

Rinnai

Rinnai Commercial Boiler Engineering Specifications

A.) Features

1. The boiler shall have the following features:
 - a. Thermal Efficiency of 97%
 - b. Integrated 3 pump relays
 - c. Multiple venting solutions

B.) Performance Detail

Model	Turndown Ratio	Minimum Input Rate	Maximum Input Rate	AHRI Certified Heating Capacity
RCB301AN	10:1	30,100	301,000	254
RCB399AN	10:1	39,900	399,000	337

C.) Certifications

1. The boiler shall have an ASME “H” stamp on the heat exchanger and be listed with the National Board.
2. The boiler shall be certified by CSA to the latest standard of the ANSI Z21.13 test standard.
3. The boiler shall have a CRN for applicable Canadian provinces.
4. The boiler shall have an AHRI certified thermal efficiency of at least 97%.

D.) Product Specifications

1. Enclosure, Mounting, and Connections
 - a. The product shall have weight and dimensions of:

Model	RCB301AN	RCB399AN
Dimensions – WxHxD in (mm)	19.4 x 35.75 x 21.8 (493 x 908 x 554)	
Weight lb (kg)	194 (88)	207 (94)

- b. The material enclosure shall be of powder coated galvanized steel.
- c. The boiler shall be able to mount on a supplied mounting bracket.
- d. The boiler connections shall be:

Connection	Connection Size
Gas	1 in. NPT
CH In (CH Return)	1-1/4 in. NPT
CH Out (CH Supply)	
Condensate Outlet	1 in. NPT

- e. The boiler shall have venting connections options directly off the boiler of 4 in. nominal PVC/CPVC/Polypropylene/Stainless Steel.

- f. The boiler shall have top bracket that may be used to affix the boiler to the wall. The boiler shall also come with a wall mounting bracket that the top bracket may insert into for easier installation.
- g. The boiler shall have the following water content and acceptable water pressure ranges:

	RCB301AN	RCB399AN
Water Content CH	1.8 gal (6.8 lt)	2.2 gal (8.3 lt)
Water Pressure CH	14.5-87 PSI (1-6 bar)	
Included Pressure Relief Valve for CH	75 PSI (5.2 bar)	

2. Gas Train

- a. The boiler shall have a fan modulating range of 10 – 100%.
- b. The boiler shall be equipped with a zero-governor gas valve.
- c. The boiler shall be equipped with a natural gas venturi that can be converted to liquid propane with optional gas conversion kit.
- d. The boiler shall be equipped with an integral exhaust check valve.
- e. The boiler shall operate on inlet gas pressures on natural gas of 3.5 in. W.C. to 10.5 in. W.C. (0.87 to 2.61 kPa) or liquid propane of 8.0 in. W.C. to 13.5 in. W.C. (1.99 to 3.36 kPa).
- f. The boiler shall be natural gas from the factory, but field convertible with the optional conversion kit to liquid propane.

3. Burner

- a. The boiler shall be equipped with a stainless steel wire mesh burner assembly.

4. Heat Exchanger Construction

- a. Material: 316L stainless steel
- b. Flame rod and ignition electrode
- c. Stainless steel heat exchanger

5. Venting

- a. The boiler shall be approved for the following vent options:

Vent Type	Vent Diameter	Maximum Equivalent Vent Length
Twin Pipe	4 in. - Intake	140 ft (43 m)
	4 in. - Exhaust	140 ft (43 m)
Room Air	4 in. - Exhaust	140 ft (43 m)

- b. The boiler shall be approved for the following vent manufacturers/materials:

Manufacturer	Vent Material
Centrotherm	Polypropylene
IPEX	PVC/CPVC
DuraVent	Polypropylene
DuraVent	FasNseal
Royal	PVC
ECCO Manufacturing	Polypropylene
DiversiTech	PVC/CPVC
Centrotherm	Polypropylene

- c. The boiler shall be approved for: concentric, two-pipe parallel, two-pipe unbalanced zones, and room air vent configurations.

6. Controls

- a. The boiler shall be equipped with a 7-inch touch screen user interface that displays the target temperature for central heating, domestic hot water setpoint, current system pressure, whether an outdoor reset controller is present, when freeze protection is in place, and if the boiler is in operation.
- b. The boiler shall be able to operate in selectable domestic priority mode or in simultaneous domestic hot water and central heating.
- c. The boiler PCB shall have connections available to control up to two zones of central heating.
- d. The boiler central heating output shall have an operating range of 86°F (30°C) to 180°F (82°C) dependent on the outdoor reset curve selection and the current outdoor temperature.
- e. The boiler shall have means to control a domestic hot water pump and monitor tank temperature via a thermistor or aqua stat when an indirect tank is used.
- f. The boiler shall have means to adjust the altitude settings between 0-10,200 ft (0-3,109 m) in elevation.
- g. The boiler shall have controls in place to permit high temperature exhaust vent applications.
- h. The boiler shall be equipped with freeze protection for the boiler.
- i. The boiler shall have a deaeration process to enable air to be safely removed from the piping upon installation or service.
- j. The boiler shall come equipped with a pressure sensor that will in stages alert the user of a low or high pressure issue or lock out the boiler from operation. The boiler shall also have a connection on the PCB to connect a field-supplied LWCO if needed.
- k. The boiler shall be operable with an included outdoor temperature sensor.

7. Electrical Details

- a. Boiler shall have electrical requirements of 120V AC, 6.3 amps.
- b. The boiler shall have terminals for high voltage electrical connection (main power supply and pumps).

E.) Warranty Information (see complete "Warranty" for detailed information)

- 1. Heater Exchanger: 10 Years
- 2. All other parts and components: 1 year (parts replaced during recommended maintenance procedures are not covered by the Limited Warranty).
- 3. Reasonable Labor: 1 Year

F.) Available Literature

- 1. The boiler shall have included English and French versions of the Installation and Operation Manual, User Manual, and Gas Conversion Manual.

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