3.87
5200	927	2.57	950	2.71	972	2.83	993	2.95	1016	3.11	1040	3.27	1064	3.43	1090	3.62	1115	3.82	1139	4.01
5400	943	2.76	966	2.90	989	3.04	1008	3.17	1029	3.30	1051	3.45	1075	3.62	1098	3.79	1122	3.98	1146	4.17
5600	956	2.92	982	3.11	1004	3.25	1025	3.39	1045	3.52	1065	3.66	1085	3.81	1108	3.98	1130	4.16	1153	4.35
5800	969	3.09	996	3.29	1020	3.47	1041	3.62	1062	3.77	1081	3.91	1099	4.04	1120	4.20	1141	4.37	1162	4.55
6000	980	3.25	1008	3.46	1034	3.67	1057	3.86	1077	4.01	1097	4.16	1115	4.30	1134	4.45	1153	4.60	1174	4.78
											5 HP Ultra High Static Motor									

External Static Pressure (Inches of Water Gauge)								
	2.10"		2.20"		2.30"		2.40"	
CFM	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
	5 HP Ultra High Static Motor							
4000	1126	3.38	1148	3.54	1170	3.73	1191	3.89
4200	1132	3.51	1155	3.69	1179	3.88	1200	4.06
4400	1141	3.66	1163	3.84	1186	4.03	1208	4.23
4600	1150	3.81	1172	4.00	1193	4.18	1215	4.37
4800	1157	3.96	1179	4.15	1202	4.36	—	—
5000	1161	4.09	1186	4.30	1210	4.52	—	—
5200	1164	4.21	1189	4.44	1214	4.66	—	—
5400	1170	4.38	1193	4.58	1218	4.81	—	—
5600	1176	4.55	1198	4.74	1222	4.97	—	—
5800	1184	4.74	1206	4.94	—	—	—	—
6000	1194	4.96	—	—	—	—	—	—

Notes:

1. Data includes pressure drop due to wet coil and 1" filter.
2. Fan motor heat (MBh) = 3.15 x BHP.
3. Trane's factory supplied motors, in commercial equipment, are definite purpose motors, specifically designed and tested to operate reliably and continuously at all cataloged conditions. Using the full horsepower range of our fan motors as shown in our tabular data will not result in nuisance tripping or premature motor failure. Our product's warranty will not be affected.
4. For TWE150 Standard Motor use Table 27, p. 46, for High Static Motor use Table 28, p. 47, for Ultra High Static Motor (3 HP) use Table 29, p. 48.

Table 24. Evaporator Fan Performance —TWE180 — Air Handler

External Static Pressure (Inches of Water Gauge)																				
	.10"		.20"		.30"		.40"		.50"		.60"		.70"		.80"		.90"		1.00"	
CFM	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
	3 HP Standard Motor w/ Field Supplied Sheave & Belt										3 HP Standard Motor									
4800	492	0.80	539	0.94	583	1.08	624	1.21	663	1.34	701	1.49	738	1.66	774	1.82	807	1.98	839	2.14
5100	517	0.95	562	1.08	604	1.24	644	1.38	681	1.52	718	1.67	753	1.83	788	2.00	821	2.18	853	2.35
5400	542	1.11	585	1.25	625	1.41	663	1.57	700	1.71	735	1.86	769	2.02	802	2.20	835	2.38	866	2.57
5700	567	1.29	609	1.43	647	1.60	684	1.78	719	1.93	753	2.08	786	2.24	818	2.41	849	2.60	881	2.80
6000	593	1.48	632	1.64	669	1.80	705	1.99	739	2.16	773	2.32	804	2.48	835	2.66	865	2.84	895	3.04
6300	619	1.70	656	1.86	692	2.03	726	2.22	760	2.42	792	2.59	823	2.75	853	2.93	882	3.12	910	3.31
6600	644	1.94	681	2.11	715	2.28	748	2.48	781	2.69	811	2.87	841	3.04	871	3.22	899	3.40	927	3.60
6900	670	2.20	705	2.37	739	2.55	771	2.75	802	2.97	832	3.18	861	3.36	890	3.54	917	3.72	944	3.92
7200	696	2.49	730	2.66	763	2.85	794	3.05	824	3.27	853	3.49	881	3.70	909	3.89	936	4.08	963	4.28
									5 HP High Static Motor											

External Static Pressure (Inches of Water Gauge)																				
	1.10"		1.20"		1.30"		1.40"		1.50"		1.60"		1.70"		1.80"		1.90		2.00	
CFM	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
	5 HP High Static Motor										5 HP High Static Motor w/ Field Supplied Sheave & Belt									
4800	869	2.30	897	2.46	926	2.62	953	2.77	979	2.93	1004	3.08	1029	3.24	1051	3.38	1075	3.54	1097	3.69
5100	883	2.52	911	2.69	940	2.86	965	3.02	992	3.19	1017	3.36	1042	3.52	1065	3.68	1088	3.84	1111	4.02
5400	897	2.75	925	2.93	953	3.11	980	3.29	1005	3.47	1031	3.65	1055	3.82	1078	3.99	1102	4.17	1123	4.34
5700	910	2.99	940	3.19	966	3.38	993	3.57	1019	3.75	1044	3.94	1068	4.13	1092	4.32	1114	4.50	1137	4.69
6000	924	3.25	953	3.45	980	3.65	1008	3.86	1033	4.06	1057	4.26	1081	4.45	1105	4.66	1129	4.86	1150	5.05
6300	939	3.52	967	3.73	995	3.95	1022	4.17	1046	4.37	1071	4.59	1095	4.79	1119	5.01	—	—	—	—
6600	954	3.81	981	4.02	1009	4.25	1035	4.48	1061	4.71	1085	4.93	—	—	—	—	—	—	—	—
6900	971	4.13	998	4.35	1022	4.57	1049	4.81	1074	5.04	—	—	—	—	—	—	—	—	—	—
7200	988	4.48	1014	4.70	1039	4.93	1063	5.15	—	—	—	—	—	—	—	—	—	—	—	—

External Static Pressure (Inches of Water Gauge)								
	2.10"		2.20"		2.30″		2.40″	
CFM	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
	5 HP High Static Motor w/ Field Supplied Sheave & Belt							
4800	1120	3.84	1141	3.99	1162	4.14	1183	4.30
5100	1132	4.17	1154	4.33	1175	4.49	1196	4.66
5400	1146	4.52	1167	4.69	1188	4.86	1209	5.04
5700	1159	4.87	1180	5.06	—	—	—	—
6000	—	—	—	—	—	—	—	—
6300	—	—	—	—	—	—	—	—
6600	—	—	—	—	—	—	—	—
6900	—	—	—	—	—	—	—	—
7200	—	—	—	—	—	—	—	—

Notes:
1. Data includes pressure drop due to wet coil and 1" filter.
2. Fan motor heat (MBh) = 3.15 x BHP.
3. Trane's factory supplied motors, in commercial equipment, are definite purpose motors, specifically designed and tested to operate reliably and continuously at all cataloged conditions. Using the full horsepower range of our fan motors as shown in our tabular data will not result in nuisance tripping or premature motor failure. Our product's warranty will not be affected.
4. For TWE180 Low Static Motor use Table 26, p. 46, for Standard Motor use Table 27, p. 46, for High Static Motor use Table 28, p. 47.

Table 25. Evaporator Fan Performance —TWE240 — Air Handler

External Static Pressure (Inches of Water Gauge)																				
	.10"		.20"		.30"		.40"		.50"		.60"		.70"		.80"		.90"		1.00"	
CFM	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
	3 HP Low Static Motor												5 HP Standard Motor							
6400	—	—	—	—	652	1.55	693	1.70	732	1.86	769	2.02	802	2.17	833	2.33	867	2.53	901	2.75
6800	—	—	—	—	677	1.79	717	1.96	754	2.12	791	2.29	824	2.46	855	2.62	885	2.79	916	3.00
7200	—	—	661	1.87	703	2.05	742	2.24	778	2.42	812	2.59	846	2.77	878	2.95	906	3.11	934	3.29
7600	647	1.98	688	2.15	729	2.34	766	2.55	802	2.74	835	2.92	868	3.10	900	3.29	929	3.48	956	3.66
8000	677	2.29	716	2.47	755	2.67	791	2.88	826	3.09	858	3.28	889	3.47	921	3.67	951	3.87	979	4.06
8400	707	2.63	744	2.82	781	3.02	817	3.24	851	3.46	883	3.68	913	3.87	942	4.07	972	4.28	1000	4.49
8800	737	3.01	773	3.21	808	3.41	843	3.63	876	3.87	907	4.10	937	4.31	965	4.52	994	4.73	1022	4.95
9200	767	3.41	802	3.63	836	3.84	869	4.06	901	4.30	932	4.55	961	4.79	989	5.00	1016	5.21	1044	5.44
9600	797	3.86	831	4.08	863	4.30	896	4.53	927	4.78	957	5.03	986	5.29	1013	5.52	1040	5.75	1065	5.97
	7.5 HP Ultra Hi Static Motor												5 HP Hi Standard Motor w/ Field Supplied Sheaves							

External Static Pressure (Inches of Water Gauge)																				
	1.10"		1.20"		1.30"		1.40"		1.50"		1.60"		1.70"		1.80"		1.90		2.00	
CFM	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
	5 HP Standard Motor								5 HP Standard Motor w/ Field Supplied Sheaves											
6400	934	2.95	965	3.16	996	3.37	1028	3.58	1059	3.81	1091	4.03	1120	4.25	1148	4.46	1177	4.69	1204	4.90
6800	948	3.22	979	3.45	1008	3.66	1039	3.89	1069	4.12	1099	4.35	1128	4.58	1156	4.81	1185	5.05	1212	5.28
7200	964	3.51	994	3.75	1024	3.99	1052	4.22	1079	4.45	1108	4.69	1136	4.93	1166	5.19	1193	5.43	1219	5.67
7600	982	3.85	1011	4.07	1039	4.31	1066	4.56	1095	4.82	1121	5.06	1148	5.31	1174	5.56	1202	5.82	1228	6.07
8000	1004	4.25	1029	4.45	1055	4.67	1082	4.92	1109	5.19	1136	5.46	1161	5.71	1186	5.97	1213	6.24	1236	6.48
8400	1027	4.70	1051	4.90	1075	5.10	1100	5.33	1125	5.58	1151	5.85	1177	6.14	1202	6.42	1225	6.68	1250	6.96
8800	1049	5.17	1074	5.39	1097	5.59	1120	5.81	1144	6.03	1168	6.30	1192	6.57	1216	6.85	1241	7.16	1264	7.44
9200	1071	5.68	1096	5.90	1120	6.13	1143	6.34	1164	6.56	1186	6.79	1209	7.05	1233	7.35	—	—	—	—
9600	1092	6.21	1117	6.45	1142	6.69	1166	6.93	1187	7.15	1208	7.38	—	—	—	—	—	—	—	—
	7.5 HP Ultra High Static Motor								7.5 HP Ultra High Static Motor w/ Field Supplied Fan Sheave & Belt											

External Static Pressure (Inches of Water Gauge)								
	2.10"		2.20"		2.30"		2.40"	
CFM	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
	7.5 HP Ultra High Static Motor w/ Field Supplied Fan Sheave & Belt							
6400	1230	5.11	1257	5.33	1282	5.54	1308	5.77
6800	1239	5.52	1265	5.75	1290	5.98	1315	6.20
7200	1246	5.92	1272	6.17	1298	6.41	1323	6.66
7600	1255	6.35	1282	6.61	1306	6.86	—	—
8000	1262	6.76	1289	7.04	1313	7.31	—	—
8400	1273	7.22	—	—	—	—	—	—
8800	—	—	—	—	—	—	—	—
9200	—	—	—	—	—	—	—	—
9600	—	—	—	—	—	—	—	—

Notes:
1. Data includes pressure drop due to wet coil and 1" filter.
2. Fan motor heat (MBh) = 3.15 x BHP.
3. Trane's factory supplied motors, in commercial equipment, are definite purpose motors, specifically designed and tested to operate reliably and continuously at all cataloged conditions. Using the full horsepower range of our fan motors as shown in our tabular data will not result in nuisance tripping or premature motor failure. Our product's warranty will not be affected.
4. For TWE240 Low Static Motor use Table 26, p. 46, for Standard Motor use Table 27, p. 46, for High Static Motors (5 HP and 7½ HP) use Table 28, p. 47.

Table 26. Low Static Fan Motors

15 Ton — TWE180 — Standard Motor with Field Supplied Sheave & Belt (3 HP)[a]	
Motor Sheave Turns Open	Nominal RPM
0	649
1	613
2	557
3	500
4	444
5	469

20 Ton — TWE240 Low Static Motor (3 HP)	
Motor Sheave Turns Open	Nominal RPM
0	855
1	812
2	769
3	726
4	683
5	640

(a)TWE180 3HP Standard motor w/ field installed belt and sheaves
Field Supplied Components Required:
Motor Sheave: Variable Pitch (2.4 - 3.4 Inch Pitch Diameter), 0.875 Inch Bore, Single Groove, Browning 1VL40
Blower Sheave: Fixed Pitch (9.5 Inch Pitch Diameter), 1.4375 Inch Bore, Single Groove, Browning AX59

Table 27. Standard Fan Motors

5 Ton — TWE061 — Standard Motor (3/4 HP)	
Motor Sheave Turns Open	Nominal RPM
0	1071
1	1000
2	928
3	857
4	785
5	714

7½ Ton — TWE090 — Standard Motor (1.5 HP)	
Motor Sheave Turns Open	Nominal RPM
0	847
1	791
2	734
3	678
4	621
5	565

10 Ton — TWE120 — Standard Motor (2 HP)	
Motor Sheave Turns Open	Nominal RPM
0	818
1	773
2	727
3	682
4	636
5	591

12½ Ton — TWE150 — Standard Motor (2 HP)	
Motor Sheave Turns Open	Nominal RPM
0	768
1	725
2	683
3	640
4	598
5	555

15 Ton — TWE180 — Standard Motor (3 HP)	
Motor Sheave Turns Open	Nominal RPM
0	845
1	812
2	728
3	745
4	711
5	678
6	644

20 Ton — TWE240 — Standard Motor (5 HP)	
Motor Sheave Turns Open	Nominal RPM
0	966
1	932
2	899
3	865
4	831
5	798
6	764

Table 28. High Static Fan Motors

5 Ton — TWE061 — High Static Motor (1.5 HP)	
Motor Sheave Turns Open	Nominal RPM
0	1346
1	1279
2	1212
3	1144
4	1077
5	1010

7½ Ton — TWE090 — High Static Motor (2 HP)	
Motor Sheave Turns Open	Nominal RPM
0	1094
1	1039
2	984
3	930
4	875
5	820

10 Ton — TWE120 High Static Motor (3 HP)	
Motor Sheave Turns Open	Nominal RPM
0	972
1	923
2	875
3	826
4	778
5	729

10 Ton — TWE120 — High Static Motor with Field Supplied Sheave & Belt (3 HP)[a]	
Motor Sheave Turns Open	Nominal RPM
0	1129
1	1073
2	1016
3	960
4	903
5	847

12½ Ton — TWE150 High Static Motor (3 HP)	
Motor Sheave Turns Open	Nominal RPM
0	913
1	862
2	806
3	749
4	693
5	659

12½ Ton — TWE150 — High Static Motor with Field Supplied Sheave & Belt (2 HP)[b]	
Motor Sheave Turns Open	Nominal RPM
0	1094
1	1039
2	991
3	942
4	893
5	820

15 Ton — TWE180 High Static Motor (5 HP)	
Motor Sheave Turns Open	Nominal RPM
0	1024
1	989
2	953
3	918
4	882
5	847
6	811

15 Ton — TWE180 — High Static Motor with Field Supplied Sheave & Belt (5 HP)[c]	
Motor Sheave Turns Open	Nominal RPM
0	1217
1	1175
2	1118
3	1062
4	1006
5	964
6	964

20 Ton — TWE240 — Standard Motor with Field Supplied Sheave & Belt (5 HP)[d]	
Motor Sheave Turns Open	Nominal RPM
0	1091
1	1053
2	1015
3	978
4	940
5	902
6	864

See next page for notes on required field supplied components

(a) **TWE120 3 HP Hi-Static motor w/ field installed belt and sheaves**
Field Supplied Components Required:
Motor Sheave: Variable Pitch (2.8 - 3.8 Inch Pitch Diameter), 0.875 Inch Bore, Single Groove, Browning 1VP44
Blower Sheave: Fixed Pitch (6.0 Inch Pitch Diameter), 1.0 Inch Bore, Single Groove, Browning AK64
Belt: Browning A50

(b)TWE150 2 HP Hi-Static motor w/ field installed belt and sheaves
Field Supplied Components Required:
Motor Sheave: Variable Pitch (2.4 - 3.4 Inch Pitch Diameter), 0.875 Inch Bore, Single Groove, Browning 1VL40
Blower Sheave: Fixed Pitch (6.7 Inch Pitch Diameter), 1.4375 Inch Bore, Single Groove, Browning AK71
Belt: Browning A55

(c)TWE180 5 HP Hi-Static motor w/ field installed belt and sheaves
Field Supplied Components Required:
Motor Sheave: Variable Pitch (3.4 - 4.4 Inch Pitch Diameter), 1.125 Inch Bore, Single Groove, Browning 1VP50
Blower Sheave: Fixed Pitch (6.6 Inch Pitch Diameter), 1.4375 Inch Bore, Single Groove, Browning BK72
Belt: Browning BX58

(d) **TWE240 5 HP Standard motor w/ field installed belt and sheaves**
Field Supplied Components Required:
Motor Sheave: Variable Pitch (3.4 - 4.4 Inch Pitch Diameter), 1.125 Inch Bore, Single Groove, Browning 1VP50
Blower Sheave: Fixed Pitch(7.4 Inch Pitch Diameter), 1.4375 Inch Bore, Single Groove, Browning BK115
Belt: Browning BX57

Table 29. Ultra High Static Fan Motors

7½ Ton — TWE090 Ultra High Static Motor (3 HP)

Motor Sheave Turns Open	Nominal RPM
0	1346
1	1241
2	1136
3	1030
4	925
5	820

12½ Ton — TWE150 Ultra High Static Motor (5 HP)

Motor Sheave Turns Open	Nominal RPM
0	1217
1	1175
2	1133
3	1091
4	1048
5	1006
6	964

20 Ton — TWE240 — Ultra High Static Motor (7.5 HP)

Motor Sheave Turns Open	Nominal RPM
0	1294
1	1243
2	1191
3	1140
4	1089
5	1037
6	986

20 Ton — TWE240 — Ultra High Static Motor with Field Supplied Sheave & Belt (7.5 HP)[a]

Motor Sheave Turns Open	Nominal RPM
0	1315
1	1281
2	1243
3	1205
4	1168
5	1100
6	1111

(a)TWE240 7.5 HP Ultra Hi-Static motor w/ field installed belt and sheaves
Field Supplied Components Required:
Motor Sheave: Variable Pitch (2.8 - 3.8 Inch Pitch Diameter), 1.125 Inch Bore, Single Groove, Browning 1VP44
Blower Sheave: Fixed Pitch (10.4 Inch Pitch Diameter), 1.4375 Inch Bore, Single Groove, Browning BK110
Belt: Browning BX62

Table 30. Discharge Plenum and Grille Assembly Throw Distance (ft) — Air Handler

Tons	Model No.	CFM	Louver Angle Deflection Position			
			Straight	20°	40°	55°
5	TWE061D TWE061E	1600	42	31	26	20
		1800	46	37	29	22
		2000	48	43	33	24
		2200	51	50	36	25
		2400	54	57	39	29
7½	TWE090D TWE090E	2400	52	43	35	29
		2700	55	48	38	31
		3000	58	53	42	32
		3300	62	57	46	35
		3600	66	60	50	37
10	TWE120D TWE120E	3200	56	46	38	30
		3600	62	51	42	33
		4000	66	57	47	35
		4400	71	62	52	38
		4800	76	67	56	42
12½	TWE150E	4900	47	38	32	25
		5400	52	44	37	29
		6000	57	49	41	32
		6600	61	53	43	34
		7200	65	57	46	35
15	TWE180E	4900	47	38	32	25
		5400	52	44	37	29
		6000	57	49	41	32
		6600	61	53	43	34
		7200	65	57	46	35
20	TWE240E	6400	56	46	38	30
		7200	62	51	42	33
		8000	66	57	47	35
		8800	71	62	52	38
		9600	76	67	56	42

Notes:

1. Throw distance values are based on a terminal velocity of 75 FPM.
2. Throw distance values at other terminal velocities may be established by multiplying throw distances in the table above by throw factor.

Terminal Velocity	Throw Factor
50 FPM	x 1.50
100 FPM	x .75
150 FPM	x .50

Table 31. Electric Heat Discharge Plenum and Grille Airflow (CFM)

Tons	Unit Model No.	Electric Heater Model No.	Airflow (CFM) Minimum	Airflow (CFM) Maximum
5	TWE061D1, E1 TWE061D3, E3 TWE061D4, E4	BAYHTRL117A	2000	2400
		BAYHTRL315A	2000	2400
		BAYHTRL415A	2000	2400
7 1/2	TWE090D1, E1 TWE090D3, E3(a) TWE090D3, E3(a)	BAYHTRL117A	3000	3600
		BAYHTRL123A	3375	3600
		BAYHTRL315A	2625	3600
		BAYHTRL325A	3000	3600
		BAYHTRL415A	2625	3600
		BAYHTRL425A	2625	3600
10	TWE120D1, E1 TWE120D3, E3(a) TWE120D3, E3(a)	BAYHTRL117A	3500	4800
		BAYHTRL123A	4000	4800
		BAYHTRL315A	4000	4800
		BAYHTRL325A	3500	4800
		BAYHTRL415A	3500	4800
		BAYHTRL425A	3500	4800
12½	TWE150E3 TWE150E3(a)	BAYHTRM330A	5250	6000
		BAYHTRM430A	5250	6000
15	TWE180E3 TWE180E3(a)	BAYHTRM330A	5250	7200
		BAYHTRM430A	5250	7200
20	TWE240E3 TWE240E4	BAYHTRM330A	7000	9600
		BAYHTRM430A	7000	9600

(a) When wired for 460 volt, used with BAYHTRL4*** only.

Table 32. Static Pressure Drop Through Accessories (inches of water column)(a) — Air Handlers

Tons	Unit Model No.	CFM	Return Grille	Discharge Plenum and Grille(b)	Electric Heaters (kW) 5-10	15-20	25-30	35-50	Hydronic Coils Steam	Hot Water
5	TWE061D TWE061E	1600	0.12	0.21	0.08	0.08	0.14	—	.44	.31
		2000	0.18	0.33	0.13	0.13	0.19	—	.62	.44
		2400	0.28	0.47	0.19	0.19	0.37	—	.80	.59
7½	TWE090D TWE090E	2400	0.08	0.27	0.03	0.06	0.08	0.12	.38	.23
		3000	0.13	0.4	0.06	0.12	0.17	0.23	.50	.33
		3600	0.18	0.58	0.08	0.16	0.24	0.32	.66	.44
10	TWE120D TWE120E	3200	0.07	0.43	0.06	0.13	0.19	0.26	.42	.40
		4000	0.11	0.66	0.10	0.20	0.30	0.40	.59	.56
		4800	0.15	0.95	0.14	0.28	0.42	0.57	.76	.75
12½	TWE150E	4000	0.06	0.16	0.02	0.02	0.04	0.08	0.28	0.24
		5000	0.10	0.25	0.03	0.03	0.08	0.12	0.44	0.38
		6000	0.14	0.36	0.04	0.05	0.12	0.17	0.64	0.54
15	TWE180E	4800	0.09	0.23	0.03	0.03	0.06	0.08	.46	.38
		6000	0.15	0.34	0.06	0.06	0.12	0.17	.64	.54
		7200	0.2	0.49	0.08	0.08	0.16	0.24	.82	.72
20	TWE240	6400	0.11	0.43	0.06	0.06	0.13	0.19	.50	.41
		8000	0.17	0.66	0.10	0.10	0.20	0.30	.70	.58
		9600	0.23	0.95	0.14	0.14	0.28	0.42	.89	.78

(a) Return air filter ESP included in Fan Performance Table data.
(b) At louver opening angle of 42 degrees. For ESP at other angle openings, see accessory installation guide.

Table 33. Auxiliary Electric Heat Capacity - Air Handler

Unit Model No.	Total kW	No. of Stages	Stage 1		Stage 2		Total	
			kW Input	BTUH Output	kW Input	BTUH Output	kW Input	BTUH Output
TWE061D3, TWE061D4, TWE061DW, TWE061E3, TWE061E4	5.00	1	5.00	17,065	-	-	5.00	17,065
	9.96	1	9.96	33,993	-	-	9.96	33,993
	14.96	1	14.96	51,058	-	-	14.96	51,058
	24.92	2	14.96	51,058	9.96	33,993	24.92	85,051
TWE090D3[(a)],TWE120D3[(a)], TWE120DW, TWE090E3[(a)] TWE120E3[(a)], TWE120EW	5.00	1	5.00	17,065	-	-	5.00	17,065
	9.96	1	9.96	33,993	-	-	9.96	33,993
	14.96	1	14.96	51,058	-	-	14.96	51,058
	24.92	2	14.96	51,058	9.96	33,993	24.92	85,051
TWE061D1,TWE090D1, TWE120D1, TWE061E1, TWE090E1, TWE120E1	5.76	1	5.76	19,659	-	-	5.76	19,659
	11.52	1	11.52	39,318	-	-	11.52	39,318
	17.28	1	17.28	58,977	-	-	17.28	58,977
	23.04	2	11.52	39,318	11.52	39,318	23.04	78,636
TWE090D1,TWE120D1, TWE120E1, TWE090D3[(a)], TWE120D3[(a)], TWE120DW, TWE120E3[(a)], TWE120EW	28.8	2	17.28	58,977	11.52	39,318	28.8	98,295
	34.88	2	19.92	67,987	14.96	51,058	34.88	119,045
	10.00	1	10.00	34,130	-	-	10.00	34,130
TWE150E, TWE180E, TWE240E	10.00	1	10.00	34,130	-	-	10.00	34,130
	19.92	1	19.92	67,987	-	-	19.92	67,987
	29.92	2	19.92	67,987	10.00	34,130	29.92	102,117
	49.84	2	29.92	102,117	19.92	67,987	49.84	170,104

Note: Heaters are rated at 240V, 480V and 600V. For other than rated voltage capacity = (Voltage/Related Voltage)^2 x Rated Capacity.

(a) Field converted to 460V

Electrical Data

Table 34. Electrical Characteristics — Compressor and Condenser Fan Motors — Heat Pumps — 60Hz

		Compressor Motor					Condenser Fan Motor				
					Amps					Amps	
Tons	Unit Model No.	No.	Volts	Phase	RLA (ea.)	LRA (ea.)	No.	Volts	Phase	FLA (ea.)	LRA (ea.)
6	TWA073D3	1	208-230	3	22.4	149	1	208-230	1	3.1	8.1
	TWA073D4	1	460	3	10.6	75	1	460	1	1.6	3.8
	TWA073DK	1	380	3	11.3	88	1	380	1	2.7	7.0
	TWA073DW	1	575	3	8.3	54	1	575	1	1.2	3.0
7½	TWA090D3	1	208-230	3	25.0	164	1	208-230	1	3.1	8.1
	TWA090D4	1	460	3	13.0	100	1	460	1	1.6	3.8
	TWA090DK	1	380	3	14.3	94.3	1	380	1	2.7	7.0
	TWA090DW	1	575	3	10.8	78	1	575	1	1.2	3.0
10	TWA120D3	1	208-230	3	30.1	225	1	208-230	1	5.0	14.4
	TWA120D4	1	460	3	16.7	114	1	460	1	2.5	5.8
	TWA120DK	1	380	3	24.4	145	1	380	1	3.4	7.8
	TWA120DW	1	575	3	12.3	80	1	575	1	2.0	5.1
15	TWA180E3	2	208-230	3	25.0	164	2	208-230	1	5.0	14.4
	TWA180E4	2	460	3	12.6	100	2	460	1	2.5	5.8
	TWA180EK	2	380	3	14.3	94.3	2	380	1	3.4	7.8
	TWA180EW	2	575	3	10.4	78	2	575	1	2.0	5.1
20	TWA240E3	2	208-230	3	33.8	239	2	208-230	1	5.0	14.4
	TWA240E4	2	460	3	18.0	125	2	460	1	2.5	5.8
	TWA240EK	2	380	3	24.4	145	2	380	1	3.4	7.8
	TWA240EW	2	575	3	13.7	80	2	575	1	2.0	5.1

Table 35. Unit Wiring — Heat Pumps —60Hz

Tons	Unit Model No.	Unit Operating Voltage Range	Minimum Circuit Ampacity	Maximum Fuse Size or Maximum Circuit Breaker[a]
6	TWA073D3	187-253	31.1	40
	TWA073D4	414-506	14.9	20
	TWA073DK	342-418	16.8	20
	TWA073DW	518-632	11.6	15
7½	TWA090D3	187-253	34.4	45
	TWA090D4	414-506	17.9	25
	TWA090DK	342-418	20.6	25
	TWA090DW	518-632	14.7	20
10	TWA120D3	187-253	42.6	60
	TWA120D4	414-506	23.4	30
	TWA120DK	342-418	33.9	45
	TWA120DW	518-632	17.4	25
15	TWA180E3	187-253	66.3	80
	TWA180E4	414-506	33.4	40
	TWA180EK	342-418	39.0	45
	TWA180EW	518-632	27.4	30
20	TWA240E3	187-253	86.1	100
	TWA240E4	414-506	45.5	50
	TWA240EK	342-418	61.8	70
	TWA240EW	518-632	34.8	40

(a) HACR type circuit breaker per NEC.

Table 36. Electrical Characteristics — Standard and Low Static Motors — 60 Hz Air Handler[a]

		Standard Evaporator Fan Motor								Low Static Evaporator Fan Motor							
						Amps								Amps			
Tons	Unit Model Number	No.	Volts	Phase	Hp	FLA	LRA	MCA	MFS	No.	Volts	Phase	Hp	FLA	LRA	MCA	MFS
5	TWE061D1, E1	1	208	1	0.75	6.0	41.0	7.5	15	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	TWE061D1, E1	1	230	1	0.75	5.9	45.0	7.4	15	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	TWE061D3, E3	1	208	3	0.75	2.5	16.4	3.1	15	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	TWE061D3, E3	1	230	3	0.75	2.4	16.4	3.0	15	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	TWE061D4, E4	1	460	3	0.75	1.2	8.2	1.5	15	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	TWE061DW	1	575	3	0.75	1.3	6.1	1.6	15	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
7½	TWE090D1, E1	1	208	1	1.50	6.8	31.5	8.5	20	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	TWE090D1, E1	1	230	1	1.50	6.2	31.5	7.8	15	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	TWE090D3, E3	1	208	3	1.50	5.3	34.3	6.6	15	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	TWE090D3, E3	1	230	3	1.50	5.0	34.3	6.3	15	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	TWE090D3, E3[b]	1	460	3	1.50	2.5	17.0	3.1	15	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	TWE090DW	1	575	3	1.50	1.8	13.6	2.3	15	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10	TWE120D1, E1	1	208	1	2.00	8.5	57.4	10.6	20	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	TWE120D1, E1	1	230	1	2.00	7.7	57.4	9.6	20	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	TWE120D3, E3	1	208	3	2.00	6.2	33.9	7.8	15	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	TWE120D3, E3	1	230	3	2.00	5.8	33.9	7.3	15	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	TWE120D3, E3[b]	1	460	3	2.00	2.9	33.9	3.6	15	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	TWE120DW, EW	1	575	3	2.00	2.3	14.4	2.9	15	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
12½	TWE150E3	1	208	3	2.00	5.95	23.0	7.4	15	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	TWE150E3	1	230	3	2.00	5.5	23.0	6.9	15	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	TWE150E3[b]	1	460	3	2.00	2.75	23.0	3.4	15	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	TWE150EW	1	575	3	2.00	2.2	18.0	2.8	15	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
15	TWE180E3	1	208	3	3.00	9.4	74.9	11.8	25	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	TWE180E3	1	230	3	3.00	9.2	74.9	11.5	25	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	TWE180E3[b]	1	460	3	3.00	4.6	39.3	5.8	15	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	TWE180EW	1	575	3	3.00	3.4	24.6	4.3	15	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
20	TWE240E3	1	208	3	5.00	14.0	90.8	17.5	35	1	208	3	3.00	9.4	74.9	11.8	25
	TWE240E3	1	230	3	5.00	13.6	103.0	17.0	35	1	230	3	3.00	9.2	74.9	11.5	25
	TWE240E4	1	460	3	5.00	6.6	44.8	8.3	20	1	460	3	3.00	4.6	39.3	5.8	15
	TWE240EW	1	575	3	5.00	5.3	36.2	6.6	15	1	575	3	3.00	3.4	24.6	4.3	15

Continued on next page

(a) For additional information contact product support.
(b) Field wired for 460V.

Table 37. Electrical Characteristics — High and Ultra-High Static Motors — 60 Hz Air Handler[a]

		High Static Evaporator Fan Motor								Ultra-High Static Evaporator Fan Motor							
						Amps								Amps			
Tons	Unit Model Number	No.	Volts	Phase	Hp	FLA	LRA	MCA	MFS	No.	Volts	Phase	Hp	FLA	LRA	MCA	MFS
5	TWE061D1, E1	1	208	1	1.50	6.8	31.5	8.5	20	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	TWE061D1, E1	1	230	1	1.50	6.2	31.5	7.8	15	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	TWE061D3, E3	1	208	3	1.50	5.3	34.3	6.6	15	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	TWE061D3, E3	1	230	3	1.50	5.0	34.3	6.3	15	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	TWE061D4, E4	1	460	3	1.50	2.5	17.0	3.1	15	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	TWE061DW	1	575	3	1.50	1.8	13.6	2.3	15	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
7½	TWE090D1, E1	1	208	1	2.00	8.5	57.4	10.6	20	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	TWE090D1, E1	1	230	1	2.00	7.7	57.4	9.6	20	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	TWE090D3, E3	1	208	3	2.00	6.2	33.9	7.8	15	1	208	3	3.00	9.4	74.9	11.8	25
	TWE090D3, E3	1	230	3	2.00	5.8	33.9	7.3	15	1	230	3	3.00	9.2	74.9	11.5	25
	TWE090D3, E3[b]	1	460	3	2.00	2.9	33.9	3.6	15	1	460	3	3.00	4.6	39.3	5.8	15
	TWE090DW	1	575	3	2.00	2.3	14.4	2.9	15	1	575	3	3.00	3.4	24.6	4.3	15
10	TWE120D1, E1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	TWE120D1, E1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	TWE120D3, E3	1	208	3	3.00	9.4	74.9	11.8	25	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	TWE120D3, E3	1	230	3	3.00	9.2	74.9	11.5	25	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	TWE120D3, E3[b]	1	460	3	3.00	4.6	39.3	5.8	15	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	TWE120DW, EW	1	575	3	3.00	3.4	24.6	4.3	15	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
12½	TWE150E3	1	208	3	3.00	9.4	74.9	11.8	25	1	208	3	5.00	14.0	98.0	17.5	35
	TWE150E3	1	230	3	3.00	9.2	74.9	11.5	25	1	230	3	5.00	13.6	103.0	17	35
	TWE150E3[b]	1	460	3	3.00	4.6	39.3	5.8	15	1	460	3	5.00	6.6	44.8	8.3	20
	TWE150EW	1	575	3	3.00	3.4	24.6	4.3	15	1	575	3	5.00	5.2	36.2	6.5	15
15	TWE180E3	1	208	3	5.00	14.0	98.0	17.5	35	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	TWE180E3	1	230	3	5.00	13.6	103.0	17	35	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	TWE180E3[b]	1	460	3	5.00	6.6	44.8	8.3	20	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	TWE180EW	1	575	3	5.00	5.2	36.2	6.5	15	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
20	TWE240E3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1	208	3	7.50	20	114.0	25.0	45
	TWE240E3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1	230	3	7.50	17.6	126.0	22.0	40
	TWE240E4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1	460	3	7.50	9.0	61.4	11.3	25
	TWE240EW	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1	575	3	7.50	7.2	49.8	9.0	20

(a) For additional information contact product support.
(b) Field wired for 460V.

Table 38. Unit Wiring — Air Handler — 60Hz

Tons	Unit Model Number	Unit Operating Voltage Range	Minimum Circuit Ampacity	Maximum Fuse or HACR Circuit Breaker Size[a]
5	TWE06D1, E1	187-253	7.5	15
	TWE061D3, E3	187-253	3.1	15
	TWE061D4, E4	414-506	1.5	15
	TWE061DK	342-418	1.6	15
	TWE061DW	518-632	1.6	15
7½	TWE090D1, E1	187-253	8.5	20
	TWE090D3, E3[b]	187-253	6.6	15
	TWE090D3, E3[c]	414-506	3.1	15
	TWE090DK	342-418	3.8	15
	TWE090DW	518-632	2.3	15
10	TWE120D1, E1	187-253	10.6	20
	TWE120D3, E3[b]	187-253	7.8	15
	TWE120D3, E3[c]	414-506	3.6	15
	TWE120DK	342-418	4.1	15
	TWE120DW, EW	518-632	2.9	15
12½	TWE150E3	187-253	7.4	15
	TWE150E3[c]	414-506	3.4	15
	TWE150EK	342-418	4.1	15
	TWE150EW	518-632	2.8	15
15	TWE180E3	187-253	11.8	25
	TWE180E3[c]	414-506	5.8	15
	TWE180EK	342-418	8.2	15
	TWE180EW	518-632	4.3	15
20	TWE240E3	187-253	17.5	35
	TWE240E4	414-506	8.3	20
	TWE240EK	342-418	10.4	15
	TWE240EW	518-632	6.6	15

(a) HACR type circuit breaker per NEC.
(b) When wired for 208-230 volt.
(c) When wired for 460 volt.

Table 39. Unit Wiring with Electric Heat (Single Point Connection) — 5, 7½ and 10 Ton Air Handlers — 60 Hz

Tons	Used With	Heater Model No.	Maximum Fuse Heater KW Rating[a]	Unit Power Supply	Control Stages	Minimum Circuit Ampacity[b]	Maximum Fuse or HACR Circuit Breaker Size[b][c]
5	TWE061D1 TWE061E1	BAYHTRL106A	4.33/5.76	208-230/1/60	1	33.5/37.4	35/40
		BAYHTRL112A	8.65/11.52		1	59.5/67.4	60/70
		BAYHTRL117A	12.98/17.28		1	85.5/97.4	90/100
		BAYHTRL123A	17.31/23.04		2	111.5/127.4[d]	125/150
7½	TWE090D1 TWE090E1	BAYHTRL106A	4.33/5.76	208-230/1/60	1	34.5/37.8	40/40
		BAYHTRL112A	8.65/11.52		1	60.5/67.8[d]	70/70
		BAYHTRL117A	12.98/17.28		1	86.5/97.8	90/100
		BAYHTRL123A	17.31/23.04		2	112.5/127.8[d]	125/150
		BAYHTRL129A	21.63/28.80		2	138.6/157.8[d]	150/175
10	TWE120D1 TWE120E1	BAYHTRL106A	4.33/5.76	208-230/1/60	1	36.6/39.6	40/45
		BAYHTRL112A	8.65/11.52		1	62.6/69.6[d]	70/70
		BAYHTRL117A	12.98/17.28		1	88.6/99.6	90/100
		BAYHTRL123A	17.31/23.04		2	114.6/129.6[d]	125/150
		BAYHTRL129A	21.63/28.80		2	140.7/159.6[d]	150/175
5	TWE061D3 TWE061E3	BAYHTRL305A	3.76/5.00	208-230/3/60	1	16.1/18	20/20
		BAYHTRL310A	7.48/9.96		1	29/33	30/35
		BAYHTRL315A	11.24/14.96		1	42.2/48	45/50
		BAYHTRL325A	18.72/24.92		2	68/77.9[d]	70/80
7½	TWE090D3 TWE090E3	BAYHTRL305A	3.76/5.00	208-230/3/60	1	19.6/21.3	25/25
		BAYHTRL310A	7.48/9.96		1	32.5/36.2	35/40
		BAYHTRL315A	11.24/14.96		1	45.7/51.2	50/60
		BAYHTRL325A	18.72/24.92		2	71.5/82[d]	80/90
		BAYHTRL335A	26.20/34.88		2	98.7/112[e]	100/125
10	TWE120D3 TWE120E3	BAYHTRL305A	3.76/5.00	208-230/3/60	1	21/23	25/30
		BAYHTRL310A	7.48/9.96		1	34/38	35/40
		BAYHTRL315A	11.24/14.96		1	47/53	50/60
		BAYHTRL325A	18.72/24.92		2	73/83[d]	80/90
		BAYHTRL335A	26.20/34.88		2	98.7/113[e]	100/125
5	TWE061D4 TWE061E4	BAYHTRL405A	5	460/3/60	1	10	15
		BAYHTRL410A	9.96		1	17	20
		BAYHTRL415A	14.96		1	25	25
		BAYHTRL425A	24.92		2	40	40
7½	TWE090D3[f] TWE090E3[f]	BAYHTRL405A	5	460/3/60	1	11	15
		BAYHTRL410A	9.96		1	19	20
		BAYHTRL415A	14.96		1	26	30
		BAYHTRL425A	24.92		2	41	45
		BAYHTRL435A	34.88		2	56	60

Table 39. Unit Wiring with Electric Heat (Single Point Connection) — 5, 7½ and 10 Ton Air Handlers — 60 Hz

Tons	Used With	Heater Model No.	Maximum Fuse Heater KW Rating[a]	Unit Power Supply	Control Stages	Minimum Circuit Ampacity[b]	Maximum Fuse or HACR Circuit Breaker Size[b][c]
10	TWE120D3[f] TWE120E3[f]	BAYHTRL405A	5	460/3/60	1	12	15
		BAYHTRL410A	9.96		1	20	20
		BAYHTRL415A	14.96		1	27	30
		BAYHTRL425A	24.92		2	42	45
		BAYHTRL435A	34.88		2	57	60
5	TWE061DW	BAYHTRLW05A	5	575/3/60	1	8	15
		BAYHTRLW10A	9.96		1	15	15
		BAYHTRLW15A	14.96		1	21	20
		BAYHTRLW25A	24.92		2	33	35
7½	TWE090DW	BAYHTRLW05A	5	575/3/60	1	11	15
		BAYHTRLW10A	9.96		1	17	15
		BAYHTRLW15A	14.96		1	23	25
		BAYHTRLW25A	24.92		2	36	35
		BAYHTRLW35A	34.88		2	48	45
10	TWE120DW TWE120EW	BAYHTRLW05A	5	575/3/60	1	10	15
		BAYHTRLW10A	9.96		1	16	15
		BAYHTRLW15A	14.96		1	22	25
		BAYHTRLW25A	24.92		2	35	35
		BAYHTRLW35A	34.88		2	47	45

(a) kW ratings are at: 208/240V for 208-230V air handlers.
480V for 460V air handlers
600V for 575V air handlers
For other than rated voltage, capacity = (Voltage/Rated Voltage)^2 x Rated Capacity.
(b) Any power supply and circuits must be wired and protected in accordance with local codes.
(c) The HACR circuit breaker is for U.S.A. installations only.
(d) Field wire must be rated at least 75°C.
(e) Field wire must be rated at least 90°C.
(f) With motor field converted to 460V.

Table 40. Unit Wiring with Electric Heat (Single Point Connection) — 12½ - 20 Ton Air Handlers

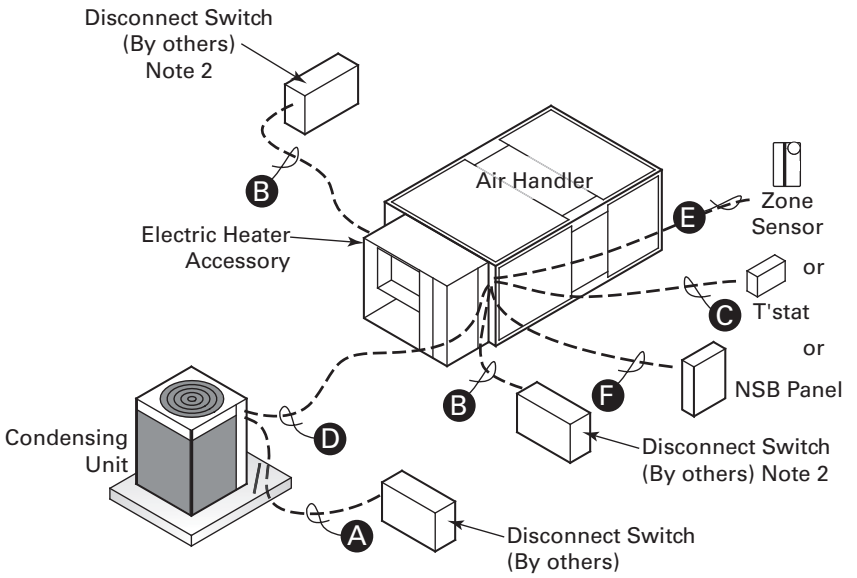
Tons	Used With	Heater Model No.	Heater KW Rating[a]	Unit Power Supply	Control Stages	Minimum Circuit Ampacity[b]	Maximum Fuse or HACR Circuit Breaker Size[b][c]
12½	TWE150E3	BAYHTRM310A	7.51/10.00	208-230/3/60	1	33.5/36.9	35/40
		BAYHTRM320A	14.96/19.92		1	59.3/66.8	60/70
		BAYHTRM330A	22.47/29.92		2	85.5/96.8	90/100
		BAYHTRM350A	37.44/49.84		2	137.3/156.7	150/175
15	TWE180E3	BAYHTRM310A	7.51/10.00	208-230/3/60	1	37.8/41.6	45/45
		BAYHTRM320A	14.96/19.92		1	63.7/71.4	70/80
		BAYHTRM330A	22.47/29.92		2	89.8/101.5	90/110
		BAYHTRM350A	37.44/49.84		2	141.6/161.4[d]	150/175
20	TWE240E3	BAYHTRM310A	7.51/10.00	208-230/3/60	1	44.1/49	60/60
		BAYHTRM320A	14.96/19.92		1	71/79	80/90
		BAYHTRM330A	22.47/29.92		2	97/109	100/110
		BAYHTRM350A	37.44/49.84		2	149/169[d]	150/175
12½	TWE150E3[e]	BAYHTRM410A	10	460/3/60	1	19	20
		BAYHTRM420A	19.92		1	34	35
		BAYHTRM430A	29.92		2	49	50
		BAYHTRM450A	49.84		2	79	80
15	TWE180E3[e]	BAYHTRM410A	10	460/3/60	1	21	25
		BAYHTRM420A	19.92		1	36	40
		BAYHTRM430A	29.92		2	51	60
		BAYHTRM450A	49.84		2	81	90
20	TWE240E4	BAYHTRM410A	10	460/3/60	1	24	30
		BAYHTRM420A	19.92		1	39	40
		BAYHTRM430A	29.92		2	54	60
		BAYHTRM450A	49.84		2	84	90
12½	TWE150EW	BAYHTRMW10A	10	575/3/60	1	15	15
		BAYHTRMW20A	19.92		1	27	30
		BAYHTRMW30A	29.92		2	39	40
		BAYHTRMW50A	49.84		2	63	70
15	TWE180EW	BAYHTRMW10A	10	575/3/60	1	17	20
		BAYHTRMW20A	19.92		1	30	30
		BAYHTRMW30A	29.92		2	42	45
		BAYHTRMW50A	49.84		2	67	70
20	TWE240EW	BAYHTRMW10A	10	575/3/60	1	20	25
		BAYHTRMW20A	19.92		1	32	35
		BAYHTRMW30A	29.92		2	45	45
		BAYHTRMW50A	49.84		2	70	70

(a) kW ratings are at: 208/240V for 208-230V air handlers.
480V for 460V air handlers
600V for 575V air handlers
For other than rated voltage, capacity = (Voltage/Rated Voltage)^2 x Rated Capacity.
(b) Any power supply and circuits must be wired and protected in accordance with local codes.
(c) The HACR circuit breaker is for U.S.A. installations only.
(d) Field wire must be rated at least 90°C.
(e) With motor field wired for 460V.

Jobsite Connections

Wiring shown with dashed lines is to be furnished and installed by the customer. All customer-supplied wiring must be copper only and must conform to NEC and local electrical codes. Codes may require line of sight between disconnect switch and unit.

Note: *When electric heater accessory is used single point power entry or dual point power entry is field optional. Single point power entry option is through electric heater only.*



Notes:

1. When electric heater accessory is used, single point power entry or dual point power entry is field optional. Single point power entry option is through electric heater only.
2. ***Choose only one of the following; Thermostat, Zone Sensor, or NSB Panel.

TWA073D/TWE090D	**TWA180E/TWE180E**	**(2) TWA090D/TWE180E**
TWA090D/TWE090D	**TWA240E/TWE240E**	**(2) TWA120D/TWE240E**
TWA120D/TWE120D	**(2) TWA073D/TWE150E**	

Field Wiring:

A. 3 power wires, line voltage for 3 phase, (2 power wires for single phase)

B. 3 power wires, line voltage for 3 phase, (2 power wires for single phase)

C. **Cooling only thermostat**: 3 to 7 wires depending on stages of electric heat
Zone Sensor: 4 to 10 wires depending on zone sensor model [1]

D. 3 to 7 wires depending on type of outdoor unit(s).

[1] See Zone Sensor wiring instructions for wiring information (ReliaTel Controls only).

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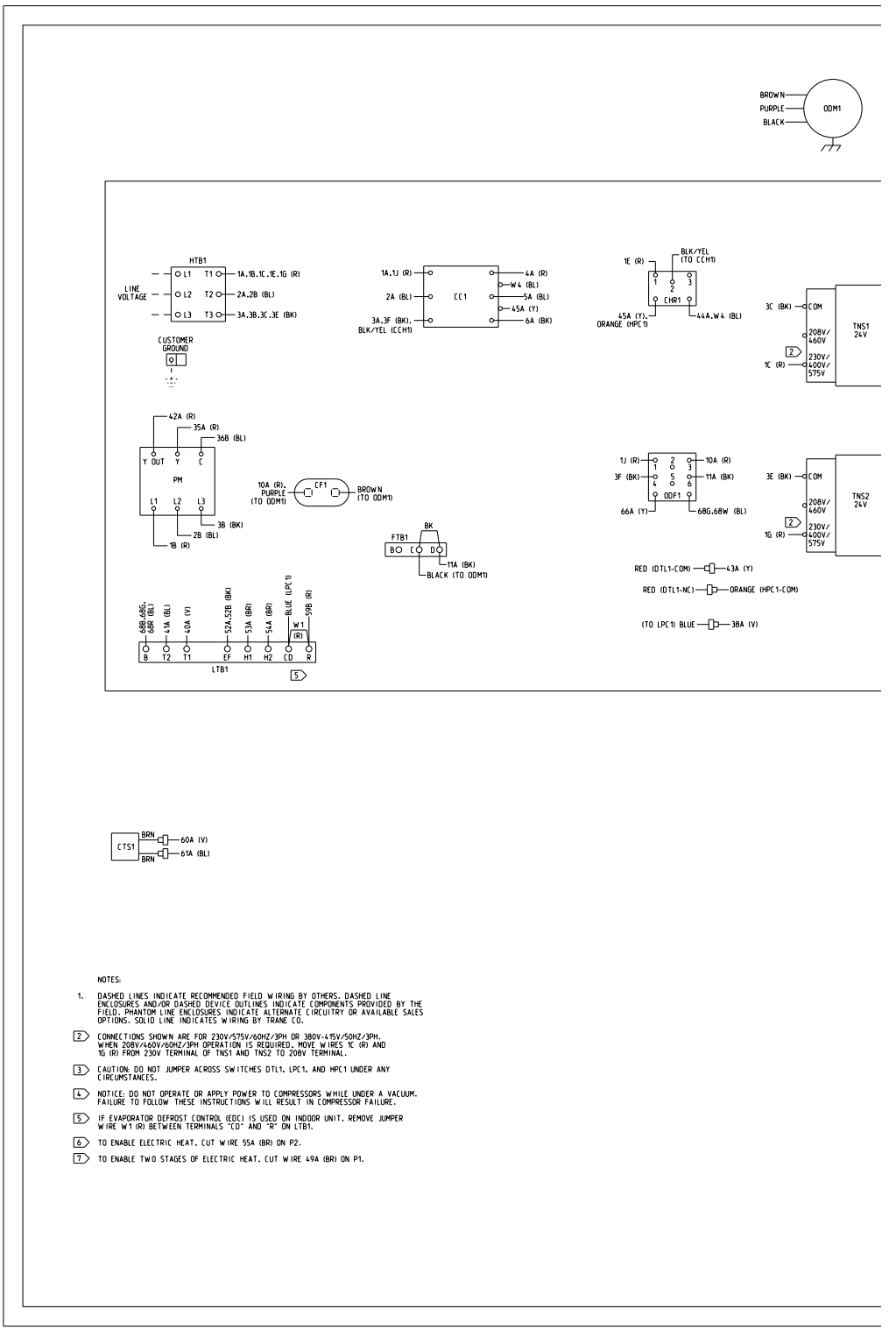
Typical Wiring

Figure 9. Typical Single Compressor - Connection Diagram



NOTES:

1. DASHED LINES INDICATE RECOMMENDED FIELD WIRING BY OTHERS. DASHED LINE ENCLOSURES AND/OR DASHED DEVICE OUTLINES INDICATE COMPONENTS PROVIDED BY THE FIELD. PHANTOM LINE ENCLOSURES INDICATE ALTERNATE CIRCUITRY OR AVAILABLE SALES OPTIONS. SOLID LINE INDICATES WIRING BY TRANE CO.

2. CONNECTIONS SHOWN ARE FOR 230V/575V/60HZ/3PH OR 380V-415V/50HZ/3PH. WHEN 208V/460V/60HZ/3PH OPERATION IS REQUIRED, MOVE WIRES 1C (R) AND 1G (R) FROM 230V TERMINAL OF TNS1 AND TNS2 TO 208V TERMINAL.

3. CAUTION: DO NOT JUMPER ACROSS SWITCHES DTL1, LPC1, AND HPC1 UNDER ANY CIRCUMSTANCES.

4. NOTICE: DO NOT OPERATE OR APPLY POWER TO COMPRESSORS WHILE UNDER A VACUUM. FAILURE TO FOLLOW THESE INSTRUCTIONS WILL RESULT IN COMPRESSOR FAILURE.

5. IF EVAPORATOR DEFROST CONTROL (EDC) IS USED ON INDOOR UNIT, REMOVE JUMPER WIRE W1 (R) BETWEEN TERMINALS "CO" AND "R" ON LTB1.

6. TO ENABLE ELECTRIC HEAT, CUT WIRE 55A (BR) ON P2.

7. TO ENABLE TWO STAGES OF ELECTRIC HEAT, CUT WIRE 49A (BR) ON P1.

Figure 9. (continued from previous page) Typical Single Compressor - Connection Diagram

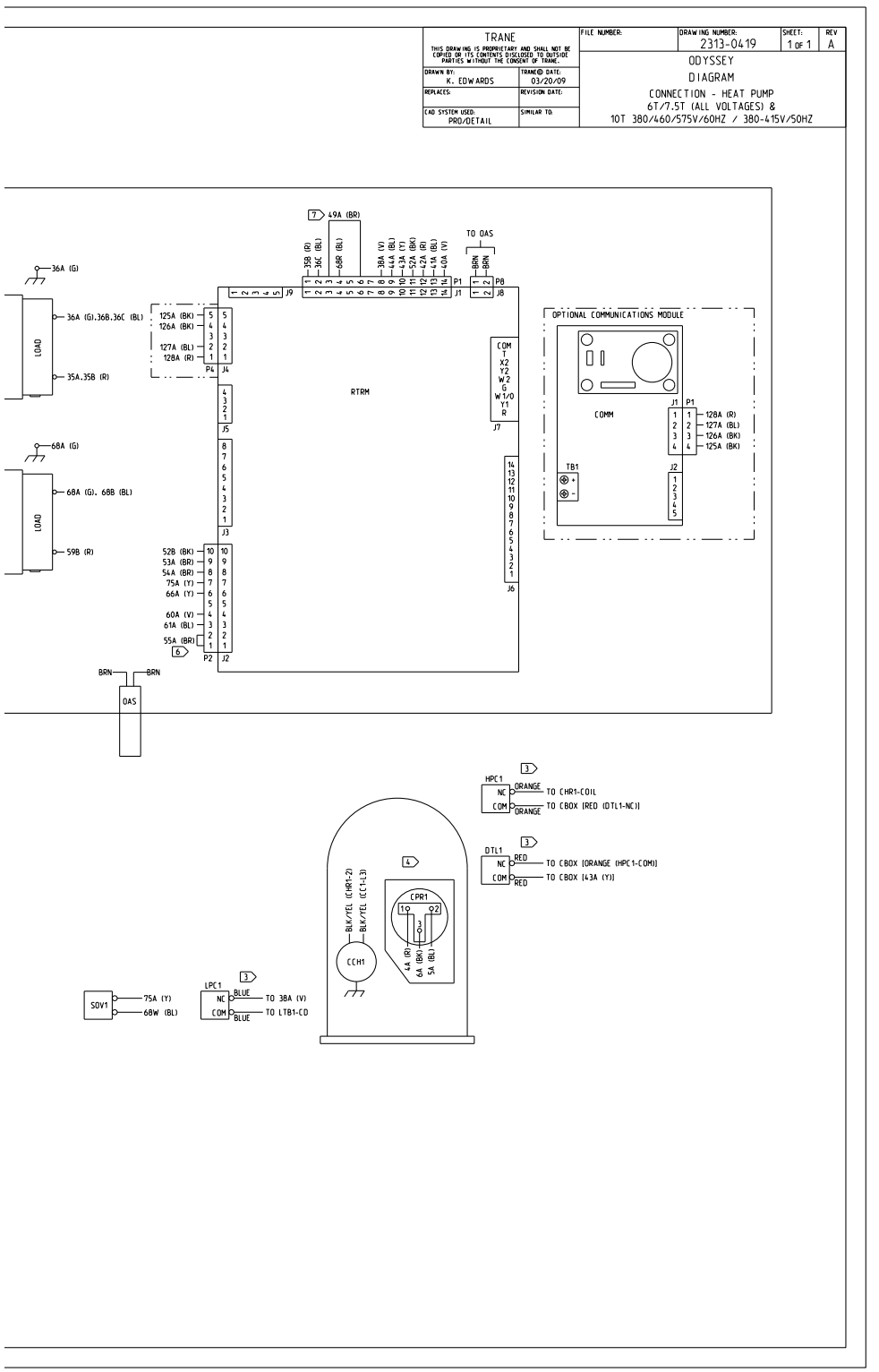


Figure 10. Typical Dual Compressor - Connection Diagram

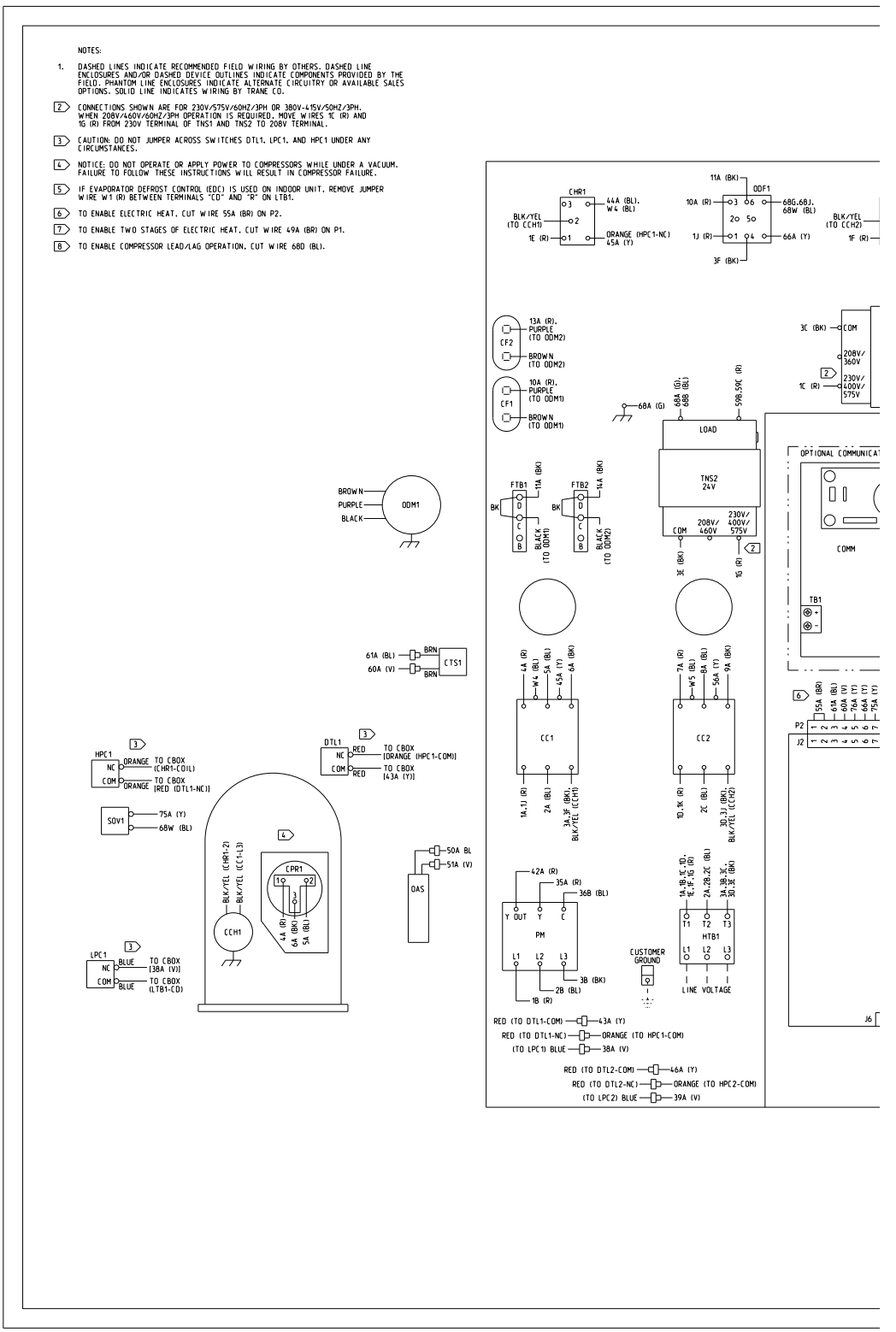


Figure 10. (continued from previous page) Typical Dual Compressor - Connection Diagram

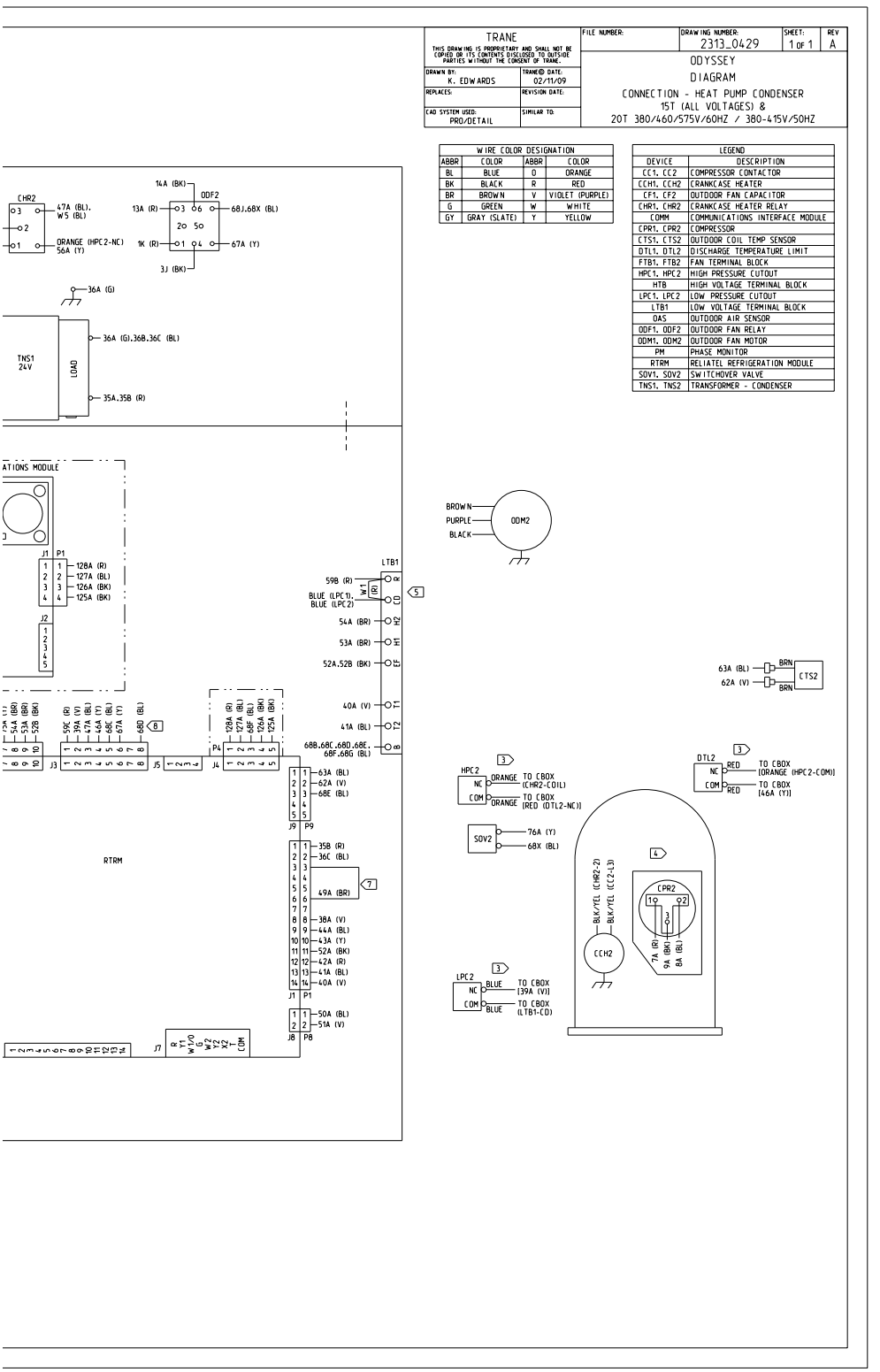


Figure 11. Typical Power/Control Diagram (Single and Dual Compressor)

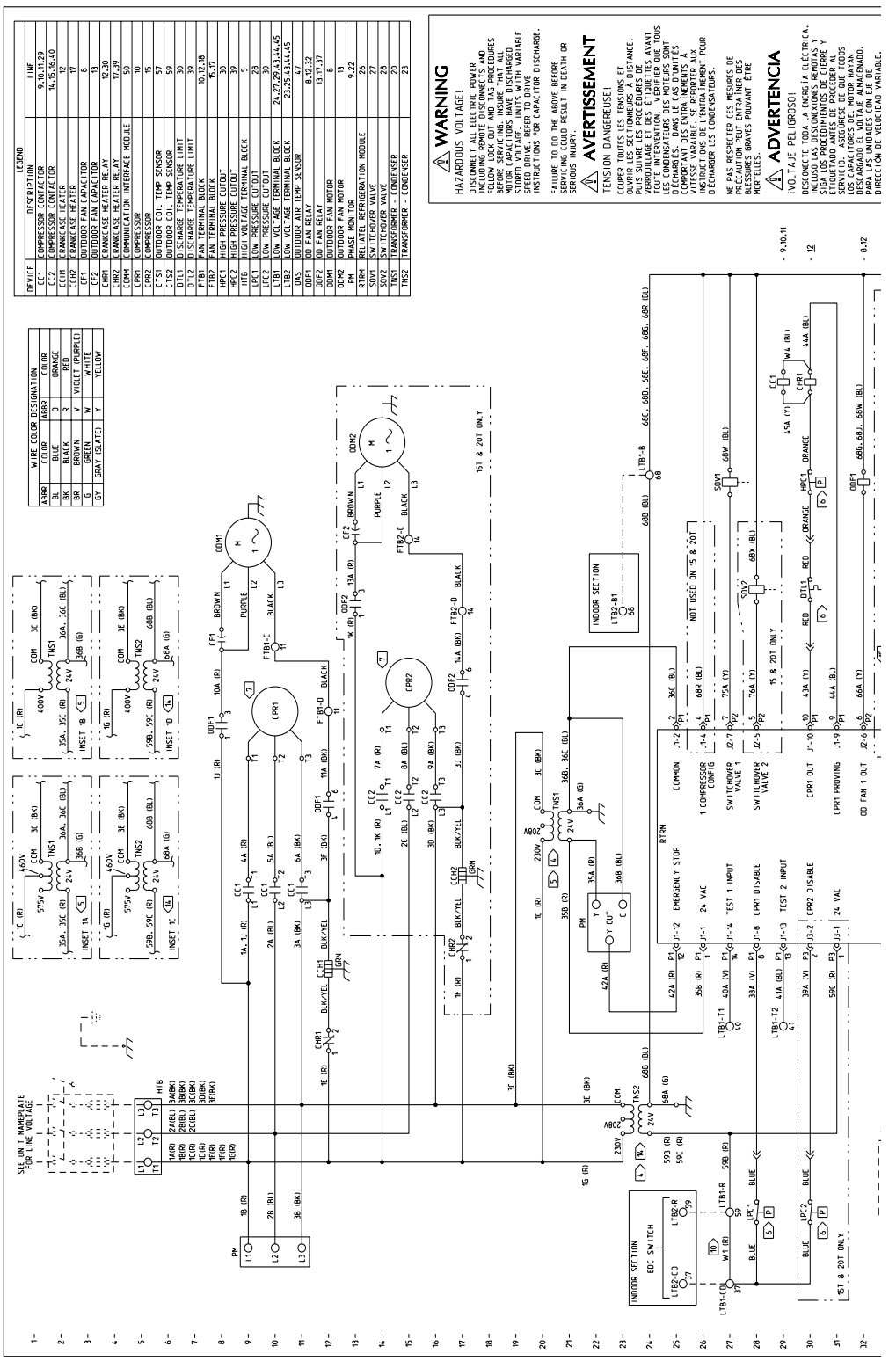


Figure 11. (continued from previous page) Typical Power/Control Diagram (Single and Dual Compressor)

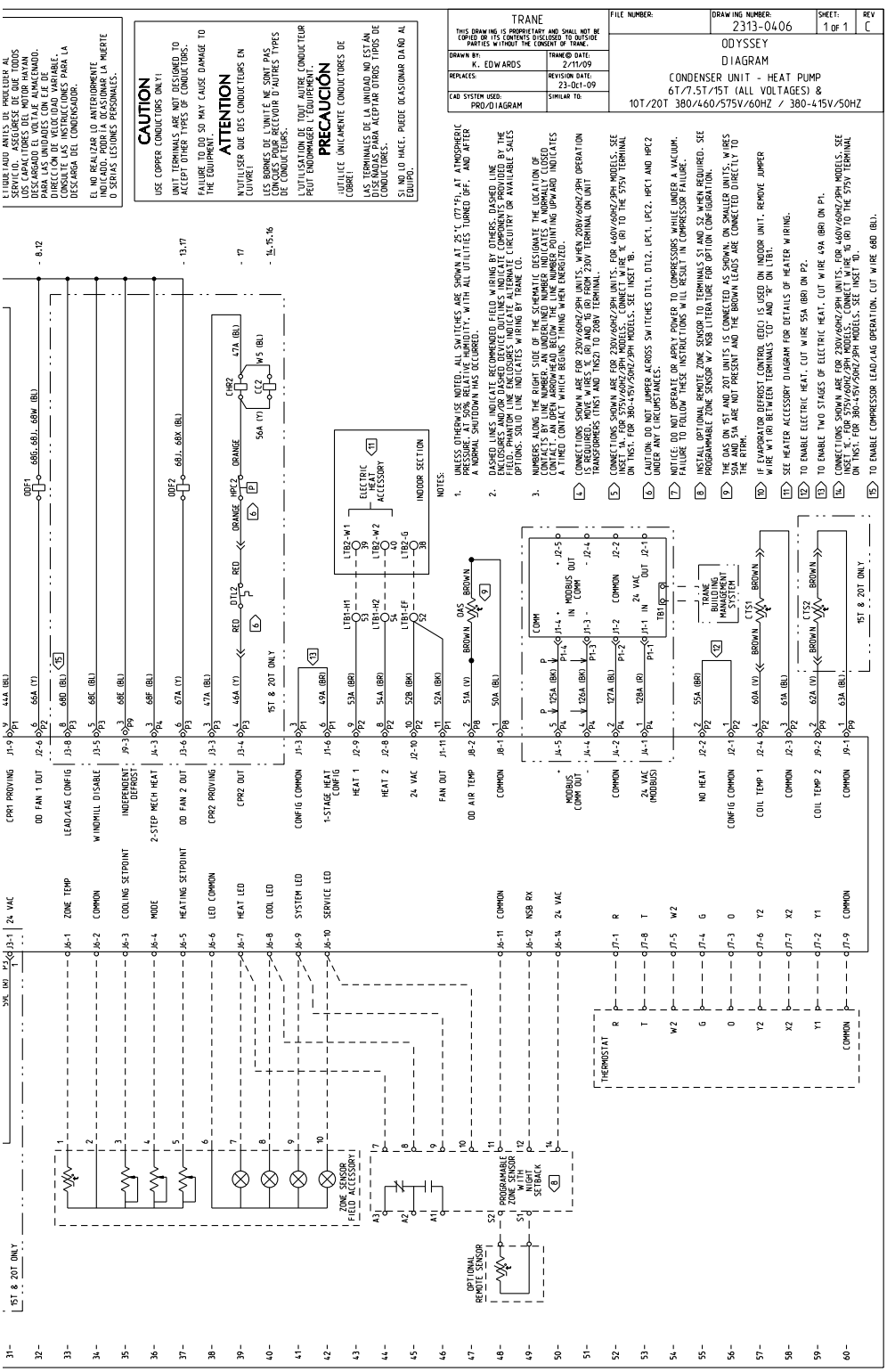


Figure 12. Typical Air Handler Power/Control and Connection Diagram

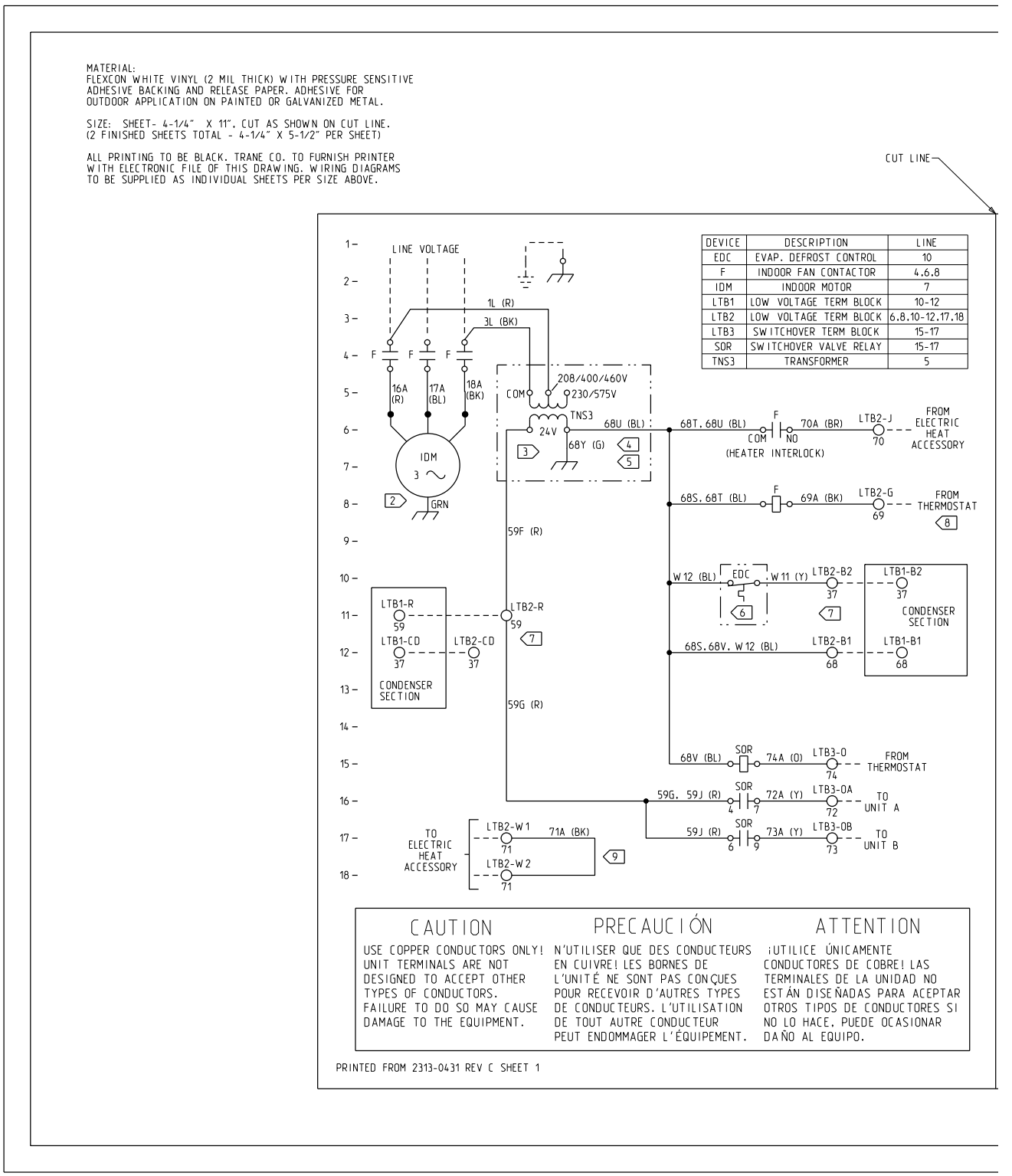
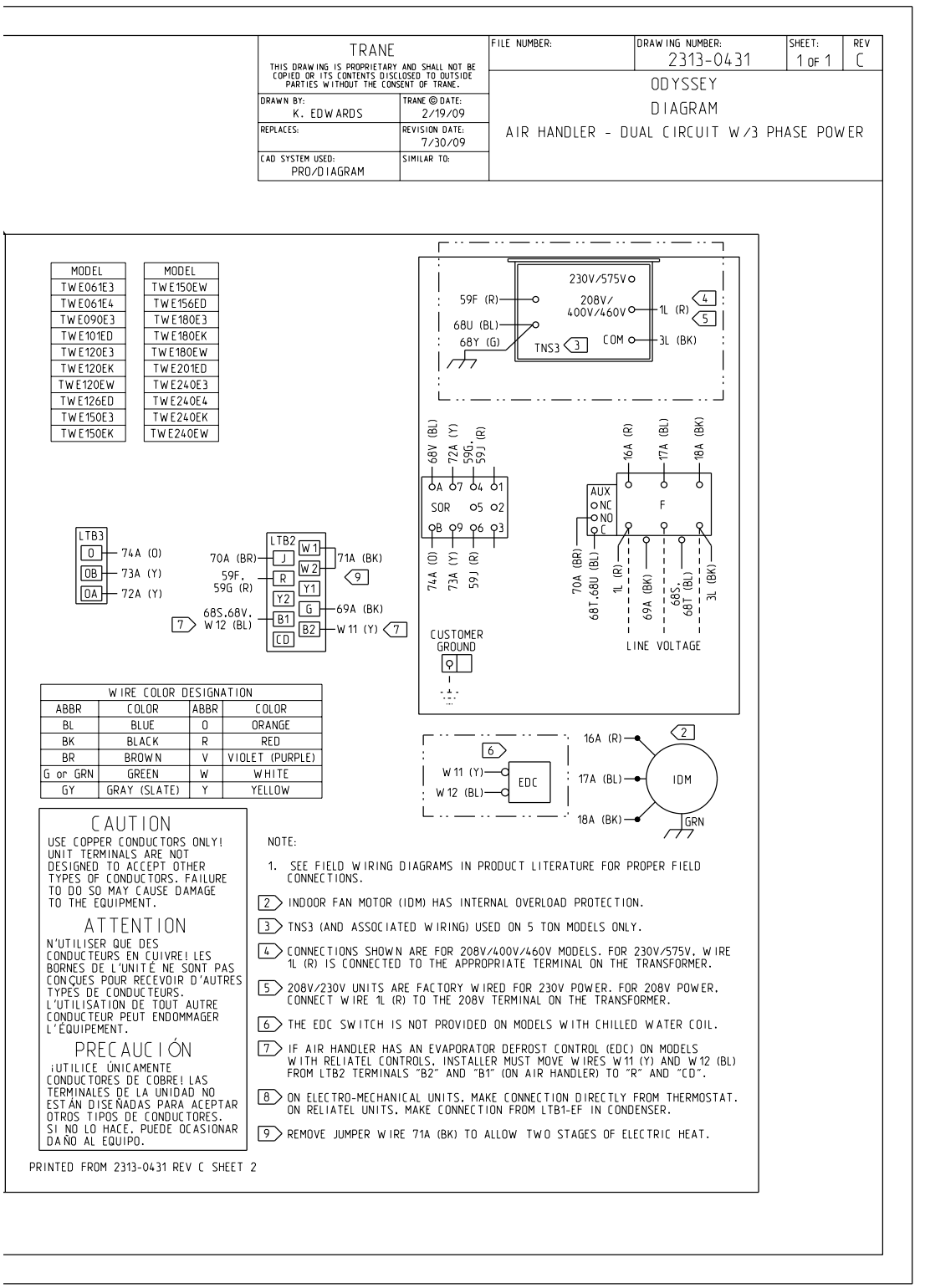


Figure 12. (continued from previous page) Typical Air Handler Power/Control and Connection Diagram



Dimensional Data

Figure 13. 6-7 1/2 Ton Heat Pump, Single Compressor

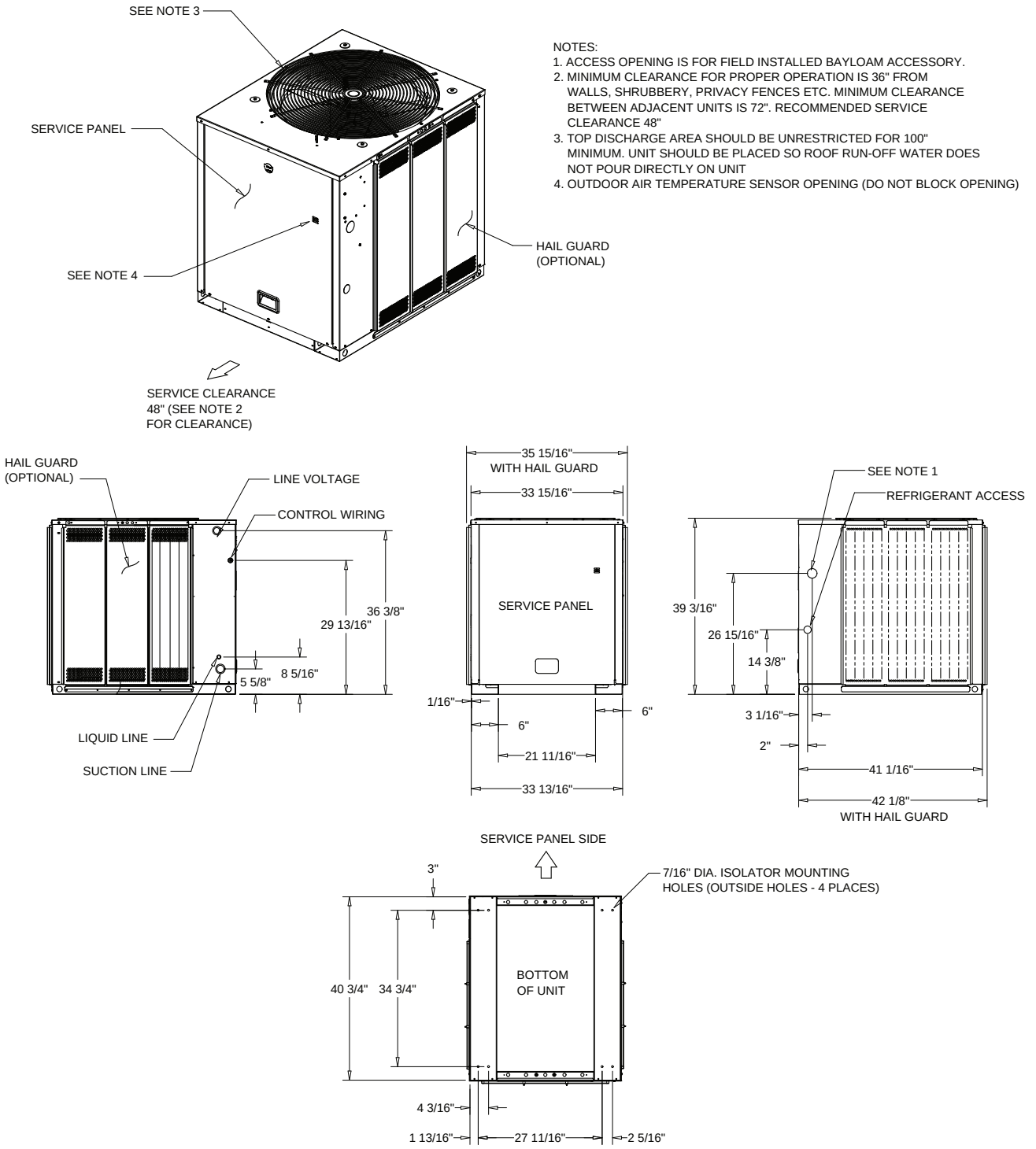
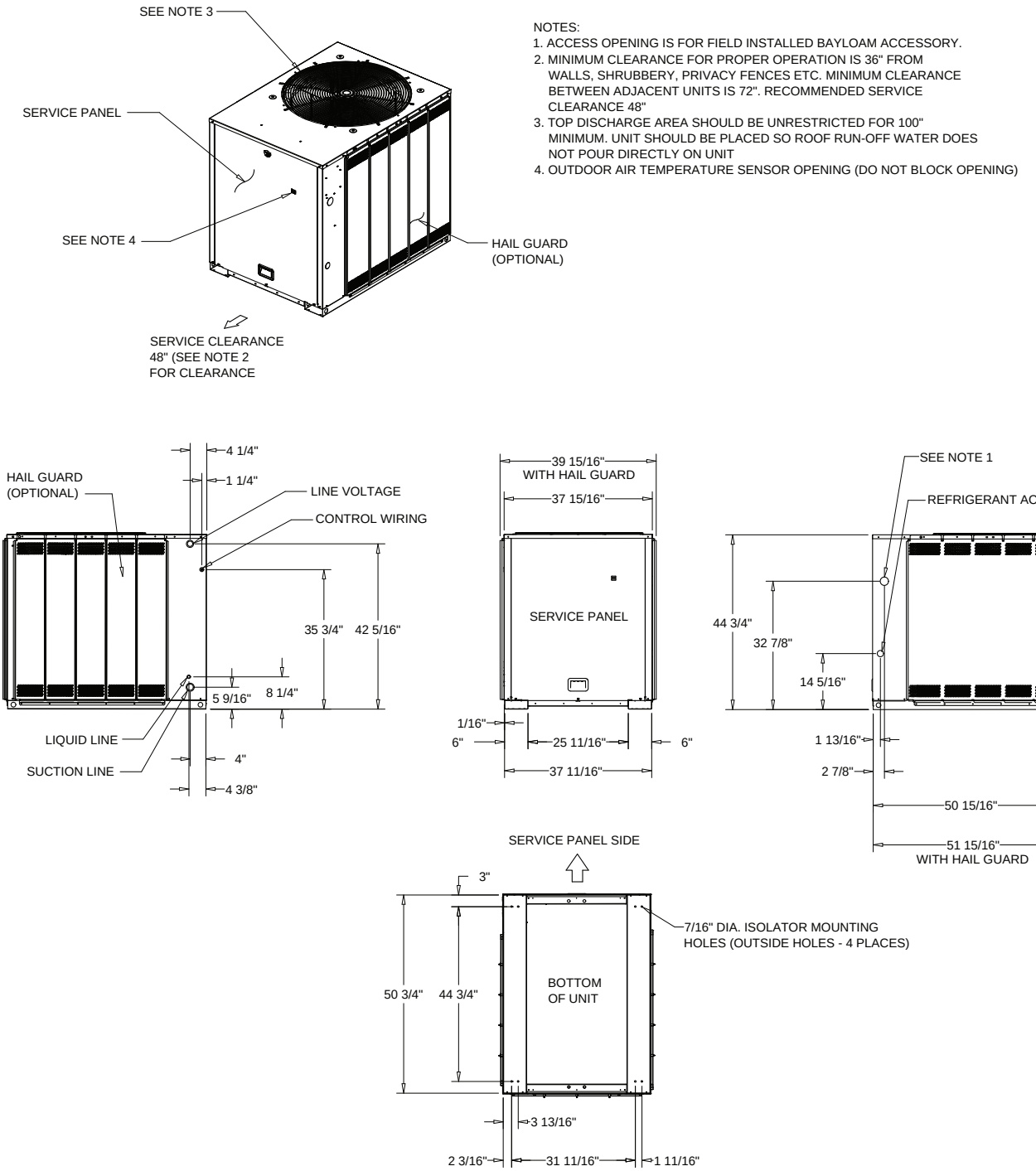
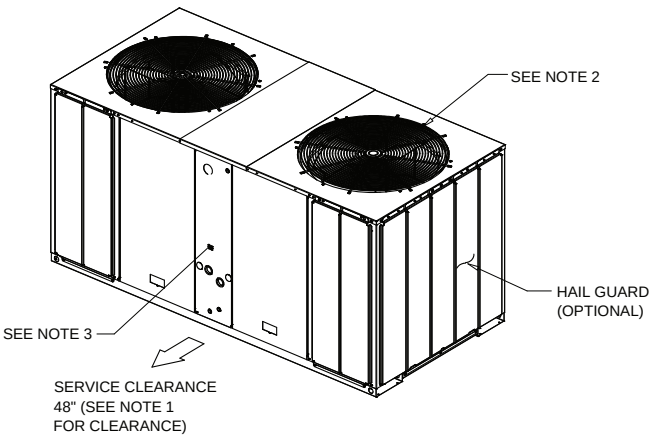


Figure 14. 10 Ton Heat Pump, Single Compressor

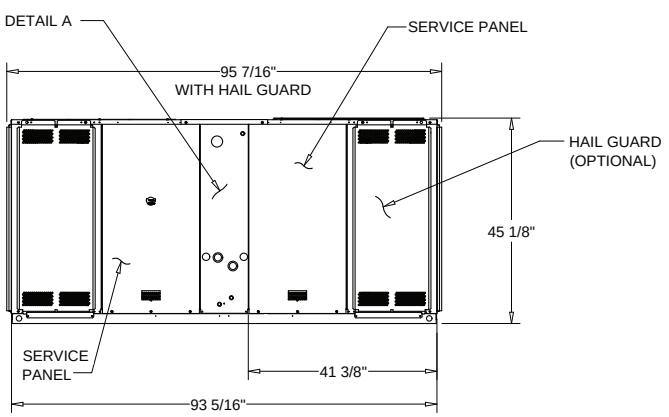


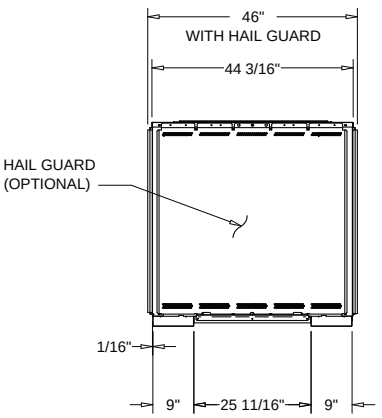
Dimensional Data

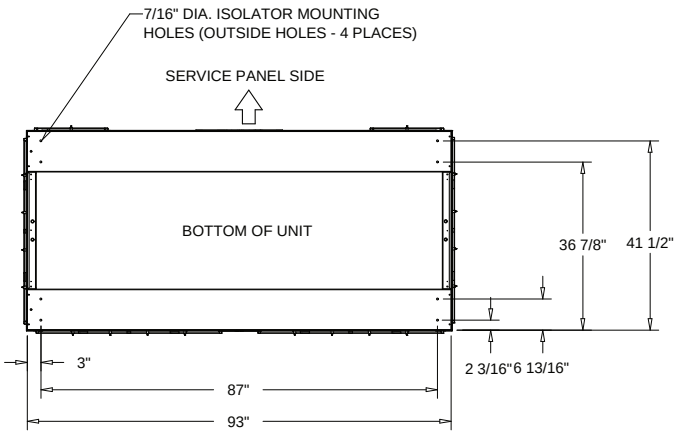
Figure 15. 15-20 TonHeat Pump, Dual Compressor

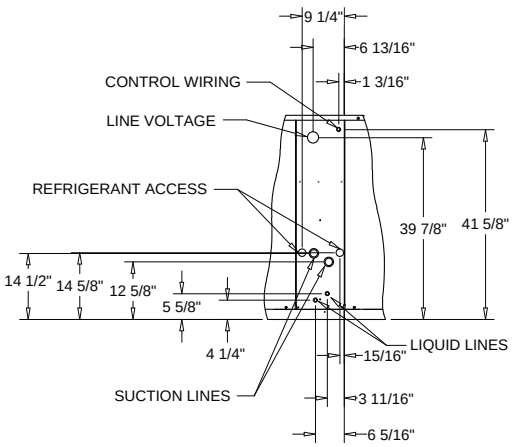


NOTES:
1. MINIMUM CLEARANCE FOR PROPER OPERATION IS 36" FROM WALLS, SHRUBBERY, PRIVACY FENCES ETC. MINIMUM CLEARANCE BETWEEN ADJACENT UNITS IS 72". RECOMMENDED SERVICE CLEARANCE 48"
2. TOP DISCHARGE AREA SHOULD BE UNRESTRICTED FOR 100" MINIMUM. UNIT SHOULD BE PLACED SO ROOF RUN-OFF WATER DOES NOT POUR DIRECTLY ON UNIT
3. OUTDOOR AIR TEMPERATURE SENSOR OPENING (DO NOT BLOCK OPENING).





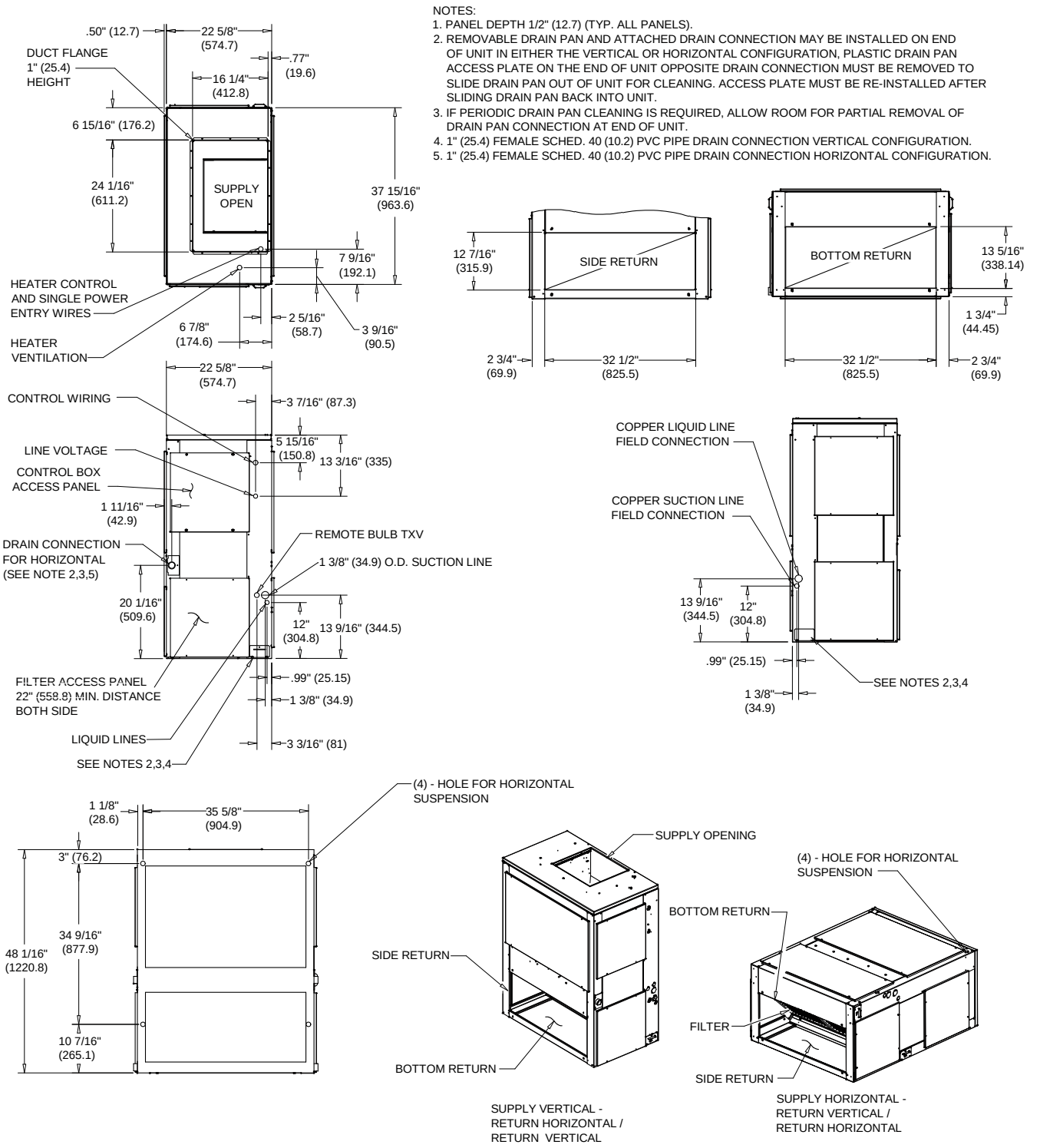




FRONT DETAIL A

DIMENSIONAL DETAIL

Figure 16. 5 Ton Air Handler, Single Circuit



Dimensional Data

Figure 17. 5 Ton Air Handler, Dual Circuit

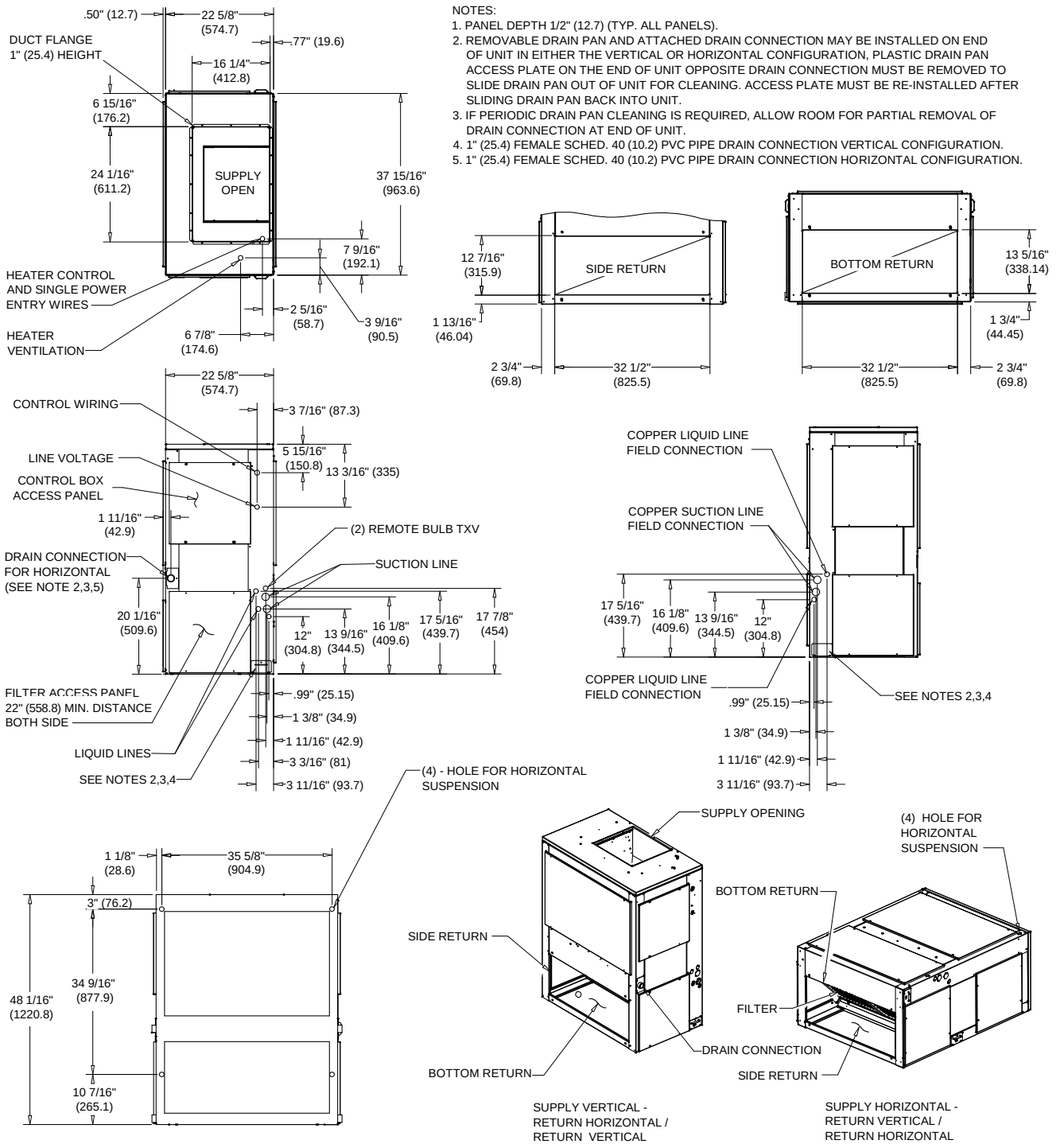
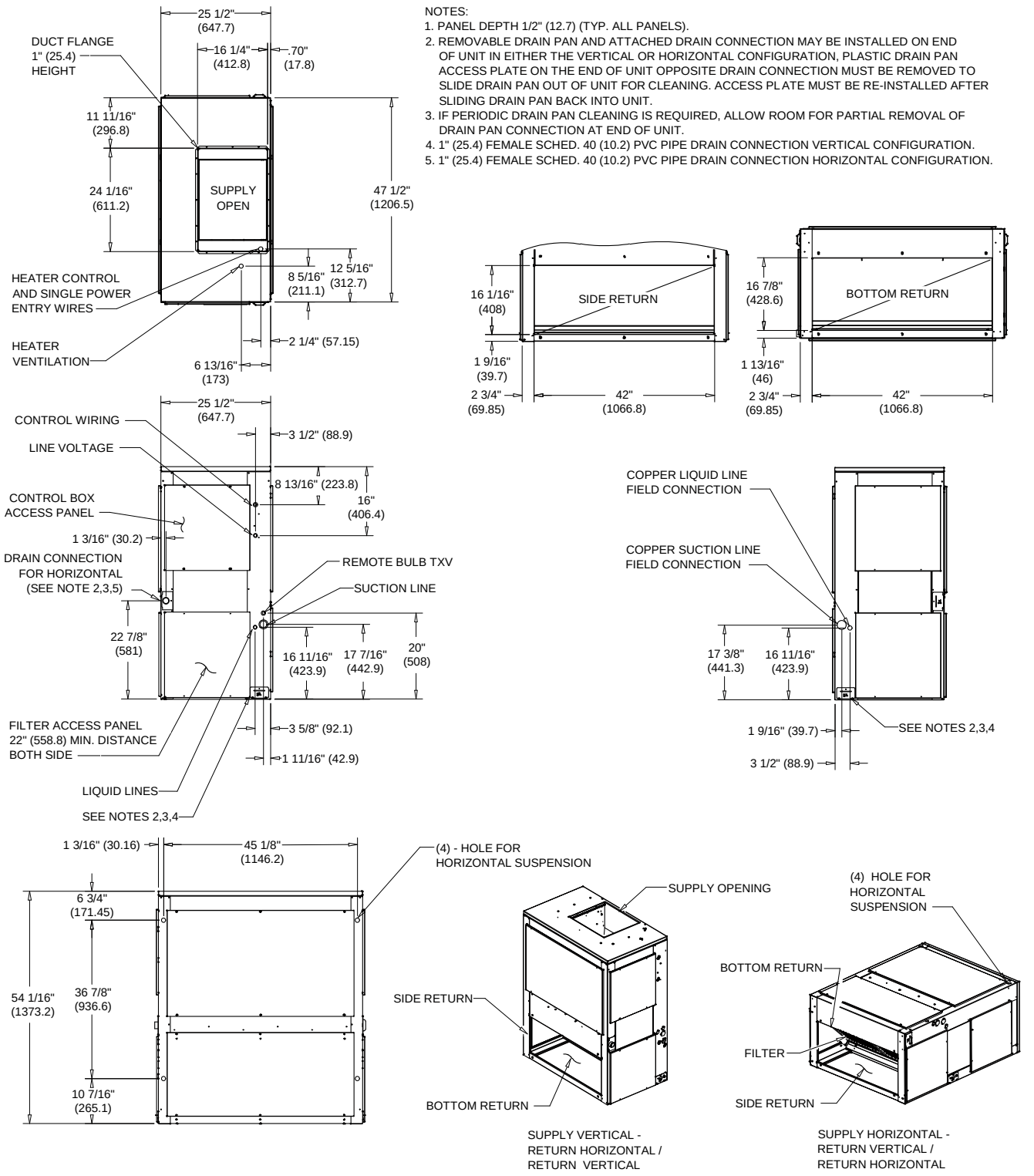


Figure 18. 7 1/2 Ton Air Handler, Single Circuit



Dimensional Data

Figure 19. 7 1/2 Ton Air Handler, Dual Circuit

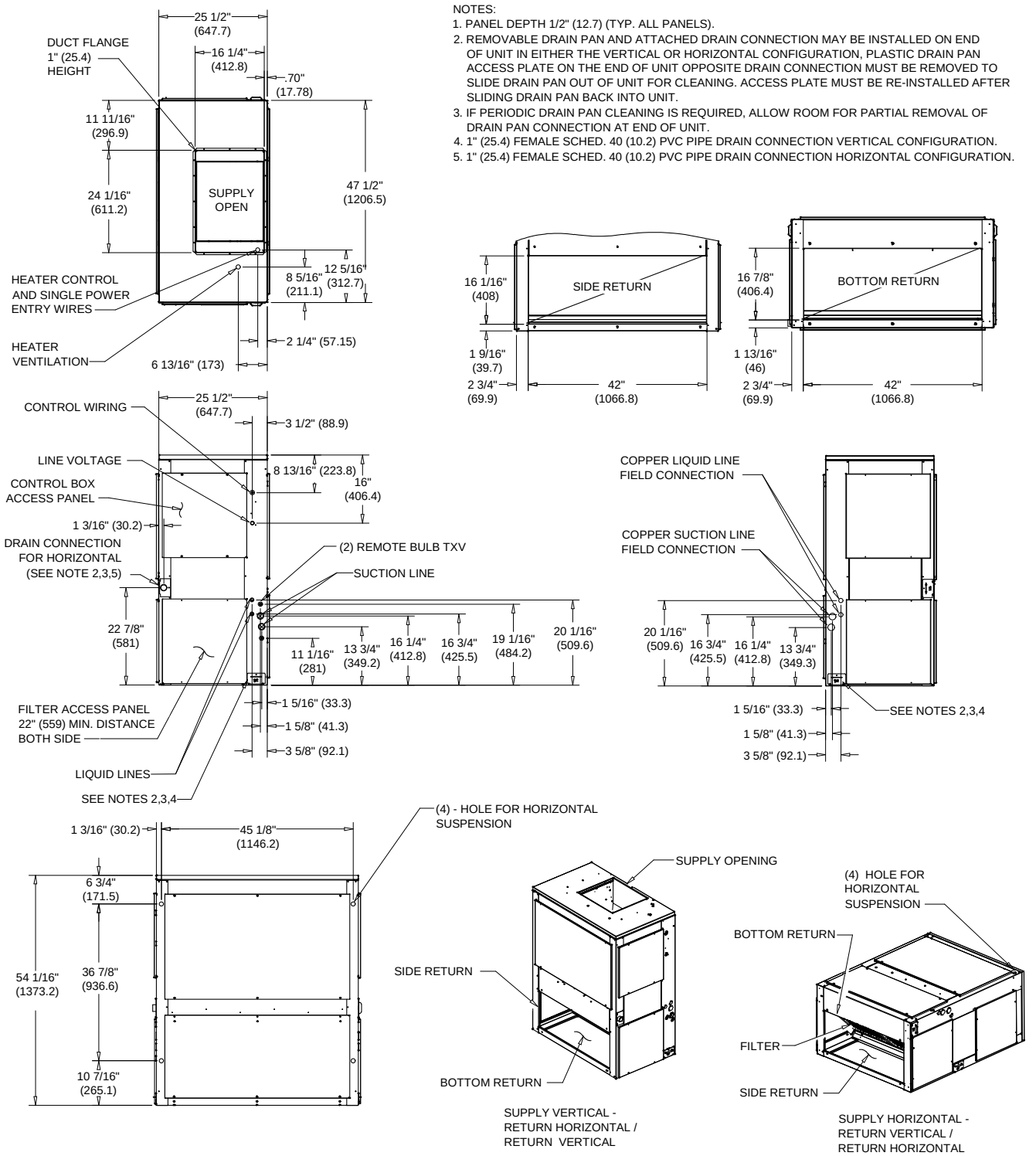
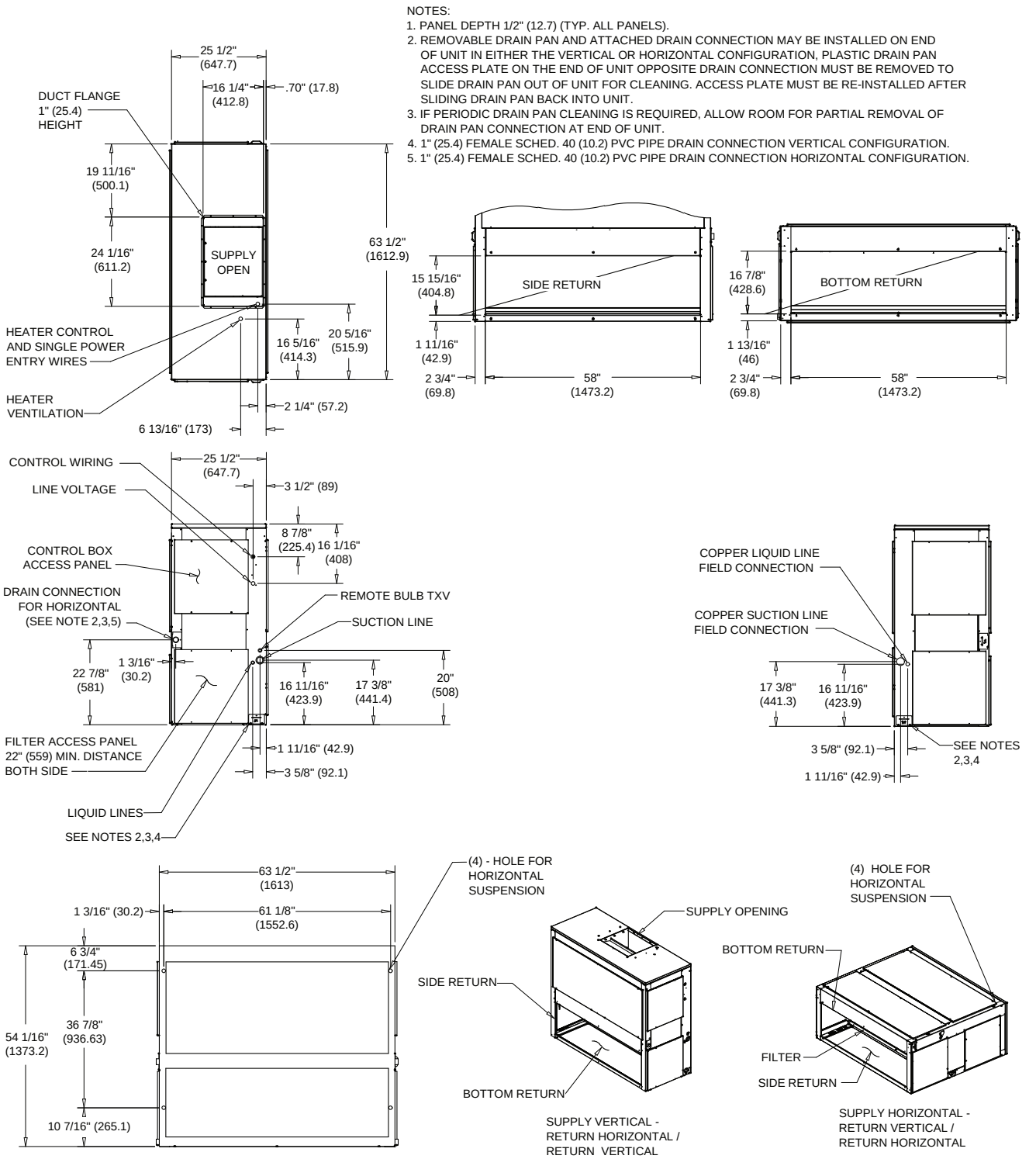


Figure 20. 10 Ton Air Handler, Single Circuit



Dimensional Data

Figure 21. 10 Ton Air Handler, Dual Circuit

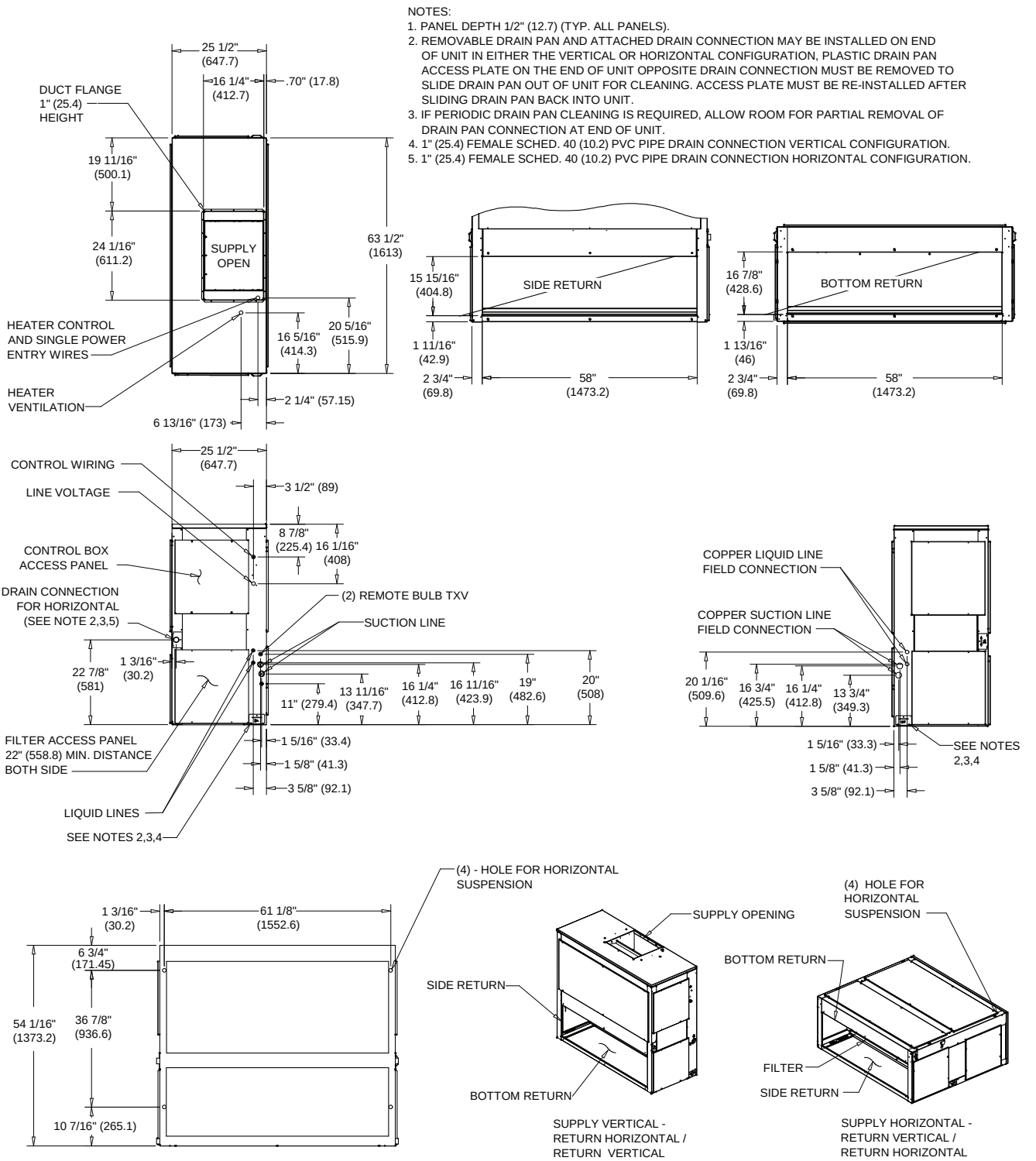
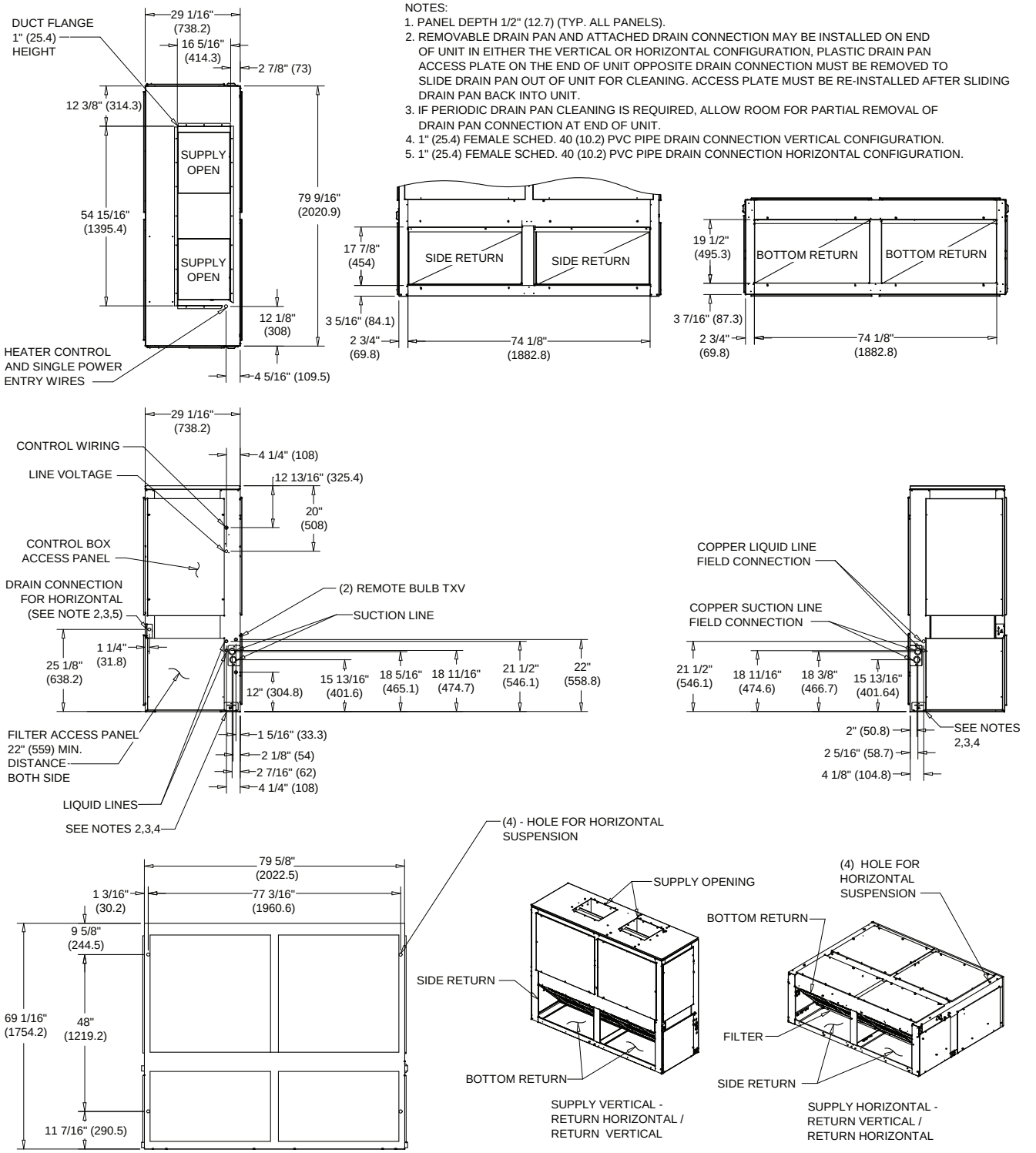


Figure 22. 12½ and 15 Ton Air Handler, Dual Circuit



Dimensional Data

Figure 23. 20 Ton Air Handler, Dual Circuit

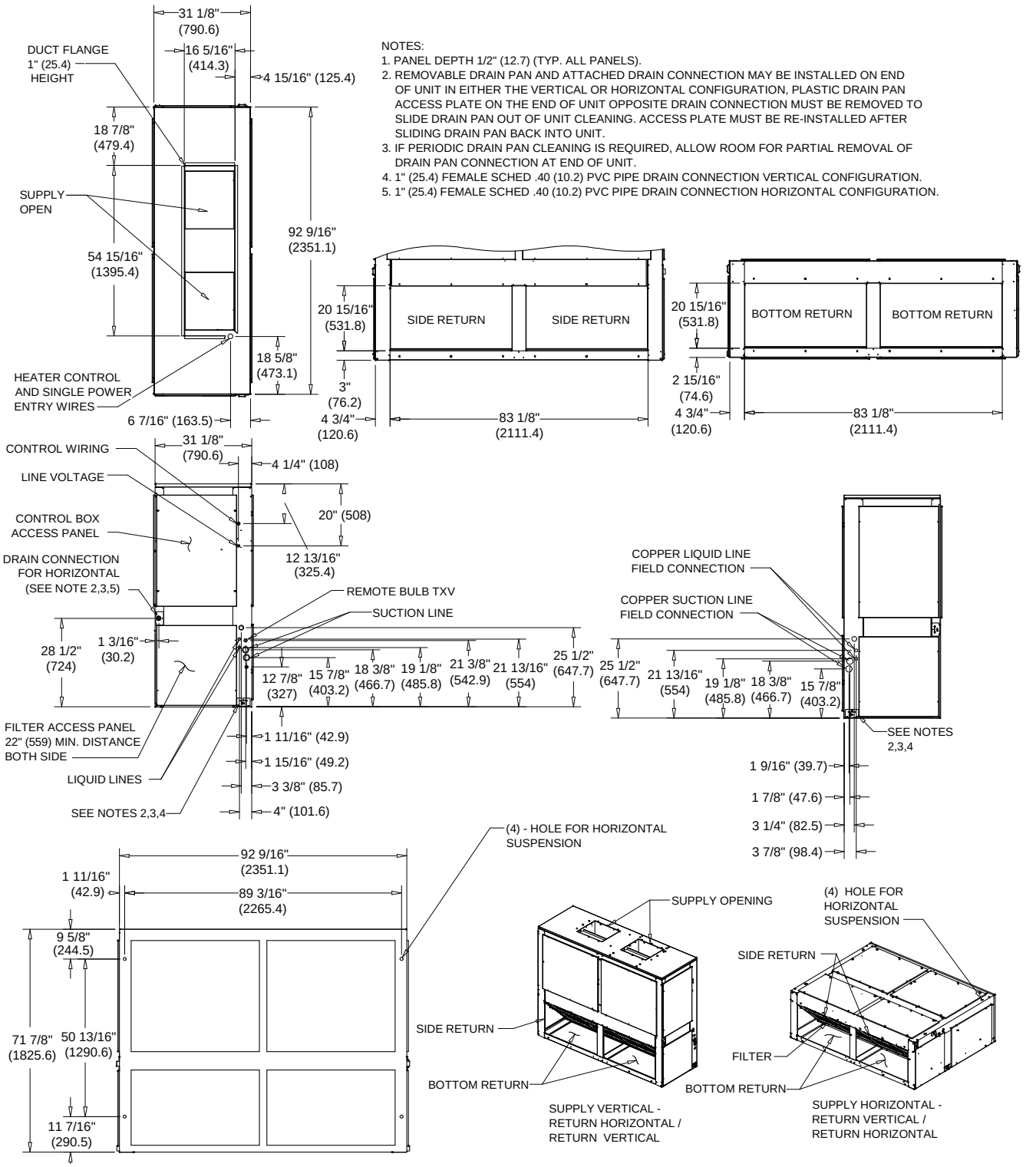


Figure 24. 5-20 Tons Rubber Isolator Accessory Dimensions

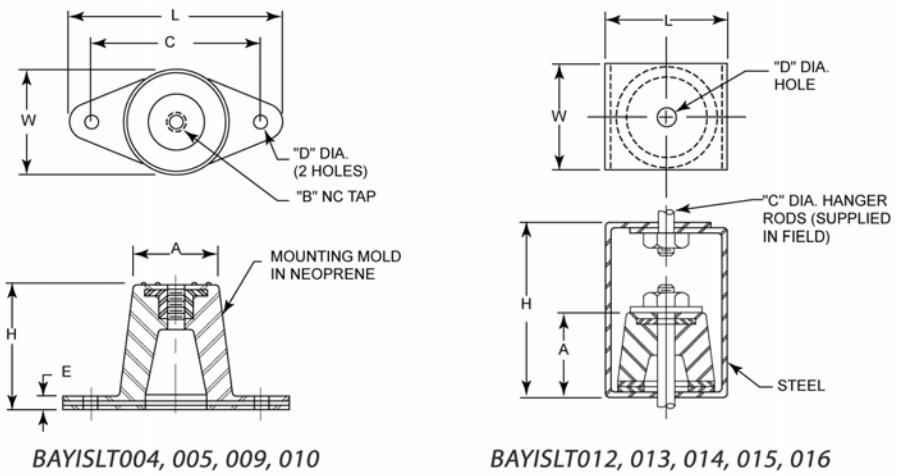


Table 41. Rubber Isolator Dimensions (in.)

Model No.	L	W	H	A	B	C	D	E
BAYISLT004	3-1/8	1-3/4	1-1/4	1-1/4	3/8	2-3/8	3/8	1/4
BAYISLT005 BAYISLT009 BAYISLT010	3-7/8	2-3/8	1-3/4	1-3/4	3/8	3	3/8	1/4
BAYISLT013 BAYISLT014 BAYISLT015[a]	2-1/4	2	3	1-3/8	3/4	3/8	1/2	—
BAYISLT012 BAYISLT015[a] BAYISLT016	3	2-1/4	4-1/2	1-7/8	1/4	5/8	3/4	—

(a) BAYISLT015 contains quantity 2 of the 2 1/4 x 2 x 3 isolators and quantity 3 of the 3 x 2 1/4 x 4 1/2 isolators.

Figure 25. 5-20 Tons Spring Isolator Accessory Dimensions

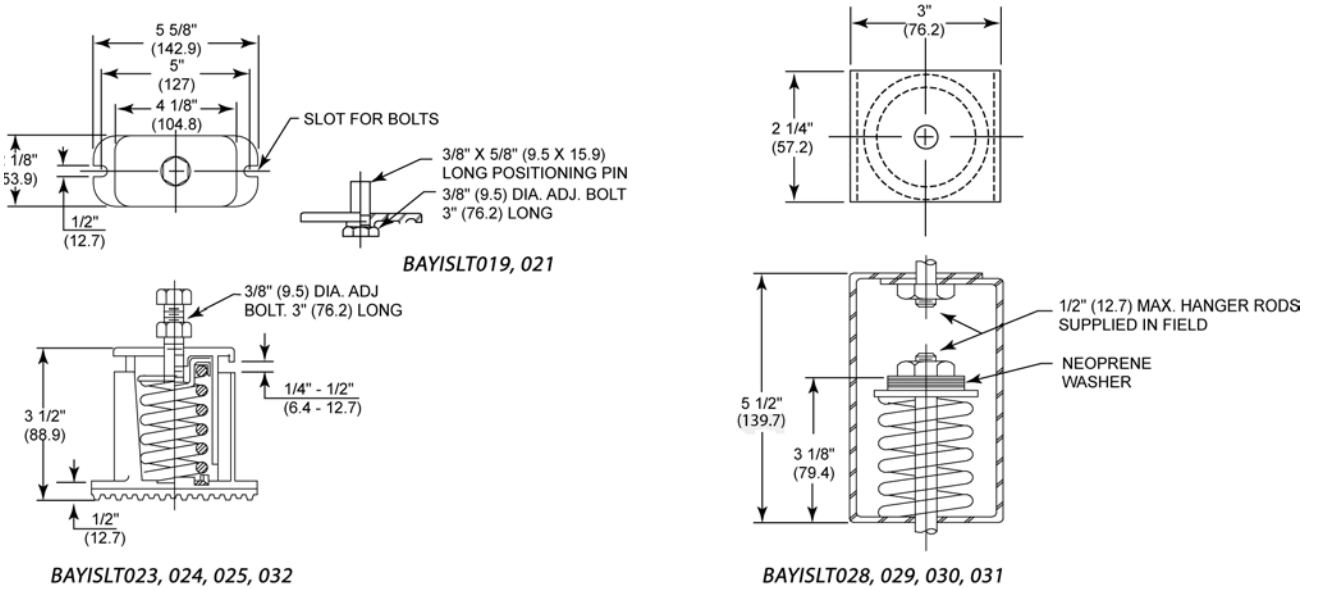


Figure 26. Electric Heater Accessory for 6-10 ton Air Handlers. All dimensions are in inches.

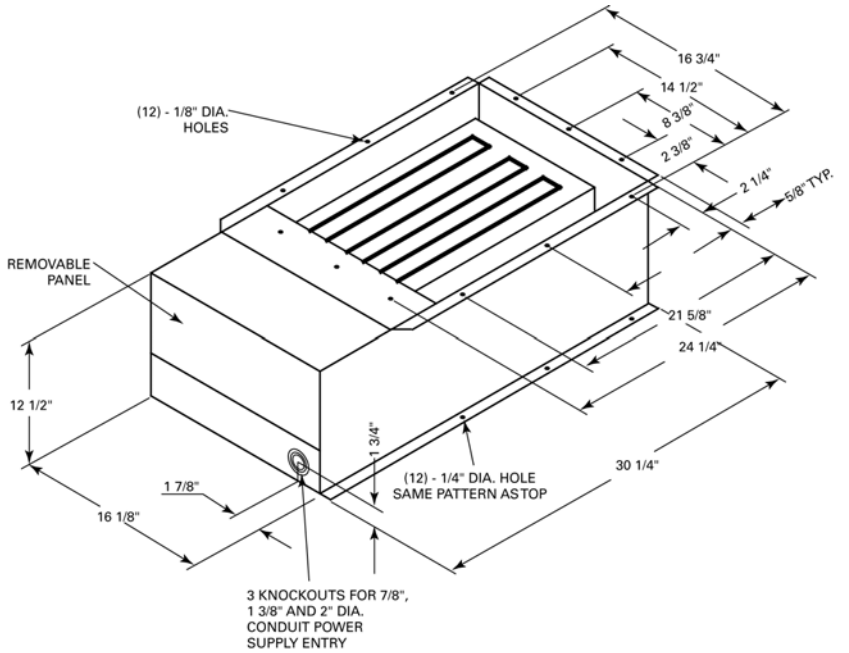


Figure 27. Electric Heater Accessory for 12½-20 ton Air Handlers. All dimensions are in inches.

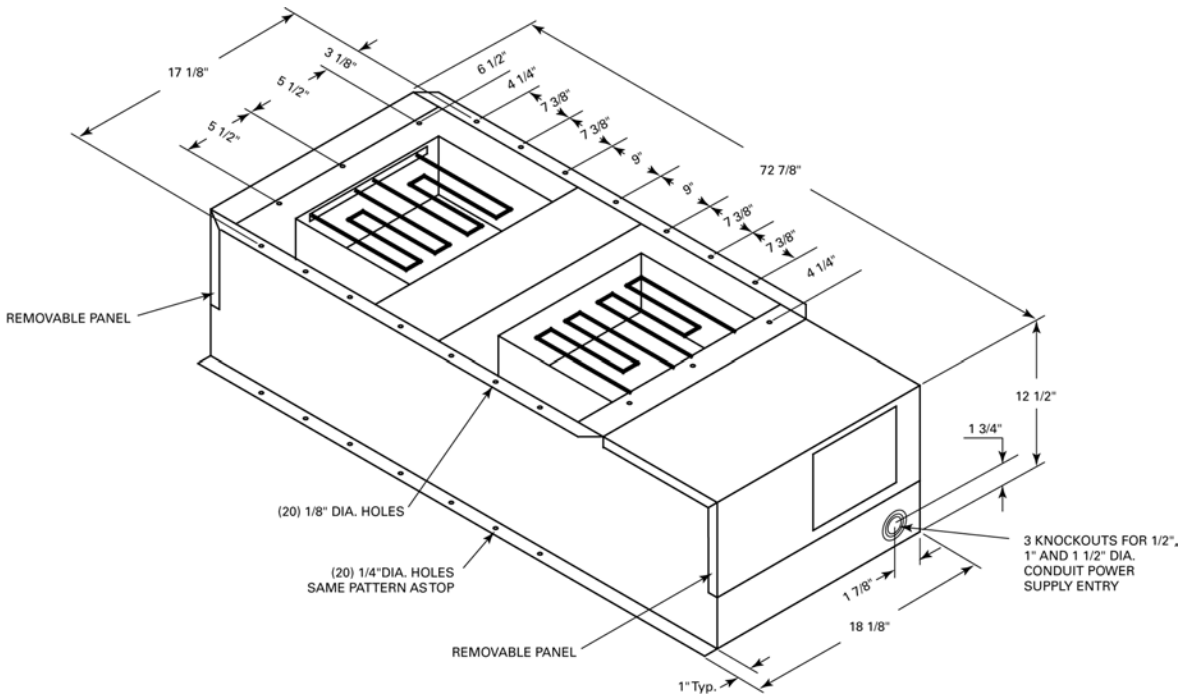


Figure 28. Discharge Plenum and Grille Accessory

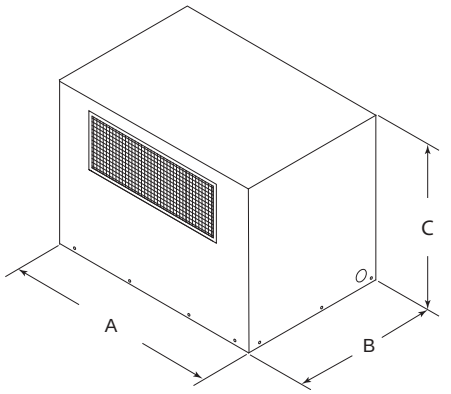


Table 42. Discharge Plenum and Grille Dimensions (in.) - No Heat

Tons	Model No.	A	B	C
5	BAYPLNM015	37.94	21.94	28
7½	BAYPLNM016	47.5	24.99	28
10	BAYPLNM017	63.5	24.99	28
12½	BAYPLNM018[a]	79.5	27.63	22
15	BAYPLNM018[a]	79.5	27.63	22
20	BAYPLNM019[a]	92.5	30.43	24

(a) For use with hydronic heat or no heat.

Figure 29. Discharge Plenum and Grille Accessory

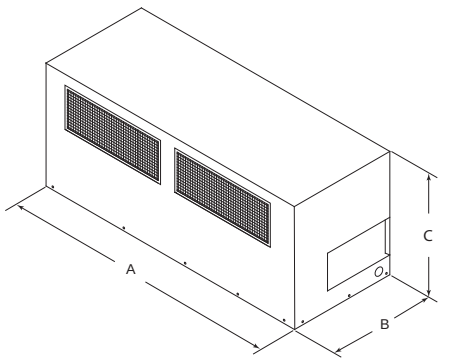


Table 43. Discharge Plenum and Grille Dimensions (in.). For use with Electric Heat.

Tons	Model No.	A	B	C
5	BAYPLNM030	38.07	22.69	29.05
7½	BAYPLNM031	47.86	25.69	29.05
10	BAYPLNM032	63.86	25.69	29.05
12½	BAYPLNM033	80.14	29.10	35.11
15	BAYPLNM033	80.14	29.10	35.11
20	BAYPLNM034	92.96	31.10	35.05

Figure 30. Subbase Accessory

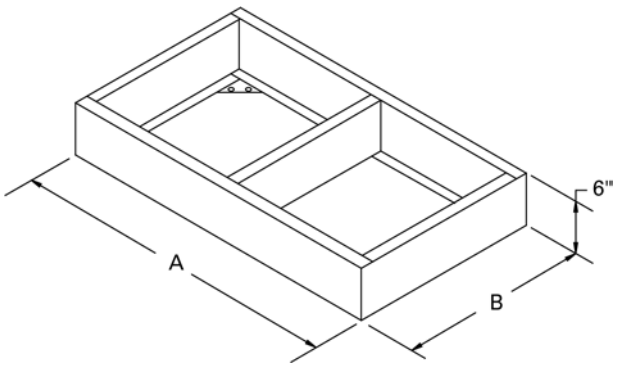


Table 44. Subbase Dimensions (in.)

Tons	Model No.	A	B
5	BAYBASE009	38	22.63
7½	BAYBASE010	47.5	25.51
10	BAYBASE011	63.5	25.52
12½	BAYBASE012	79.5	29.04
15	BAYBASE012	79.5	29.04
20	BAYBASE013	92.5	31.14

Weights

Table 45. TWA Unit & Corner Weights — lbs (60 Hz)

Tons	Model No.	Shipping Max (lbs)	Net Max (lbs)	Corner Weights			
				1	2	3	4
6	TWA073D	382	328	113	83	56	76
7.5	TWA090D	394	340	117	86	58	79
10	TWA120D	509	438	127	121	72	118
15	TWA180E	898	765	202	192	181	190
20	TWA240E	981	848	254	266	147	181

Figure 31. TWA073, 090, 120

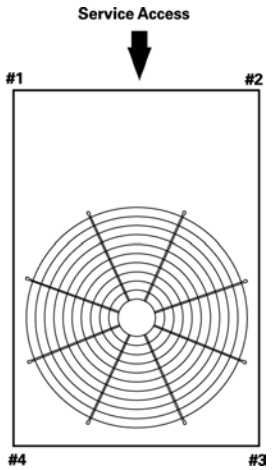
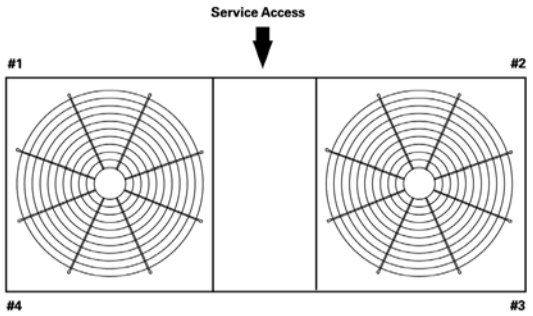


Figure 32. TWA180, 240



Weights

Table 46. TWE Unit and Corner Weights - lbs - 60 Hz

Tons	Model No.	Shipping Max (lbs)	Net Max (lbs)	Corner Weights - Vertical				Corner Weights - Horizontal			
				1	2	3	4	A	B	C	D
5	TWE061D/E	263	232	55	71	51	55	54	67	50	61
7½	TWE090D/E	360	323	67	99	75	82	56	92	87	88
10	TWE120D/E	429	393	77	121	110	85	79	118	77	119
12½	TWE150E	730	676	168	192	181	135	196	164	145	171
15	TWE180E	729	675	167	192	181	135	196	163	145	171
20	TWE240E	891	818	258	168	161	231	256	181	146	235

Figure 33. Vertical - TWE061, 090, 120

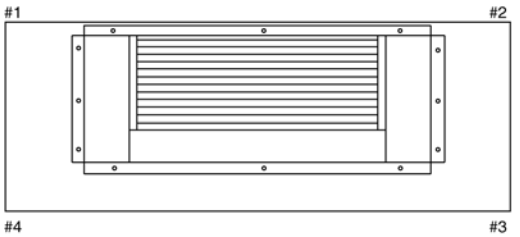


Figure 34. Vertical - TWE150, 180, 240

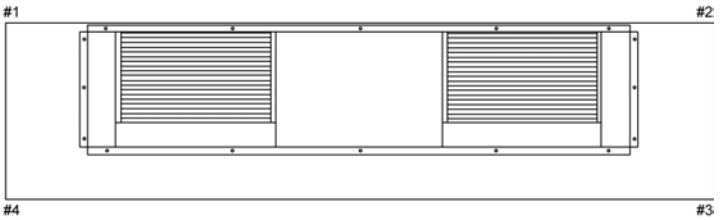


Figure 35. Horizontal - TWE061, 090, 120

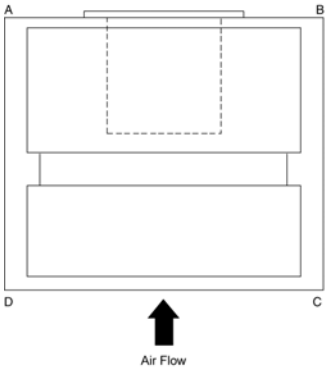


Figure 36. Horizontal - TWE150, 180, 240

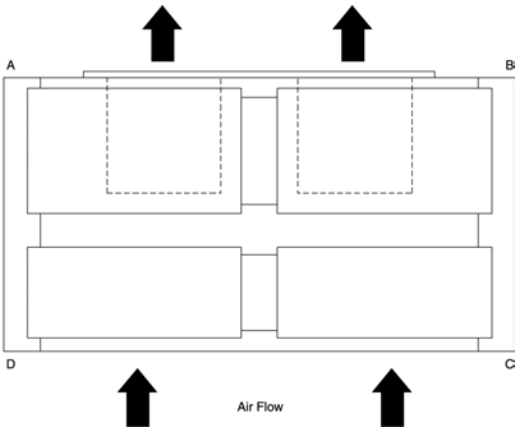


Table 47. Accessory Weights (net lbs.) - 60 Hz

Unit Used With Tons	Discharge Plenum and Grille[a]	Discharge Plenum and Grille[b]	Return Air Grille	Electric Heat Min/Max	Subbase	Oversized Motor	RIS Isolator Floor Mount	RIS Isolator Suspended Mount
5	58	115	3	32/43	14.4	31	2	9
7½	73	160	5	27/45	19.4	48	2	6
10	92	195	7	27/45	23.5	50	2	7
12½	230	235	10	79/100	28.4	80	2	7
15	230	235	10	79/100	28.4	80	2	7
20	145	265	12	79/100	31.7	88	2	9

Unit Used With Tons	Steel Spring Isolator Floor Mount	Steel Spring Isolator Suspended Mount	Control Transformer	Anti Short Cycle Timer	Coil Guard	Sensors	Modulating Low Ambient	On/Off Low Ambient
5	12	6	—	1	8	1	23	2
7½	12	6	4	1	11	1	23	2
10	12	6	4	1	20	1	23	2
12½	12	6	—	1	22	1	23	2
15	12	6	—	1	34	1	23 (req. qty 2)	1 (req. qty 2)
20	12	6	—	1	45	1	42 (req. qty 2)	1 (req. qty. 2)

(a) For use when no heat is supplied.
(b) For use with electric heat.

Mechanical Specifications

TWA Condensing Units

General

- Weatherproofed Steel Mounting/Lifting Rails
- Hermetic Scroll Compressors
- Plate Fin Condenser Coils
- Fans and Motors
- Standard Operating Range 50-125°F (Min. 0°F with Low Ambient Accessory)
- Nitrogen Holding Charge
- Certified and Rated in Accordance with AHRI
- Certified to UL 1995

Casing

- Zinc Coated, Heavy Gauge, Galvanized Steel
- Weather-Resistant, Baked Enamel Finish
- Meets 672 hr Salt Spray Test
- Removable Single Side Maintenance Access Panels
- Lifting Handles in Maintenance Access Panels
- Unit Base Provisions for Forklift and/or Crane Lifting

Refrigeration System - Single Compressor (TWA073D, TWA090D, TWA120D)

- Single Refrigeration Circuit with Integral Subcooling Circuit.
- Single Direct Drive Hermetic Scroll Compressor
- Suction Gas-Cooled Motor w/ ± 10% Voltage Utilization Range of Unit Nameplate Voltage
- Reversing Valve
- Crankcase Heater
- Internal Temperature and Current Sensitive Motor Overloads
- No Compressor Suction and/or Discharge Valves (Reduced Vibration/Sound)
- Factory Installed Liquid Line Filter Drier
- Phase Loss/Reverse Rotation Monitor
- Liquid Line Service Valve (with gauge port)
- Suction Line Service Valve (with gauge port)
- External High Pressure Cutout Device
- External Low Pressure Cutout Device
- Evaporator Defrost Control
- Loss of Charge Protection (Discharge Temperature Limit)

Refrigeration System - Dual Compressor (TWA180E, TWA240E)

- Two (2) Separate and Independent Refrigerant Circuits
- Each Refrigeration Circuit Equipped with Integral Subcooling Circuit.
- Two (2) Direct Drive Hermetic Scroll Compressor
- Suction Gas-Cooled Motors w/ ± 10% Voltage Utilization Range of Unit Nameplate Voltage
- Reversing Valves
- Crankcase Heaters
- Internal Temperature and Current Sensitive Motor Overloads
- Factory Installed Liquid Line Filter Driers
- Phase Loss/Reverse Rotation Monitor
- Liquid Line Service Valves (with gauge port)
- Suction Line Service Valves (with gauge port)
- No Compressor Suction and/or Discharge Valves (Reduced Vibration/Sound)

- External High Pressure Cutout Devices
- External Low Pressure Cutout Devices
- Evaporator Defrost Control
- Loss of Charge Protection (Discharge Temperature Limit)

Condenser Coil

- 3/8" Internally Enhanced Copper Tube Mechanically Bonded to Lanced Aluminum Plate Fins
- Factory Pressure and Leak Tested to 660 psig.
- Perforated Steel Hail Guards Available (Factory Installed Option or Field Installed Accessory)

Condenser Fan

- 26" or 28" Propeller Fan(s)
- Direct Drive
- Statically and Dynamically Balanced

Condenser Motor(s)

- Permanently Lubricated Totally Enclosed or Open Construction
- Built-In Current and Thermal Overloads
- Ball or Sleeve Bearing Type

Controls

- Centralized MircoProcessor
- Indoor and Outdoor Temperature Sensors Drive Algorithms Making Decisions for All Heating, Cooling, and Ventilation
- Intergrated Anti-Short Cycle Timer
- Integrated Time Delay Between Compressors
- Completely Internally Wired
- Numbered and Colored Wires
- Contactor Pressure Lugs or Terminal Block
- Unit External Mounting Location for Disconnect Device
- Single Point Power Entry

Factory Installed Options

Hail Guards

- Condenser Coil Protection from Hail, Vandals, Etc.
- Perforated, Painted Galvanized Steel
- Factory or Field Installed

Black Epoxy Coated Condenser Coil

- Thermoset Vinyl Coating
- Bonded to Aluminum Fin Stock (Prior to Fin-Stamping Process)
- Economical Protectant in Mildly Corrosive Environments

LonTalk® Communication Interface

- Factory or Field Installed
- Communications Board
- Allows Unit Communication as a Tracer™ LCI-R Device
- Allows Unit Communication with Generic LonTalk Network Building Automation Controls

Field Installed Options

Low Ambient (Fan ON/OFF)

- Provides Unit Cooling Operation to Outdoor Ambient of 0°F
- Low Cost Solution
- Liquid Line Temperature Controls Condenser Fan Operation
- 1 Kit Per Condenser Fan Required

Low Ambient (Modulating)

- Provides Unit Cooling Operation to Outdoor Ambient of 0°F
- "Wave-Chopper"
- Discharge Line Pressure Controls Condenser Fan Operation
- 1 Kit Per Condenser Fan Required

Vibration Isolators

- Neoprene-In-Shear or Spring Flex Choice
- Reduce Vibration Transmission to Building Structures, Equipment, and Adjacent Spaces
- Reduce Noise Transmission to Building Structures, Equipment, and Adjacent Spaces

Zone Sensor

- Interfaces with Microprocessor Units
- Manual or Automatic Programmable
- System Malfunction Lights
- Remote Sensor Options
- Wireless Option

Thermostat

- 1H/1C Available
- 2H/1C Available
- Manual or Automatic Changeover Available
- Automatic Programmable Electronic with Night Setback Available

LonTalk® Communication Interface

- Factory or Field Installed
- Communications Board
- Allows Unit Communication as a Tracer™ LCI-R Device
- Allows Unit Communication with Generic LonTalk Network Building Automation Controls

TWE Air Handlers

General

- Completely Factory Assembled
- Convertible for Horizontal or Vertical Configuration
- Convertible for Cooling Only or Heat Pump Application
- Convertible for Left or Right External Connections (Refrigerant and/or Electrical)
- Convertible for Front or Bottom Air Return
- Nitrogen Holding Charge
- Certified to UL 1995 for Indoor Blower Coil Units

Casing

- Zinc Coated, Heavy Gauge, Galvanized Steel

- Weather Resistant Baked Enamel Finish
- Access Panels with Captive Screws
- Completely Insulated with Foil Faced, Cleanable, Fire Retardant, Permanent, Odorless Glass Fiber Material
- Captured or Sealed Insulation Edges
- Electrical Connection Bushings or Plugs
- Refrigerant Connection Bushings or Plugs
- Withstand Elevated Internal Static Pressure

Refrigeration System

- Single or Dual Circuit
- Distributor(s)
- Thermal Expansion Valves (TXVs)

Evaporator Coil

- 3/8" Internally Enhanced Copper Tube Mechanically Bonded to Lanced Aluminum Plate Fins
- Factory Pressure and Leak Tested to 449 psig.
- Draw-Through Airflow
- Dual Circuits Are Interlaced/Intertwined
- Double Sloped, Removable, Cleanable, Composite Drain Pan
- Four Drain Pan Positions

Indoor Fan

- Double Inlet, Double Width, Forward Curved, Centrifugal Type Fan
- Dual Fans On 12.5-20T Air Handlers
- Adjustable Belt Drive
- Permanently Lubricated Bearings

Indoor Motor

- Adjustable Motor Sheaves
- Thermal Overload Protection
- Permanently Lubricated Bearings
- Meet Energy Policy of 1992 (EPACT)
- Optional Over Sized Motors for High Static Applications

Controls

- Completely Internally Wired
- Numbered and Colored Wires
- Magnetic Indoor Fan Contactor
- Low Voltage Terminal Strip
- Single Point Power Entry
- Evaporator Defrost Control

Filters

- Access From Side Coil Panels
- Filters Slide on Rack
- One Inch (1"), Throw-Away Filters on 5-10 Ton Units
- Filter Rack Convertible to Two Inch (2") Capability on 5-10 Ton Units
- Two Inch (2"), Throw-Away Filters on 12.5-20 Ton Units

Field Installed Accessories

Electric Heaters

- Heavy Duty Nickel Chromium Elements
- ETL Approved
- Installs Directly On Fan Discharge
- One or Two Stage Control (Dependent Upon Capacity)
- Single Point Power Entry
- Terminal Strip Connections
- 460V Heaters
  - Internally Wye Connected
  - Automatic Line Break High Limit Controls
- 230V Heaters
  - Internally Delta Connected
  - Automatic Reset of High Limit Controls Through Pilot Duty with Secondary Backup Fuse Links

Hydronic Heat Coils

- One Row Steam
- Two Row Hot Water
- Installs Directly On Fan Discharge
- Heavy Gauge Sheet Metal Casing Matches Air Handler
- Convertible for Horizontal or Vertical Configurations

Discharge Plenums and Grilles

- Vertical, Free Discharge Applications
- Heavy Gauge Sheet Metal Casing Matches Air Handler
- Satin Finished, 4-Way Adjustable Louver Grilles

Return Air Grilles

- Vertical, Free Discharge Applications
- Satin Finished, Non-Adjustable Louver Grilles
- Replaces Front Lower Access Panel

Mounting Sub-Base

- Vertical Floor Mount Configuration Requirement
- Heavy Gauge Sheet Metal Casing Matches Air Handler
- Provides Additional Clearance for Condensate Drain Trapping
- Required When Isolators Are Used

Vibration Isolators

- Neoprene-In-Shear or Spring Flex Choice
- Floor or Suspended Applications
- Reduce Vibration Transmission to Building Structures, Equipment, and Adjacent Spaces
- Reduce Noise Transmission to Building Structures, Equipment, and Adjacent Spaces

Over Size Motors

- High Static Applications
- Motor, Sheaves, Belt Included

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