

### Engineering Specifications

Commercial hybrid system shall include a Rinnai Tankless Water Heater CX199iN 199,000 BTU/hr condensing water heater, storage tank with 80 gallon (303 liter) capacity, circulation pump and system controller. Controller shall have integrated circulation logic to control the circulation pump.

System shall include pre-installed 36 in. (914.4 mm) gas flex line with 360° swivel fitting. System shall include a pre-installed electrical junction box.

Tankless Water Heater shall be condensing, gas fired, water heater design certified to the ANSI Z21.10.3 standard for gas fired water heaters.

Tankless Water Heater shall have a residential energy star rating.

Tankless Water Heater shall have a thermal efficiency of 97% and a Uniform Energy Factor of 0.98.

Tankless Water Heater shall produce no more than 20 ppm NOx emissions when tested in accordance with the Rules and Regulations of the South Coast Air Quality Management District (SCAQMD).

Tankless Water Heater shall be configured to operate with natural gas and a 120 volt/60 Hz AC power source.

Tankless Water Heater shall have a BTU input range of 15,000 BTU/hr to 199,000 BTU/hr, and a maximum hot water outlet capacity of 11.1 gallons per minute (42 liter per minute) (with a 30°F (-1.11°C) temperature rise).

Tankless Water Heater shall be microprocessor controlled and utilize a direct electronic ignition system (with no standing pilot), fully modulating gas control valve, turbine flow meter, automatic electro-mechanical water flow control valve, and water temperature thermistors to maintain outlet water temperature between  $\pm 2^\circ\text{F}$  ( $-17^\circ\text{C}$  to  $-19^\circ\text{C}$ ) of set point temperature.

Tankless Water Heater shall incorporate the following internal safety devices: flame failure lockout, boiling protection lockout, thermal overheat protection, internal freeze protection for ambient temperatures as low as  $-22^\circ\text{F}$  ( $-30^\circ\text{C}$ ), and lockout protection in the event of a blocked flue.

Tankless Water Heater shall be provided with a temperature thermostat with an adjustable set point range of 98°F (37°C) to 185°F (85°C).

Tankless Water Heater shall also be capable of storing and displaying a history of up to nine diagnostic maintenance codes, via the display on the temperature thermostat controller.

Tankless Water Heater shall have downward fired fiber mesh burners, solid brass water flow control valve, and solid brass inlet and outlet water connections.

Storage tanks shall have 80 gallon (303 liter) internal capacity, 2 in. (51 mm) thick uniform foam insulation. Inner tank shall be formulated with an enamel coating. Storage tank(s) shall have a test pressure of 300 PSI (21 bar) and working pressure of 150 PSI (10.3 bar). Storage tank(s) shall have 1-1/2 in. (38.1 mm) MNPT dielectric hot and cold water connections, pressure relieve valve, brass drain valve and dual magnesium anode rods.

Tankless Water Heater shall have a primary stainless steel heat exchanger and a secondary stainless steel heat exchanger warranted against material defects or workmanship for a period of:

- Heat Exchanger: 8 years or 12,000 operation hours, whichever occurs first
- Tank: 6 Years
- All Other Parts and Components: 5 Years
- Reasonable Labor: 1 Year

For full warranty details refer to water heater manual available at [www.rinnai.us](http://www.rinnai.us) or [www.rinnai.ca](http://www.rinnai.ca).

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Local, state, provincial, federal and national fuel gas codes must be adhered to prior to and upon installation.