

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 SST insert
- Thermocore® aluminized-steel heat exchanger with venturi tubes (SST 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 SST 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	409 SST heat exchanger
AD1	Aluminized-steel burner
AD2	409 SST burner
AE1	No burner air shutters
AE2	Burner air shutters (required on propane units)
AF1	Aluminized-steel drip pan/bottom panel
AF2	409 SST 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
CC3	Vertical flue discharge
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.
- **Optional vertical flue discharge (option CC3):** These power vented furnaces are certified with 4 feet of vertical pipe connected. The distance is measured from the top of the unit to the bottom of the vent cap. The vent pipe and supports are field-supplied. Optional vertical vent piping provides compliance with local codes that require either 10-foot horizontal or 4-foot vertical clearance between the flue outlet and the fresh air intake of the heating system and/or building.

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

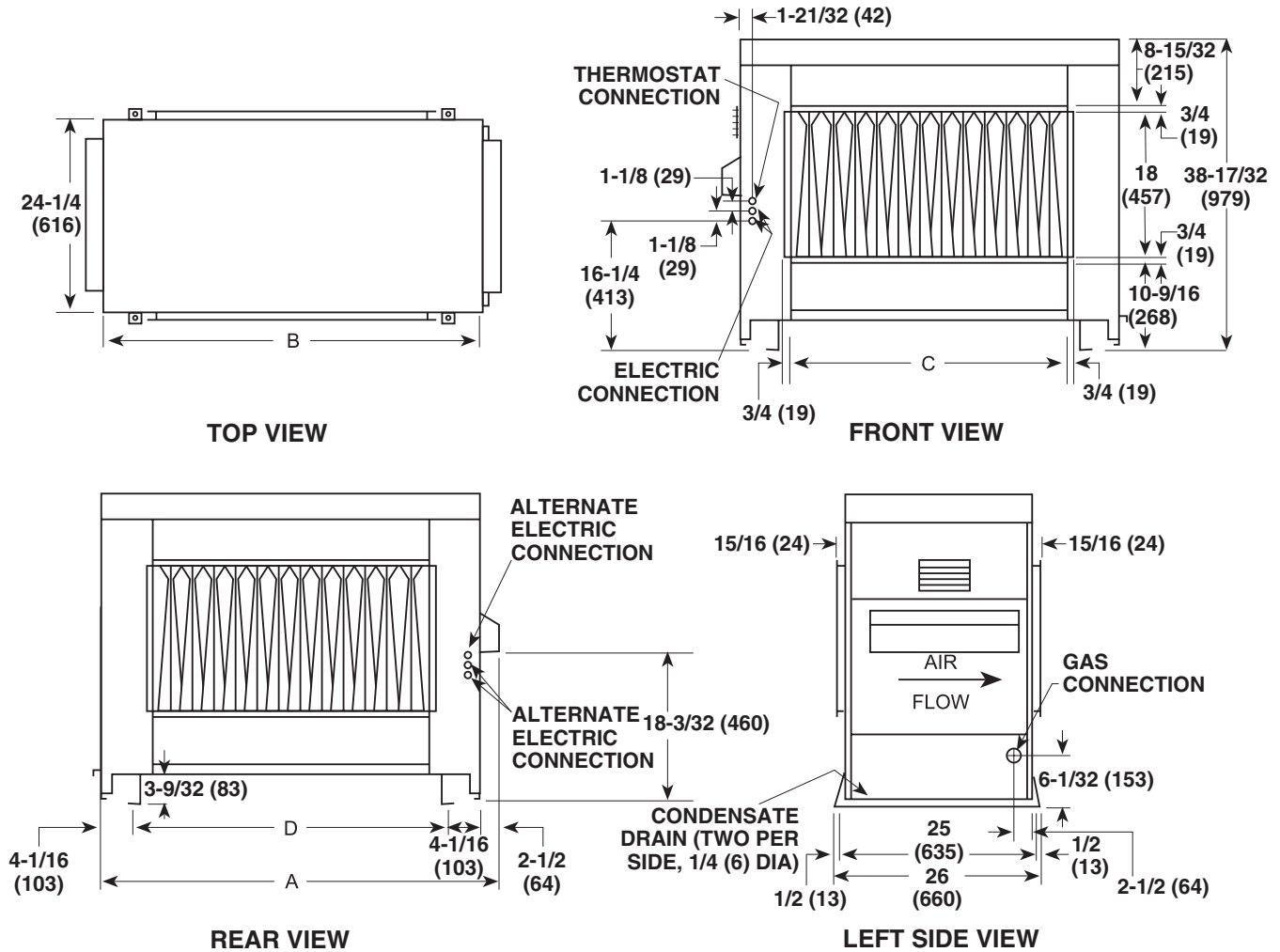
Dimensions

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**

