

TECHNICAL SPECIFICATIONS FOR MODEL RP

OUTDOOR COMMERCIAL/INDUSTRIAL POWER-VENTED GAS-FIRED DUCT FURNACE



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In keeping with our policy of continuous product improvement, we reserve the right to alter, at any time, the design, construction, dimensions, weights, etc., of equipment information shown here.

TECHNICAL SPECIFICATIONS—CONTINUED

Unit Sizes

These duct furnaces are available in nine unit sizes based on 125,000–400,000 BTUh input.

Features

- Voltage/phase/Hz options: 115/1/60, 208/1/60, 230/1/60, and 460/1/60
- Natural gas or propane
- 80% thermal efficient
- Intermittent spark pilot
- Corrosion-resistant Galvalume® cabinet with interlocking joints and mounting rails for outdoor mounting
- Aluminized-steel burner with stainless steel insert
- Thermocore® aluminized-steel heat exchanger with venturi tubes (stainless steel heat exchanger recommended for air inlet temperature or temperature rise <40°F)
- Fan control, high limit safety control, and venter pressure switch that verifies power-vent flow for gas valve operation
- Power venter provides metered combustion air, dilutes flue products, and eliminates need for vent caps
- Approved for installation downstream of air conditioning coil (optional drain flange and stainless steel heat exchanger and burner are recommended)
- May be packaged with blower unit
- 24V control transformer (designed for field-connection to 24V thermostat for automatic operation)

Factory-Installed Options

| Option | Description |
|--------|--|
| AA1 | Natural gas |
| AA2 | Propane |
| AB1 | Installation elevation of 0–2000 feet |
| AB2 | Installation elevation of 2001–3000 feet |
| AB3 | Installation elevation of 3001–4000 feet |
| AB4 | Installation elevation of 4001–5000 feet |
| AB5 | Installation elevation of 5001–6000 feet |
| AB6 | Installation elevation of 6001–7000 feet |
| AC1 | Aluminized-steel heat exchanger |
| AC2 | Stainless steel heat exchanger |
| AD1 | Aluminized-steel burner |
| AD2 | Stainless steel burner |
| AE1 | No burner air shutters |
| AE2 | Burner air shutters (required on propane units) |
| AF1 | Aluminized-steel drip pan/bottom panel |
| AF2 | Stainless steel drip pan/bottom panel |
| AGA | US installation rating plate |
| AG1 | Single-stage combination gas valve |
| AG2 | Two-stage combination gas valve |
| AG3 | Two-stage combination gas valve with unit-mounted ductstat |
| AG8 | Electronic modulation with 2:1 turndown ratio and ductstat |
| AG15 | Two-stage combination gas valve with electronic ductstat and remote temperature selector |
| AG21 | Electronic modulation with Maxitrol signal conditioner |
| AG39 | Electronic modulation with 4:1 turndown ratio and remote temperature selector |
| AG40 | Electronic modulation with 4:1 turndown ratio and DDC interface (natural gas units) |
| AH2 | Intermittent spark pilot (not available on propane units) |
| AH3 | Intermittent spark pilot with timed lockout (for natural gas and propane units) |
| AJ1 | Left side controls (facing airstream) |
| AJ2 | Right side controls (facing airstream) |

| Option | Description |
|-----------|---|
| AK1 | 115/1/60 voltage |
| AK2 | 208/1/60 voltage |
| AK3 | 230/1/60 voltage |
| AK9 | 460/1/60 voltage |
| BG3A–BG3Z | Various relay options |
| BP4 | High and low gas pressure safety switches |
| BW1 | Air flow pressure proving switch |
| CGA | Canadian installation rating plate |

Field-Installed Options

| Option | Description |
|------------|---|
| AG7 | Electronic modulation with room thermostat |
| AG9 | Electronic modulation with 2:1 turndown ratio and with ductstat and remote temperature selector |
| CE1 | Manual shutoff valve, natural gas |
| CE2 | Manual shutoff valve, propane |
| CL1 | Single-stage thermostat |
| CL9 | Electronic modulating room override |
| CL22 | Two-stage thermostat |
| CL33 | Two-stage digital thermostat |
| CL52 | Single-stage digital thermostat |
| CM1 | Locking cover for CL1 thermostat |
| CM1B | Locking cover for CL22 and CL33 thermostats |
| CN1A–CN3Z | Various remote switch options |
| CP5–CP8 | Outdoor raintight disconnect switches (US only) |
| CP42, CP59 | Outdoor raintight disconnect switches (Canada only) |

Technical Data

| Parameter | Unit of Measure | Unit Size | | | | | | | | |
|---|------------------------|-----------|-----------|-------------|-------------|-------------|-------------|-------------|-------------|---------------|
| | | 125 | 150 | 175 | 200 | 225 | 250 | 300 | 350 | 400 |
| Input heating capacity | BTUh | 125,000 | 150,000 | 175,000 | 200,000 | 225,000 | 250,000 | 300,000 | 350,000 | 400,000 |
| | kW | 36.6 | 44.0 | 51.3 | 58.6 | 65.9 | 73.3 | 87.9 | 102.6 | 117.2 |
| Output heating capacity (80%) | BTUh | 100,000 | 120,000 | 140,000 | 160,000 | 180,000 | 200,000 | 240,000 | 280,000 | 320,000 |
| | kW | 29.3 | 35.2 | 41.0 | 46.9 | 52.8 | 58.6 | 70.3 | 82.1 | 93.8 |
| Air volume with finger-baffles | CFM | 1020–1840 | 1225–2210 | 1430–2580 | 1635–2945 | 1840–3315 | 2045–3685 | 2455–4420 | 2865–5160 | 3275–5895 |
| | meter ³ /hr | 1733–3126 | 2081–3755 | 2429–4383 | 2778–5003 | 3126–5632 | 3474–6261 | 4171–7509 | 4867–8767 | 5564–10,015 |
| Air volume without finger-baffles (US)* | CFM | 1225–4605 | 1475–5530 | 1720–6450 | 1965–7370 | 2210–8295 | 2455–9210 | 2945–11,060 | 3440–12,900 | 3930–14,745 |
| | meter ³ /hr | 2081–7824 | 2506–9395 | 2922–10,958 | 3338–12,521 | 3755–14,093 | 4171–15,647 | 5003–18,790 | 5844–21,916 | 6677–25,051 |
| Air volume without finger-baffles (Canada)* | CFM | 1840–4605 | 2210–5530 | 2580–6450 | 2940–7370 | 3315–8295 | 3685–9210 | 4420–11,060 | 5160–12,900 | 5895–14,745 |
| | meter ³ /hr | 3126–7824 | 3755–9395 | 4383–10,958 | 4995–12,521 | 5632–14,093 | 6261–15,647 | 7509–18,790 | 8767–21,916 | 10,015–25,051 |
| Gas connection, natural gas | inch | 1/2 | | | | | | 3/4 | | |
| Gas connection, propane | | 1/2 | | | | | | | | |
| Temperature rise (US) | °F | 50–90 | | | | | | | | |
| Temperature rise (Canada) | | 20–75* | | | | | | | | |
| | | 50–90 | | | | | | | | |
| Full load amps (120V) | amp | 20–50* | | | | | | | | |
| Unit control amps (24V) | | 1.9 | | | | | | | | |
| | | 0.83 | | | | | | | | |

*High CFM conversion requires removal of the finger baffles. This conversion shall be done by a qualified service agency in accordance with the manufacturer's instructions and all applicable codes and requirements of the authority having jurisdiction.

TECHNICAL SPECIFICATIONS—CONTINUED

Certification

This unit is design-certified to ANSI and CSA standards by the Canadian Standards Association and is approved for installation in the United States and in Canada. The furnace is approved for use with either natural gas or propane. The type of gas for which the furnace is equipped, the correct firing rate, and electrical requirements are shown on the unit's rating plate.

Installation Codes

These units must be installed in accordance with local building codes. In the absence of local codes, in the United States, the unit must be installed in accordance with the National Fuel Gas Code (ANSI Z223.1, latest edition). A Canadian installation must be in accordance with the Natural Gas and Propane Installation Code (CSA B149, latest edition). This code is available from CSA Information Services, 1-800-463-6727. Local authorities having jurisdiction should be consulted before installation is made to verify local codes and installation procedure requirements.

Heater Location

⚠ CAUTION ⚠

Do not locate the unit where it may be exposed to liquid spray, rain, or dripping water.

- Select a location that complies with the requirements in this manual.
- There are a variety of factors, such as system application, building structure, dimensions, and weight, that contribute to selecting the location.
- The location must comply with the clearances listed in the [Clearances](#) section.
- A duct furnace is designed for connection to an inlet and an outlet duct and depends on an external air handler.

Combustion Air Requirements

The combustion air and flue gas openings are carefully designed screened openings located on the side of the unit just above the control access panel. Location of the flue opening directly above the air intakes discourages recirculation of combustion products.

Halogenated Hydrocarbons

Halogenated hydrocarbons are a family of chemical compounds characterized by the presence of halogen elements (fluorine, chlorine, bromine, etc.). These compounds are used in refrigerants, cleaning agents, and solvents and are heavier than air, a fact that should be kept in mind when determining the installation location of heaters and building exhaust systems.

⚠ CAUTION ⚠

CORROSION HAZARD: Halogenated hydrocarbons, when exposed to flame, precipitate with any condensation present in the heater to form hydrochloric acid, which readily attacks all metals, including 300 grade stainless steel. Care should be taken to separate these vapors from the combustion process. An outside air supply MUST BE provided to the burner whenever the presence of these compounds is suspected.

Venting Requirements

Locate power-vented furnaces so that flue discharge is not directed at fresh air inlets. The flue discharge openings are located on the side of the furnace just above the control access panel. The position of this opening discourages recirculation of combustion products and provides for furnace operation in all normal weather conditions.

Ductwork Requirements

⚠ CAUTION ⚠

Joints where ducts attach to furnace must be sealed securely to prevent air leakage into burner rack area. Leakage can cause poor combustion, poor performance, and pilot problems and can shorten heat exchanger life.

NOTE: Make adjustments to ductwork as necessary to obtain a temperature rise and a static pressure within the ranges specified on the heater rating plate.

Refer to the installation, operation, and maintenance manual provided with the unit for further information on ductwork requirements.

Clearances

Clearance to combustibles is defined as the minimum distance—from the heater to a surface or object—that is necessary to ensure that a surface temperature of 90°F (50°C) above the surrounding ambient temperature is not exceeded. For safety, adequate combustion air, and convenient installation and service, ensure that clearances are as follows:

| Unit Surface | Minimum Clearance (Inches (mm)) |
|----------------------------|---------------------------------|
| Top | 36 (915) |
| Control side | 6 (152) + width of furnace |
| Side opposite controls | 6 (152) |
| Bottom, to combustibles | 0 (0)* |
| Bottom, to noncombustibles | 0 (0) |

*The unit is certified for installation on a combustible surface when it is equipped with standard heater-mounting rails.

Weights

| Type | Unit Size | | | | | |
|-------------|-----------|-----------|-----------|-----------|-----------|-----------|
| | 125 | 150, 175 | 200, 225 | 250, 300 | 350 | 400 |
| Pounds (kg) | | | | | | |
| Unit | 201 (91) | 217 (98) | 247 (112) | 295 (134) | 333 (151) | 361 (164) |
| Shipping | 232 (105) | 264 (120) | 283 (128) | 333 (151) | 372 (169) | 403 (183) |

TECHNICAL SPECIFICATIONS—CONTINUED

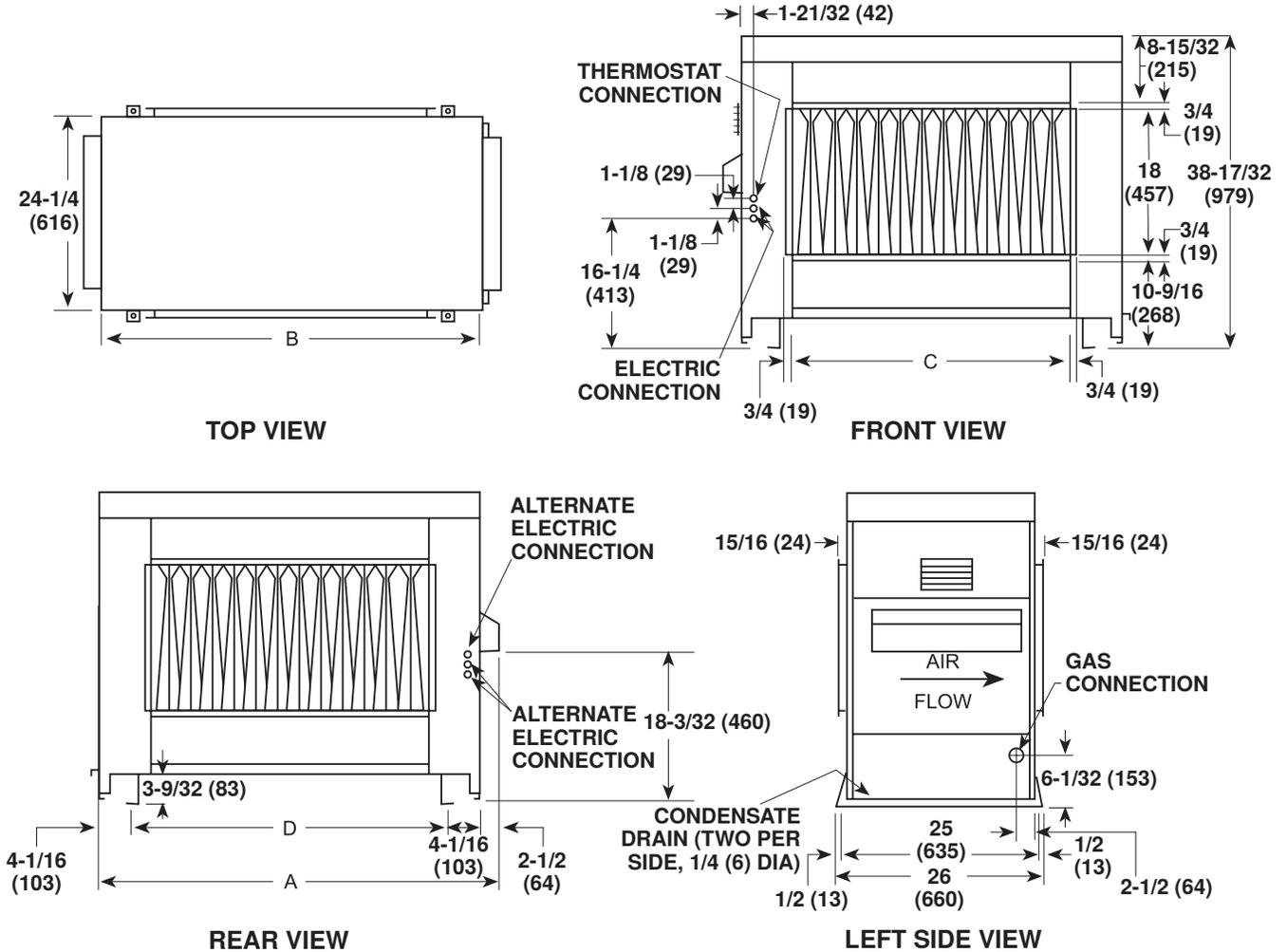
Dimensions

NOTES:

Inches (mm)

Standard airflow may be reversed by changing direction of heat exchanger air baffles.

Burner and control access shown left-hand side. Specify right-hand side for opposite access and connections.



| Dimension (See Graphic Above) | Unit Size | | | | | |
|-------------------------------------|----------------|----------------|-----------------|----------------|-----------------|----------------|
| | 125 | 150, 175 | 200, 225 | 250, 300 | 350 | 400 |
| Inches (mm) | | | | | | |
| A | 30-15/16 (786) | 36-7/16 (914) | 41-15/16 (1065) | 50-3/16 (1275) | 55-11/16 (1414) | 61-3/16 (1554) |
| B | 28-1/2 (648) | 34 (864) | 39-1/2 (1003) | 47-3/4 (1213) | 53-1/4 (1353) | 58-3/4 (1492) |
| C | 15-1/4 (387) | 20-3/4 (527) | 26-1/4 (667) | 34-1/2 (876) | 40 (1016) | 45-1/2 (1156) |
| D | 20-5/16 (516) | 25-13/16 (656) | 31-5/16 (795) | 39-9/16 (1005) | 45-1/16 (1145) | 50-9/16 (1284) |

Duct Furnace Airflow

- The duct furnace must be installed on the positive pressure side of the field-supplied blower.
- The air distribution must be even over the entire heat exchanger. Turning vanes should be employed in elbows or turns in the air inlet to ensure proper air distribution.
- The air throughput must be within the CFM range stated on the heater rating plate.
- If it is determined that the blower CFM is greater than allowed or desirable, refer to the installation manual for determining the correct size of bypass duct required or for instructions on converting the furnace for a higher CFM application.
- To determine temperature rise, the inlet and outlet air temperatures should be measured at points not affected by heat radiating from the heat exchanger. The following table lists the approved temperature rise range with the required CFM and the internal pressure drop for each size of unit.

| Temperature Rise | Unit Size | | | | | | | | |
|------------------------------------|-----------|-----------|-----------|-----------|-----------|-----------|-------------|-------------|-------------|
| | 125 | 150 | 175 | 200 | 225 | 250 | 300 | 350 | 400 |
| CFM/Pressure Drop (IN WC) | | | | | | | | | |
| 80% Thermal Efficient | | | | | | | | | |
| 50°F | 1840/0.50 | 2210/0.38 | 2580/0.52 | 2945/0.42 | 3315/0.53 | 3685/0.40 | 4420/0.58 | 5160/0.65 | 5895/0.67 |
| 60°F | 1535/0.33 | 1840/0.26 | 2150/0.35 | 2455/0.28 | 2765/0.36 | 3070/0.28 | 3685/0.39 | 4300/0.44 | 4915/0.45 |
| 70°F | 1315/0.25 | 1580/0.19 | 1840/0.26 | 2105/0.22 | 2370/0.27 | 2630/0.23 | 3160/0.29 | 3685/0.31 | 4210/0.32 |
| 80°F | 1150/0.21 | 1380/0.15 | 1610/0.19 | 1840/0.17 | 2070/0.22 | 2300/0.22 | 2765/0.25 | 3225/0.25 | 3685/0.25 |
| 90°F | 1020/0.18 | 1225/0.12 | 1430/0.16 | 1635/0.14 | 1840/0.17 | 2045/0.21 | 2455/0.22 | 2865/0.23 | 3275/0.19 |
| With Finger Baffles Removed | | | | | | | | | |
| 20°F | 4605/1.16 | 5530/0.85 | 6450/1.19 | 7370/1.00 | 8295/1.28 | 9215/0.90 | 11,060/1.26 | 12,900/1.23 | 14,745/1.23 |
| 30°F | 3070/0.53 | 3685/0.39 | 4300/0.54 | 4915/0.45 | 5530/0.58 | 6140/0.41 | 7370/0.57 | 8600/0.56 | 9830/0.56 |
| 40°F | 2300/0.28 | 2765/0.21 | 3225/0.29 | 3685/0.25 | 4145/0.31 | 4605/0.22 | 5530/0.32 | 6450/0.31 | 7370/0.31 |
| 50°F | 1840/0.21 | 2210/0.15 | 2580/0.18 | 2945/0.16 | 3315/0.21 | 3685/0.15 | 4420/0.21 | 5160/0.19 | 5895/0.19 |
| 60°F | 1535/0.15 | 1840/0.12 | 2150/0.15 | 2455/0.12 | 2765/0.15 | 3070/0.11 | 3685/0.15 | 4300/0.14 | 4915/0.15 |
| 75°F | 1225/0.12 | 1475/0.11 | 1720/0.12 | 1965/0.11 | 2210/0.12 | 2455/0.08 | 2945/0.11 | 3440/0.11 | 3930/0.11 |

⚠ DANGER ⚠

FIRE OR EXPLOSION HAZARD

- Failure to follow safety warnings exactly could result in serious injury, death, or property damage.
- Improper installation, adjustment, alteration, service, or maintenance can cause serious injury, death, or property damage.
- Installation and service must be performed by a qualified installer, service agency, or the gas supplier.
- Do not store or use gasoline or other flammable vapors and liquids in the vicinity of this or any other appliance.

WHAT TO DO IF YOU SMELL GAS

- Do not try to light any appliance.
- Do not touch any electrical switch; do not use any phone in your building.
- Leave the building immediately.
- Immediately call your gas supplier from a phone remote from the building. Follow the gas supplier's instructions.
- If you cannot reach your gas supplier, call the fire department.

For more information on Reznor HVAC products:

- **Contact your local Reznor representative at 1-800-695-1901**
- **Refer to the manuals and additional consumer materials found at www.reznorhvac.com**

