

Engineering Specifications



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► Boilers and Burners

Vitodens 200-W, B2HA-530 Wall-Mounted Gas-Fired Condensing Boiler (Qty. of 1)

► System Accessories

Boiler Specifications: Vitodens 200-W, B2HA-530

1.0 General

The gas-fired hot water condensing heating boiler shall be fabricated of high-quality stainless steel (SA240 S43932), featuring the latest innovations of condensing boiler technology. The boiler shall incorporate a modulating compact cylindrical stainless steel gas burner with a high-alloy stainless steel heat exchanger surface capable of operating with consistently high efficiency. The boiler control system shall maintain optimized combustion, even in case of fluctuating gas composition and air resistance. The boiler control shall have priority for both electrical and fuel savings with its intelligent combustion controller. Boiler shall be equipped with a variable speed combustion fan for quiet and economical operation.

1.1 Performance Criteria

Each boiler shall be designed for operating at:

Total input 113-530 MBH (33-155 kW)

Total CSA/DOE output 103-495 MBH (30-145 kW)

Boiler turn-down ratio shall be as stated above.

Thermal efficiency shall not be below 93.5%, as tested in accordance with the harmonized standard ANSI Z21.13/CSA 4.9.

ASME maximum allowable working pressure (MAWP): 80 psig.

ASME maximum water temperature (Fixed High Limit): 210°F (99°C).

2.0 Construction

The boiler shall include a single compact heat exchanger made of high-alloy stainless steel, designed based on the laminar heat transfer principle for high operational reliability and a long service life. A radial design shall be used to obtain maximum heat transfer performance in a single pass. Rectangular design of the coil is required to maximize the coil gap length and ensure maximum utilization of the heat exchanger surface. Defined gaps (0.8 mm) between coil passes sized to promote laminar flue gas flow for efficient heat transfer. The heat exchanger design shall allow for self-cleaning functionality.

The burner shall be constructed from high-grade stainless steel for universal use with natural gas or propane gas. Burner ignition shall be by a direct spark ignition system. The boiler shall be equipped with a digital boiler control unit interface.

The burner shall be capable of operating at altitudes of up to 10,000 ft (3,000 m) without change of orifices, but with the use of an electronic coding card.

Wire and cable entry to boiler shall be facilitated by strain reliefs to protect electrical wires. All controls, relays, transformers, ignition module, wiring, and redundant seat combination gas valve shall be installed behind the boiler enclosure.

The boiler shall be equipped with a coaxial vent connection, located on the top of the boiler. The boiler shall be vented using either a stainless steel, CPVC, or PP(s) venting material, certified to UL1738 or ULC S636 for use with positive pressure Category IV appliances. The boiler shall be capable of operating as a direct vent appliance (room air independent operation) using a certified coaxial or two pipe venting system, or as a single pipe appliance (room air dependant operation). The boiler shall be vented horizontally with a side wall venting system, or vertically with a chimney venting system.

The boiler shall be rated for zero (0") clearance to combustibles, including its vent system.

Standard equipment shall also include the following items:

- Manual reset fixed high limit set at 210°F (99°C), wired in series with ignition system
- Integrated Graphical User Interface (GUI) with digital temperature display
- 30, 45, 60, or 80 psig pressure relief valve available
- Pressure gage and pipe fittings

3.0 Certifications

All individual components shall be accepted as part of the system under the governing body having jurisdiction. Field approval shall not be required for any component. Boiler shall be CSA approved and shall be built in compliance with ASME Section IV, carrying the "H" stamp.

The boiler shall have the following approvals and listings, or be in compliance with:

CSA, CRN, ASME, MA State approval, AHRI (GAMA), Energy Star

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