Standard-Efficiency (TM) units meet minimum ASHRAE 90.1 energy efficiency requirements. High-Efficiency (HJ) units well exceed ASHRAE 90.1 energy efficiency requirements. Gas heating with electric cooling rooftop units offer:

- Pre-painted galvanized steel cabinet for long life and quality appearance
- Commercial strength base rails with built-in rigging capability
- Convertible design for vertical or horizontal supply/return (004-014 only)
- Non-corrosive, sloped condensate drain pan, meets ASHRAE 62 (IAQ)
- Two-inch return-air filters
- A wide assortment of factory-installed options available, including high-static drives that provide additional performance range
- Optional factory-installed COBRA™ energy recovery unit (option on 48HJ004-014 units only)
- Factory-installed PremierLink™ digital communicating controls
  - Factory-installed optional gear driven EconoMiser IV (vertical return for sizes 004-012 only) for use with standard rooftop unit controls (includes CO2 sensor control capability)
  - Factory-installed optional gear driven EconoMiser2 (vertical return only) for use with PremierLink DDC controls (includes 4 to 20 mA actuator for demand control ventilation)
- Humidi-Mizer™ adaptive dehumidification system (48HJ004-014)
- MoistureMiser™ dehumidification package

Heat Options

- Exclusive integrated gas control board with diagnostics
- Alumagard™ heat exchanger coating
- Induced-draft fan for gas combustion
- Tubular, dimpled heat exchangers
- Natural gas
- LP conversion kits
- Low NOx (size 004-006 only)
- Optional stainless steel heat exchangers.
Every compact one-piece unit arrives fully assembled, charged, tested, and ready to run.

**48 Series — gas heat models**

All ignition components are contained in the compact IGC (integrated gas controller) which is easily accessible for servicing. The IGC control board, designed and manufactured exclusively for Carrier rooftop units, provides built-in diagnostic capability. An LED (light-emitting diode) simplifies troubleshooting by providing visual fault notification and system status confirmation.

The IGC also contains an exclusive anti-cycle protection for gas heat operation. After 4 continuous cycles on the unit high-temperature limit switch, the gas heat operation is disabled, and an error code is issued. This feature greatly improves reliability of the rooftop unit.

The IGC also contains burner control logic for accurate and dependable gas ignition. The LED is visible without removing the unit control box access panel. This LED fault-notification system reduces service person troubleshooting time and minimizes service costs. The IGC also maximizes heating efficiency by controlling evaporator-fan on and off delays.

Tubular, dimpled gas heat exchangers optimize heat transfer for improved efficiency. The tubular design permits hot gases to make multiple passes across the path of the supply air. The dimpled design creates a turbulent gas flow to maximize heating efficiency.

The efficient in-shot burners and all ignition components are contained in an easily removable, compact assembly.

The California Air Quality Management Districts NOx requirement of 40 nanograms/joule or less is met on 004-006 size Low NOx models.

The extra thick Alumagard™ heat exchanger coating provides corrosion resistance and ensures long life (optional stainless steel heat exchangers are available).

The unsightly appearance of flue stacks is eliminated and the effects of wind on heating operations are diminished by the induced draft combustion
system. The inducer fan draws hot combustion gas through the heat exchanger at the optimum rate for the most effective heat transfer. The heat exchanger operates under negative pressure, preventing flue gas leakage into the indoor supply air.

During the Heating mode, the evaporator-fan relay automatically starts the evaporator fan after the heat exchanger warms up to a suitable temperature. The 30-second fan delay prevents cold air from entering the supply duct system when the conditioned space is calling for heat to maximize efficiency.

The direct-spark ignition system saves operating expense when compared to pilot ignition systems. No crossover tube is required, therefore no sooting or pilot fouling problems can occur.

All standard units are designed for natural gas, but an accessory LP (liquid propane) conversion kit is available.

All units have a flame rectification sensor to quickly sense the burner flame and ignite burners almost immediately. Fast shutdown is a certainty since the sensor reacts quickly to any flame outage or system failure. In the event of a shutdown, an error code is issued at the IGC board.

Safety is also assured due to the heating safety controls which will shut down the unit if there is a problem. If excessive temperatures develop, limit switches shut off the gas valve. After 4 continuous short cycles of the high-temperature limit switch, the IGC board locks out the gas heat cycle to prevent any further short cycles. This safety feature is provided exclusively on Carrier rooftop units. The rollout switch also deenergizes the gas valve in the event of a flame rollout.

Quiet, efficient operation and dependable performance
Compressors have vibration isolators for quiet operation. Efficient fan and motor design permits operation at low sound levels.

Unit sizes 008-028 offer lower utility costs through part-load operation using 2 or 3 stages of cooling.

Quiet and efficient operation is provided by belt-driven evaporator fans (standard on all units over 5 tons). The belt-driven evaporator-fan is equipped with variable-pitch pulleys which allow adjustment within the rpm ranges of the factory-supplied pulleys.

Increased operating efficiency is achieved through computer-designed coils featuring staggered internally enhanced copper tubes. Fins are ripple-edged for strength, lanced, and double waved for higher heat transfer.

Durable, dependable construction
Designed for durability in any climate, the weather-resistant cabinets are constructed of galvanized steel and bonded, and all exterior panels are coated with a prepaft baked enamel finish. The paint finish is non-chalking, and is capable of withstanding ASTM (American Society for Testing and Materials) B117 500-hour Salt Spray Test. All internal cabinet panels are primed, permitting longer life and a more attractive appearance for the entire unit.

In addition, all size 004-014 units are designed with a single, continuous top piece to eliminate any possible leaks at seams or gasketing. Totally enclosed condenser-fan motors and permanently lubricated bearings provide additional unit dependability.

Easy installation and conversion
All units are shipped in the vertical duct configuration for fit-up to standard roof curbs. The contractor can order and install the roof curb early in the construction stage, before decisions on size requirements are made.

All units feature a base rail design with forklift slots and rigging holes for easy installation and conversion. The units can be easily converted from a vertical to a horizontal duct configuration by relocating the panels supplied with the unit (size 004-014 only).

To convert 004-014 units from vertical to horizontal discharge, simply relocate 2 panels. The same basic unit can be used for a variety of applications and can be quickly modified at the jobsite.

To convert 015-028 units from vertical to horizontal discharge, use the optional horizontal supply/return adapter roof curb (48HJ015,017 and 48TM016-028) or accessory conversion kit (48HJ020-028).

Convenient duct openings in the unit basepans permit side-by-side or concentric duct connections (see Application data section) without requiring internal unit modification. NOTE: On units using horizontal supply and return, the accessory barometric relief or power exhaust MUST be installed on the return ductwork.

Thru-the-bottom service connection capability comes standard with the rooftop unit to allow power and control wiring and gas connections to be routed through the unit’s basepan, thereby minimizing roof penetrations (to prevent water leaks). (Thru-the-bottom gas connection requires thru-the-bottom accessory kit.) Power, gas and control connections are made on the same side of the unit to simplify installation.

The non-corrosive sloped condensate drain pan (size 004-014) permits either an external horizontal side condensate drain (outside the roof curb) or an internal vertical bottom drain (inside the roof curb). Both options require an external, field-supplied P-trap.

Standard 2-in. throwaway filters are easily accessed through a removable panel located above the air intake hood. No tools are required to change unit filters.

Belt-driven evaporator-fan motors (optional on TM units under 6 tons) allow maximum on-site flexibility without changing motors or drives.

Low voltage wiring connections are easily made thanks to the large terminal board which is located for quick, convenient access.

In addition, color-coded wires permit easy tracing and diagnostics.

Proven compressor reliability
Design techniques feature computer-programmed balance between compressor, condenser, and evaporator. Carrier-specified hermetic compressors are equipped with compressor overcurrent and overtemperature protection to ensure dependability.
All units have Carrier’s exclusive Acutrol™ (004-014) or TXV (thermo-static expansion valve) metering device (015-028) which precisely controls refrigerant flow, preventing slugging and flood-back, while maintaining optimum unit performance. Refrigerant filter driers are standard.

→ **Integrated economizers and outdoor-air dampers**

Available as options or accessories, economizers and manual outdoor-air dampers introduce outdoor air which mixes with the conditioned air, improving indoor-air quality and often reducing energy consumption.

During a first stage call for cooling, if the outdoor-air temperature is below the economizer control changeover set point, the mixed-air sensor modulates the economizer outdoor-air damper open to take advantage of free cooling provided by the outside air. When second-stage cooling is called for, the compressor is energized in addition to the economizer. If the outdoor-air temperature is above the changeover set point, the first stage of compression is activated and the economizer damper stays at minimum position.

Accessory upgrade kits allow for control by differential dry-bulb temperature (outdoor vs return), outdoor air enthalpy changeover, or more precise differential enthalpy control.

Units can be equipped with different economizer options to meet specific controls applications. The factory-installed or field-installed EconoMi$er IV and EconoMi$er II are available. The EconoMi$er IV is used with the standard rooftop unit controls and includes an industry standard, stand-alone, solid-state controller. The control can be used with a CO₂ sensor for DCV (demand control ventilation) operation. For direct digital control (DDC) applications, the EconoMi$er II can be operated using PremierLink controls or a third party controller. The EconoMi$er II includes 4 to 20 mA actuator capability for demand control ventilation applications.

All economizers incorporate a parallel blade, gear-driven damper system for efficient air mixing and reliable control. In addition, the standard damper actuator includes a spring return to provide reliable closure on power loss. The economizers for sizes 004-014 are equipped with up to 100% barometric relief capability for high outdoor airflow operations. Economizers for unit sizes 004-014 are available, factory-installed, for vertical return only. Economizers for unit sizes 015-028 are compatible for vertical or horizontal return. An optional field-installed barometric relief package is available for size 015-028 units.

In addition, single-stage power exhaust is available as a field-installed accessory for EconoMi$er IV to help maintain proper building pressure.

For units without economizer, year-round ventilation is enhanced by an optional manual outdoor-air damper. On 004-014 units, a 25% or 50% manual damper is available as a field-installed accessory. Unit sizes 015-028 are equipped with a manual 25% damper.

**Service options (48HJ004-017 and 48TM004-028 units only)**

Servicing a rooftop unit has never been easier with the factory-installed service options for these rooftop units. These options include the following:

- **Hinged access panels** are provided for the filter/indoor-fan motor, compressors, evaporator fan, and control box areas. Quick access to major components is accomplished by simply unlatching and swinging open the various panels. Each hinged panel is permanently mounted to the unit, thereby eliminating the concern of a dropped or wind-blown panel puncturing delicate roof materials. The 4 extended access panels are also equipped with “tie back” retaining devices to hold the door in the open position while servicing the unit.

- **An external, covered, 115-v Ground Fault Interrupt (GFI) receptacle** is provided as a convenient power source for drills, lights, refrigerant recovery units, or other electrical service tools. A factory-supplied step-down transformer is connected to the “load” side of the unit main power connection (size 004-014). For sizes 015-028, connect the outlet to a field-supplied and properly fused branch circuit power supply.

- **Slide out “motor-drive-blower”** reduces service time (only on 48HJ017).

- An integral non-fused disconnect switch within the rooftop unit reduces installation time, labor and material costs. Safety is assured by an interlock which prevents access to the control box unless the switch is in the OFF position. In addition, the externally mounted handle incorporates power lockout capability to further protect service personnel.

**Carrier PremierLink™ controls add reliability, efficiency, and simplification (48HJ004-017 and 48TM004-028 units only)**

The PremierLink direct digital controls can be ordered as a factory-installed option or as a field-installed accessory. Designed and manufactured exclusively by Carrier, the controls can be used to actively monitor and control all modes of operations, as well as monitor the following diagnostics and features: unit number, zone temperature, zone set point, zone humidity set point, discharge air temperatures, fan status, stages of heating, stages of cooling, damper position, outdoor-air temperature, outdoor humidity level, filter status, fire shutdown status, IAQ (indoor air quality) set point, enthalpy status, differential enthalpy status, heat/cool lockout, cfm set point, pre-occupancy purge, economizer controls and early morning warm-up.

This controller has a 38.4K baud communications capability and is compatible with ComfortLink™ controls, CCN (Carrier Comfort Network®) and ComfortVIEW™ software. The Scrolling Marquee and Navigator™ display are optional tools that can be used for programming and monitoring the unit for optimal performance. The addition of the Carrier CO₂ sensor in the conditioned space provides ASHRAE (American Society of Heating, Refrigeration, and Air Conditioning Engineers) 62.99 compliance and Demand Control Ventilation.

The PremierLink peer-to-peer, Internet ready communicating control is designed specifically for Constant Volume (CV) and Variable Volume and Temperature (VVT®) applications. This comprehensive controls system allows all Carrier 3 to 25 ton rooftops with a 3-wire communications bus to be daisy chained together on a roof to create a fully functional HVAC (heating, cooling...
ventilation, and air conditioning) automation system.

**Indoor-air quality (IAQ) begins with Carrier rooftops**

Sloped condensate pans minimize biological growth in rooftop units in accordance with ASHRAE Standard 62. Two-inch filters with optional dirty filter indicator switch provide for greater particle reduction in the return air. The face-split evaporator coils improve the dehumidification capability of standard units, maximize building humidity control.

Optional proportional reacting CO₂ sensor is available with the Econo-Mi$er IV outdoor air damper option/accessory to aid the IAQ benefits.

**Humidi-MiZer™ adaptive dehumidification system (48HJ004-014)**

Carrier’s Humidi-MiZer adaptive dehumidification system is an all-inclusive factory-installed option that can be ordered with any Weathermaster® 48HJ004-014 rooftop unit to meet the demand for providing a flexible and high performing solution to accommodate all of these design related issues. This system expands the envelope of operation of Carrier’s Weathermaster 48HJ004-014 rooftop products to provide unprecedented flexibility to meet year-round comfort conditions. The Humidi-MiZer adaptive dehumidification system has the industry’s only dual dehumidification mode setting. The Humidi-MiZer system includes two new modes of operation. The Weathermaster 48HJ004-014 rooftop coupled with the Humidi-MiZer system is capable of operating in normal design cooling mode, subcooling mode, and hot gas reheat mode. Normal Design Cooling mode is when the unit will operate under its normal sequence of operation by cycling compressors to maintain comfort conditions. Subcooling mode will operate to satisfy part load type conditions when the space requires combined sensible and a higher proportion of latent load control. Hot Gas Reheat mode will operate when outdoor temperatures diminish and the need for latent capacity is required for sole humidity control. Hot Gas Reheat mode will provide neutral air for maximum dehumidification operation.

**Exclusive MoistureMi$er™ dehumidification package (48HJ015,017 and 48TM016-028 only)**

The MoistureMi$er dehumidification package is a result of recent advances by Carrier in controlling comfort levels. This factory-installed option significantly improves the dehumidification capability of the rooftop unit and helps control humidity levels in the building.

This option provides increased dehumidification by cooling the hot liquid refrigerant leaving the condenser coil. The MoistureMi$er package consists of a subcooling coil located on the leaving-air side of the evaporator coil. The location of this coil in the indoor airstream enhances the latent capacity of the 48HJ015 and 017 and 48TM016-028 units by as much as 40%. Many buildings suffer from humidity damage or poor indoor air quality due to humid conditions. The improved latent capacity provided by the MoistureMi$er option reduces the building’s humidity, eliminating potential property damage and making the space more comfortable.

The MoistureMi$er option is the ideal IAQ option for hot and humid regions. The operation of the MoistureMi$er package can be controlled by a field-installed, wall mounted humidistat or Thermidistat™ device. The circuit activates only when needed (using the accessory humidistat) as opposed to some dehumidification systems that operate continuously. The humidistat can be set for any humidity level between 20% and 80% relative humidity. The Thermidistat device can be set for any humidity level between 50% and 90% relative humidity.

**COBRA™ energy recovery units (sizes 004-014 only)**

Carrier’s factory-installed optional COBRA units recover energy from the building exhaust air and pre-condition ventilation air for the rooftop unit during winter and summer operation. These units are designed to satisfy the higher ventilation requirements and other building codes while minimizing energy costs.

Factory installation of the 62AQ section provides the benefit of reduced field-installation time, single point power connections, and the assurance of a factory test for the complete COBRA unit. The COBRA energy recovery section requires less maintenance than other energy recovery systems and can be serviced by any qualified refrigeration technician.

The COBRA energy recovery units utilize Carrier’s high-efficiency 48HJ004-014 rooftop units and provide 3 to 12½ tons of cooling capacity with the capability to pre-condition 600 to 3000 cfm of outdoor air.

Indoor-air quality (IAQ) generally refers to the level of pollutants inside a building. These pollutants include cigarette smoke, carbon dioxide exhaled by occupants, radon gas, car exhaust, paint fumes, and odors.

Concern over increased indoor air pollutants has been spurred by several issues: 1) changes in new building construction methods and retrofit of older buildings have reduced air infiltration rates; 2) Synthetic materials release airborne particles, odors, and chemicals, and 3) HVAC systems that bring in minimal fresh air.

In 1989, IAQ concerns caused ASHRAE to recommend increased ventilation for all public buildings. Simply introducing fresh air into a building, however, is not always practical or cost effective. Additional ventilation can overload HVAC systems and increase energy costs.

Carrier’s COBRA energy recovery unit solves this dilemma by providing increased fresh air while keeping increased costs to a minimum. In addition, the COBRA energy recovery unit helps reduce humidity levels, which helps to prevent deterioration of building materials and retards the growth of mold and mildew.

The COBRA energy recovery unit provides the best solution to retaining the energy-conserving benefits of today’s tighter building construction while improving indoor-air quality.
## Model number nomenclature

### Example: 48TM004-014

<table>
<thead>
<tr>
<th>48</th>
<th>TM</th>
<th>D</th>
<th>004</th>
<th>P</th>
<th>M</th>
<th>F</th>
<th>6</th>
<th>-</th>
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</thead>
</table>

**Factory-Installed Options**

#### Voltage
- 1 – 575-3-60
- 3 – 208/230-1-60
- 5 – 208/230-3-60
- 6 – 460-3-60

#### Coil Protection Options (fin/tube)
- – Al/Cu Cond & Evap (Standard Unit)
- B – Cu/Cu Cond & Evap
- C – Cu/Cu Cond & Al/Cu Evap
- F – E-Coat Al/Cu Cond & Al/Cu Evap
- G – E-Coat Cu/Cu Cond & Al/Cu Evap
- V – Al/Cu Pre-Coat Cond Fin & Al/Cu Evap

#### Indoor Motor Options
- – Standard Motor & Drive
- A – Alternate Motor
- M – High-Static Indoor Motor

**Heat Options:**

- **49 States:**
  - D – Low Heat
  - E – Medium Heat
  - F – High Heat

- **California Compliant:**
  - L – Low NOx Low Heat
  - M – Low NOx Medium Heat
  - N – Low NOx High Heat

**Capacity Nominal-Tons**

- 004 – 3 Tons
- 005 – 4 Tons
- 006 – 5 Tons
- 007 – 6 Tons
- 008 – 7-1/2 Tons
- 009 – 8-1/2 Tons
- 012 – 10 Tons
- 014 – 12-1/2 Tons

**Controls and Sensors**

- – None
- N – Novar ETM3051 Control*
- P – PremierLink™ DDC Control

### Quality Assurance

Certified to ISO 9001:2000

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**Legend**

- **AI** — Aluminum
- **Cu** — Copper
- **DDC** — Direct Digital Controls
- **FIOP** — Factory-Installed Option

*Contact factory for availability and application information.
†Refer to 48TM Price Pages, Quote Builder, or contact your local Carrier representative for FIOP code table.
ARI* capacity ratings

ARI* CAPACITY RATINGS — 48TM004-014

<table>
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<tr>
<th>UNIT 48TM</th>
<th>NOMINAL TONS</th>
<th>NET COOLING CAPACITY (Btuh)</th>
<th>TOTAL kW</th>
<th>SEER†</th>
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<th>SOUND RATING (decibels)</th>
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LEGEND

- db — Dry Bulb
- EER — Energy Efficiency Ratio
- IPLV — Integrated Part-Load Values
- SEER — Seasonal Energy Efficiency Ratio
- wb — Wet Bulb

*Air Conditioning and Refrigeration Institute.
††The SEER values shown for sizes 004, 005, and 006 are for units with the optional belt drive motors; SEER rating for these units with the standard direct drive motor is 9.7.
**ARI does not require EER ratings for units with capacity below 65,000 Btuh. For these units, the EER rating at ARI standard conditions is provided for information only.
†††The IPLV applies only to two-stage cooling units.

NOTES:
1. Rated in accordance with ARI Standards 210-94 or 360-93.

HEATING CAPACITIES AND EFFICIENCIES — 48TM004-014

208/230-1-60 — SINGLE-STAGE GAS HEAT

<table>
<thead>
<tr>
<th>UNIT 48TM</th>
<th>INPUT CAPACITY</th>
<th>OUTPUT CAPACITY</th>
<th>TEMPERATURE RISE (°F)</th>
<th>MINIMUM HEATING AIRFLOW (CFM)</th>
<th>EFFICIENCY</th>
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208/230-1-60 — SINGLE-STAGE GAS HEAT — LOW NOx

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<th>TEMPERATURE RISE (°F)</th>
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<tbody>
<tr>
<td></td>
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208/230/460-3-60 — SINGLE-STAGE GAS HEAT — LOW NOx

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<th>INPUT CAPACITY</th>
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<th>TEMPERATURE RISE (°F)</th>
<th>MINIMUM HEATING AIRFLOW (CFM)</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>1st Stage</td>
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<td>1st Stage</td>
<td>2nd Stage</td>
<td>AFUE (%)</td>
</tr>
<tr>
<td>M004</td>
<td>60,000</td>
<td>—</td>
<td>49,000</td>
<td>20-50</td>
<td>910</td>
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<tr>
<td>N004</td>
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<td>—</td>
<td>73,000</td>
<td>30-60</td>
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</tr>
<tr>
<td>L005</td>
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<td>—</td>
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<td>20-50</td>
<td>910</td>
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<tr>
<td>M005</td>
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<td>—</td>
<td>73,000</td>
<td>30-60</td>
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<tr>
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<td>—</td>
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<td>20-50</td>
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<tr>
<td>M006</td>
<td>90,000</td>
<td>—</td>
<td>73,000</td>
<td>30-60</td>
<td>1130</td>
</tr>
<tr>
<td>N006</td>
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<td>—</td>
<td>98,000</td>
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AFUE — Annual Fuel Utilization Efficiency
### ARI* capacity ratings (cont)

#### HEATING CAPACITIES AND EFFICIENCIES — 48TM004-014 (cont)

**208/230/460/575-3-60 — SINGLE-STAGE GAS HEAT**

<table>
<thead>
<tr>
<th>UNIT 48TM</th>
<th>INPUT CAPACITY</th>
<th>OUTPUT CAPACITY</th>
<th>TEMPERATURE RISE (°F)</th>
<th>MINIMUM HEATING AIRFLOW (CFM)</th>
<th>EFFICIENCY</th>
<th>AFUE (%)</th>
<th>Steady State (%)</th>
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<tr>
<td>E004</td>
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<tr>
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<td>74,000</td>
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<tr>
<td>E005</td>
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<td>92,000</td>
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<tr>
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<td>92,000</td>
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<td>92,000</td>
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<tr>
<td>D009</td>
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**208/230/460/575-3-60 — 2-STAGE GAS HEAT**

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<th>INPUT CAPACITY</th>
<th>OUTPUT CAPACITY</th>
<th>TEMPERATURE RISE (°F)</th>
<th>MINIMUM HEATING AIRFLOW (CFM)</th>
<th>EFFICIENCY</th>
<th>AFUE (%)</th>
<th>Steady State (%)</th>
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<tr>
<td>F004</td>
<td>82,000</td>
<td>115,000</td>
<td>55-85</td>
<td>1004</td>
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<td>50-80</td>
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<td>50-80</td>
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<td>180,000</td>
<td>45-75</td>
<td>2230</td>
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<td>F009</td>
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<td>45-75</td>
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<td>D012</td>
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<td>35-65</td>
<td>2060</td>
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<td>80</td>
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<tr>
<td>E012</td>
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<td>224,000</td>
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<td>80</td>
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<tr>
<td>F012</td>
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<td>40-70</td>
<td>2650</td>
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<td>80</td>
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<tr>
<td>D014</td>
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<td>224,000</td>
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<td>2510</td>
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<tr>
<td>E014</td>
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<td>250,000</td>
<td>40-70</td>
<td>2650</td>
<td></td>
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AFUE — Annual Fuel Utilization Efficiency
### ARI Capacity Ratings — 48TM016-028

<table>
<thead>
<tr>
<th>UNIT SIZE 48TMD</th>
<th>NOMINAL TONS</th>
<th>NET COOLING CAPACITY (Btuh)</th>
<th>TOTAL WATTS</th>
<th>EER</th>
<th>SOUND RATING (decibels)</th>
<th>IPLV</th>
</tr>
</thead>
<tbody>
<tr>
<td>016</td>
<td>15</td>
<td>176,000</td>
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<td>88</td>
<td>9.5</td>
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<tr>
<td>020</td>
<td>18</td>
<td>202,000</td>
<td>21,166</td>
<td>9.7</td>
<td>88</td>
<td>10.2</td>
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<tr>
<td>025</td>
<td>20</td>
<td>236,000</td>
<td>24,832</td>
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<td>94</td>
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<tr>
<td>028</td>
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<td>278,000</td>
<td>28,535</td>
<td>9.7</td>
<td>94</td>
<td>10.4</td>
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</table>

**NOTES:**
1. Rated in accordance with ARI Standards 360-93 and 270-95.
2. ARI ratings are net values, reflecting the effects of circulating fan heat.
3. Ratings are based on:
   - **Cooling Standard:** 80°F db, 67°F wb indoor entering-air temperature and 95°F db air entering outdoor unit.
   - **IP LV Standard:** 80°F db, 67°F wb indoor entering-air temperature and 80°F db outdoor entering-air temperature.
4. All 48TM016-028 units are in compliance with ASHRAE 90.1 2001 Energy Standard for minimum EER requirements. Refer to state and local codes or visit the following website: [http://solstice.crest.org/efficiency/bcap](http://solstice.crest.org/efficiency/bcap) to determine if compliance with this standard pertains to a given geographical area of the United States.

### Heating Capacities and Efficiencies — 48TM016-028

<table>
<thead>
<tr>
<th>UNIT 48TM</th>
<th>HEATING INPUT (Btuh) Stage 2/Stage 1*</th>
<th>OUTPUT CAPACITY (Btuh)</th>
<th>TEMPERATURE RISE (F)</th>
<th>STEADY-STATE EFFICIENCY (%)</th>
<th>MINIMUM HEATING CFM</th>
</tr>
</thead>
<tbody>
<tr>
<td>D,M016</td>
<td>275,000/206,000</td>
<td>223,000</td>
<td>15-45</td>
<td>81.0</td>
<td>3750</td>
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<tr>
<td>F,N016</td>
<td>360,000/270,000</td>
<td>292,000</td>
<td>20-50</td>
<td>81.0</td>
<td>3830</td>
</tr>
<tr>
<td>D,M020</td>
<td>275,000/206,000</td>
<td>223,000</td>
<td>15-45</td>
<td>81.0</td>
<td>4580</td>
</tr>
<tr>
<td>F,N020</td>
<td>360,000/270,000</td>
<td>292,000</td>
<td>20-50</td>
<td>81.0</td>
<td>5400</td>
</tr>
<tr>
<td>D,M025</td>
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<td>223,000</td>
<td>15-45</td>
<td>81.0</td>
<td>4580</td>
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<tr>
<td>F,N025</td>
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<td>20-50</td>
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<td>D,M028</td>
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<td>15-45</td>
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<td>292,000</td>
<td>20-50</td>
<td>81.0</td>
<td>5400</td>
</tr>
</tbody>
</table>

*All units are 2-stage heat.

**NOTE:** Minimum allowable temperature of mixed-air entering the heat exchanger during first-stage heating is 45°F. There is no minimum mixed-air temperature limitation during second-stage heating. For entering-air temperatures below 45°F both stages of heat must be energized together to minimize condensation issues and ensure proper unit operation.
**Physical data — 48TM004-007**

<table>
<thead>
<tr>
<th>UNIT SIZE 48TM</th>
<th>E/F/M/N004</th>
<th>D/E/F/L/MN005</th>
<th>D/E/F/L/MN006</th>
<th>D/E/F'007</th>
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<tbody>
<tr>
<td>NOMINAL CAPACITY (tons)</td>
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<td>4</td>
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<td>6</td>
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<tr>
<td>OPERATING WEIGHT (lb) Unit</td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Al/Al*</td>
<td>460</td>
<td>470</td>
<td>490</td>
<td>615</td>
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<tr>
<td>Al/Cu*</td>
<td>465</td>
<td>476</td>
<td>497</td>
<td>626</td>
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<td>Cu/Cu*</td>
<td>468</td>
<td>482</td>
<td>505</td>
<td>637</td>
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<td>46</td>
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<td>Roof Curb†</td>
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<td>No. Cylinders (per Circuit)</td>
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<td>2</td>
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<td>Oil (oz)</td>
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<td>Acutrol™ Metering Device</td>
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<td>Operating Charge (lb-oz)</td>
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<tr>
<td>Circuit 1</td>
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<td>6-6</td>
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<td>2...17</td>
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<td>Total Face Area (sq ft)</td>
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<td>8.36</td>
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<tr>
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<tr>
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<td>1...10 x 10</td>
<td>1...10 x 10</td>
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<td>Alt</td>
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<td>1...10 x 10</td>
<td>1...10 x 10</td>
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<tr>
<td>High-Static</td>
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<td>1...10 x 10</td>
<td>1...10 x 10</td>
<td>1...10 x 10</td>
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<td>1620</td>
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<td>Ball</td>
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<td>1...A...36</td>
<td>1...A...39</td>
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<td>1...A...36</td>
<td>1...A...39</td>
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<td>Pulley Center Line Distance (in.) Std</td>
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<td>10.0-12.4</td>
<td>14.7-15.5</td>
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<td>—</td>
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<td>Movable Pulley Maximum Full Turns From Closed Position Std</td>
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<td>Factory Setting Std</td>
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<tr>
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<tr>
<td>High-Static</td>
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<tr>
<td>Factory Speed Setting (rpm) Std</td>
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<td>932</td>
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<tr>
<td>Fan Shaft Diameter at Pulley (in.) Std</td>
<td>—</td>
<td>—</td>
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</tbody>
</table>

**NOTES:**

1. High-static motor not available on single-phase units.
2. An LP kit is available as an accessory. Kit may be used at elevations as high as 2000 ft. LP kit is not used with Low NOx units.

**CAUTION:**

- Single-phase standard high heat models have heating input values as shown.
- Three-phase standard high heat models have one-stage heating with heating input values as follows:
  - 48TM004 — 115,000 Btuh
  - 48TM005,006 — 150,000 Btuh
- California SCAQMD compliant Low NOx models have combustion products that are controlled to 40 nanograms per joule or less.

**LEGEND:**

- Al — Aluminum
- Bhp — Brake Horsepower
- Cu — Copper
- Economiser
- *Evaporator coil fin material/condenser coil fin material. Contact your local representative for details about coated fins.
- ††Rollout switch lockout is manually reset by interrupting power to unit or resetting thermostat.
- **Weight of 14-in. roof curb.
- ***Single-phase/three-phase.
- ****Three-phase standard high heat models have heating input values as shown.
- Single-phase standard high heat models have one-stage heating with heating input values as follows:
- CAUTION: California SCAQMD compliant Low NOx models have combustion products that are controlled to 40 nanograms per joule or less.
### UNIT SIZE 48TM

<table>
<thead>
<tr>
<th>FURNACE SECTION</th>
<th>E/F/M/N004</th>
<th>D/E/F/L/M/N005</th>
<th>D/E/F/L/M/N006</th>
<th>D/E/F007</th>
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<tbody>
<tr>
<td>Rollout Switch Cutout</td>
<td>195</td>
<td>195</td>
<td>195</td>
<td>195</td>
</tr>
<tr>
<td>Burner Orifice Diameter (in. drill size)</td>
<td>Natural Gas</td>
<td>TMD</td>
<td>.113...33</td>
<td>.113...33</td>
</tr>
<tr>
<td></td>
<td>TME</td>
<td>.113...33</td>
<td>.129...30</td>
<td>.129...30</td>
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<td>TML</td>
<td>.102...38</td>
<td>.102...38</td>
<td>.102...38</td>
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<td></td>
<td>TMM</td>
<td>.102...38</td>
<td>.116...32</td>
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<tr>
<td></td>
<td>TMD</td>
<td>.089...43</td>
<td>.089...43</td>
<td>.089...43</td>
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<td></td>
<td>TME</td>
<td>.089...43</td>
<td>.104...37</td>
<td>.104...37</td>
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<td>TMM</td>
<td>.089...43</td>
<td>.104...37</td>
<td>.104...37</td>
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<tr>
<td>Thermostat Heat Anticipator Setting (amps)</td>
<td>208/230 v and 575 Stage 1</td>
<td>Stage 1</td>
<td>.14</td>
<td>.14</td>
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<td></td>
<td>460 v</td>
<td>Stage 1</td>
<td>.14</td>
<td>.14</td>
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<tr>
<td>Gas Input (Btuh)</td>
<td>Standard Units</td>
<td>TMD</td>
<td>—</td>
<td>—</td>
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<tr>
<td></td>
<td>(Stage 1/Stage 2)</td>
<td>TME</td>
<td>—/-74,000</td>
<td>—/-74,000</td>
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<tr>
<td></td>
<td>Low NOx Units</td>
<td>TMD</td>
<td>—</td>
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<tr>
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<td>TME</td>
<td>—/-74,000</td>
<td>—/-115,000</td>
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<tr>
<td></td>
<td>TMM†††</td>
<td>82,000/119,000</td>
<td>120,000/150,000</td>
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<td>TMM†††</td>
<td>60,000</td>
<td>90,000</td>
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<tr>
<td>Efficiency (Steady State) (%)</td>
<td>Natural Gas</td>
<td>Std</td>
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<tr>
<td></td>
<td>Liquid Propane</td>
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<tr>
<td>Temperature Rise Range</td>
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<td>TMMN</td>
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<td>40-70</td>
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<tr>
<td>Manifold Pressure (in. wg)</td>
<td>Natural Gas</td>
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<td>Liquid Propane</td>
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<td>Gas Valve Quantity</td>
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<td>Gas Valve Pressure Range</td>
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<td>TME</td>
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<td>TMM†††</td>
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<td>Field Gas Connection</td>
<td>Std</td>
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<td></td>
<td>Liquid Propane</td>
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<td>1/2</td>
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<tr>
<td></td>
<td>TMD</td>
<td>500 ± 50</td>
<td>500 ± 50</td>
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<tr>
<td>HIGH-PRESSURE SWITCH (psig)</td>
<td>Standard Compressor</td>
<td>450 ± 50</td>
<td>500 ± 50</td>
<td>500 ± 50</td>
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<tr>
<td></td>
<td>Internal Relief (Differential)</td>
<td>Cutout</td>
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<td></td>
<td>Reset (Auto.)</td>
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<tr>
<td>LOW-PRESSURE SWITCH (psig)</td>
<td>Cutout</td>
<td>7 ± 3</td>
<td>22 ± 7</td>
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<tr>
<td></td>
<td>Reset (Auto.)</td>
<td>30 ± 5</td>
<td>45 ± 5</td>
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<tr>
<td>FREEZE PROTECTION THERMOSTAT (F)</td>
<td>Opens</td>
<td>30 ± 5</td>
<td>30 ± 5</td>
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<tr>
<td></td>
<td>Closes</td>
<td>45 ± 5</td>
<td>45 ± 5</td>
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<td>OUTDOOR-AIR INLET SCREENS</td>
<td>Varies by Option Selected</td>
<td>Cleanable</td>
<td>Cleanable</td>
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<tr>
<td>RETURN-AIR FILTERS</td>
<td>Quantity/Size (in.)</td>
<td>2...16 x 25 x 2</td>
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</tr>
</tbody>
</table>

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