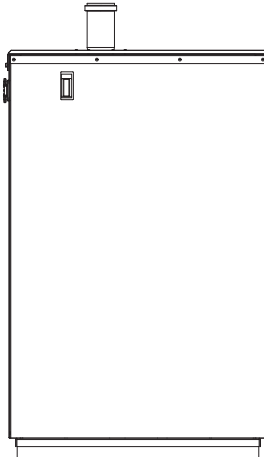


Brute

Hydronic Boiler



BNTH | Hydronic Boiler

Date:

Project #:

Engineer:

Prepared By:

Bid Date:

Outdoor Sizes 150-399

Submittal Data



Project Name:

Location:

Contractor:

Standard Equipment

- Meets ANSI Z21.13-2013, section 5.26 boilers for outdoor installations
- Electronic PID modulating control with large color touchscreen display
- Password-protected parameters for installer use
- Test feature allows forced min or max firing
- Complete diagnostics for analog and digital inputs
- Displays holds, alerts and errors in clear text form
- Dry alarm contacts for ignition failure
- High condensing efficiency
- Modulation down to 20% of full fire (5:1 turndown)
- Sealed combustion chamber
- Pre-mix stainless steel burner
- Low NOx system exceeds the most stringent regulations for air quality - 10 ppm NOx
- Horizontal or vertical direct vent
- Horizontal vent and air terminals
- Vent and air pipe lengths of up to 100 equivalent feet (each)
- Built-in condensate trap
- Vent temperature cutoff feature
- Direct spark ignition system
- Indirect water heater priority
- Sensor for indirect domestic water tank
- 160 psi maximum working pressure
- Stainless steel heat exchanger with welded construction (no gaskets)
- ASME "H" stamp
- 75 psi (517 kPa) ASME rated pressure relief valve
- Water flow switch (399-850 only)
- Temperature & pressure gauge
- Drain valve
- Multiple pump control for boiler pump, system pump and indirect domestic water pump, each with delay
- Optional pump (sized to model) available for field installation (285 only)
- Integrated PID temperature and ignition controls
- Large user-interface and display
- Alarm output
- Accepts external 4-20mA (0-10V with optional convertor) modulation signal
- Outdoor reset with customizable reset curves, domestic hot water override and warm weather shutdown
- Outdoor air temperature sensor
- On/off toggle switch
- Manual reset high limit
- Burner site glass
- Zero clearance to combustible surfaces
- Built-in cascade function for up to eight Brutes.
- 10-year limited warranty

Boiler Data

Number of Units:

Fuel

- Natural
- Propane

Pump Options

- Pump included
- No pump

Factory Mounted Options

- CSD-1 (covers FM & GAP) (500-850)
- Low water cutoff (500-850)
- High & Low gas pressure switches (500-850)
- Additional auto reset high limit
- 30 psi pressure relief valve
- 50 psi pressure relief valve
- 60 psi pressure relief valve
- 75 psi pressure relief valve (std)
- 125 psi pressure relief valve
- 150 psi pressure relief valve
- Bell for ignition failure



Accessories for Field Mounting

- Water flow switch (150-285 only)
- Low water cutoff
- 0 - 10V convertor for modulation control
- High & Low gas pressure switches
- Boiler pump
- Concentric vent terminal, 3"
- Flush-mount terminal, 3"
- Flush-mount terminal, 4"
- Propane conversion kit
- Condensate neutralizer kit
- Variable Speed Pump Control
- BACnet gateway
- LON gateway

Sizing Data

| Model | Input | | Output | | AFUE | Thermal Efficiency % | Comb. Efficiency % | Gas Conn. Size inches | Water Conn. Size inches | Shipping Weight | |
|-----------------------------------|---------|------|---------|------|------|----------------------|--------------------|-----------------------|-------------------------|-----------------|-----|
| | BTU/h | kW | BTU/h | kW | | | | | | Lbs | kg |
| <input type="checkbox"/> BNTH 150 | 150,000 | 44.0 | 138,000 | 40.4 | 95.0 | N/A | N/A | ½ NPT | 1 NPT | 228 | 104 |
| <input type="checkbox"/> BNTH 210 | 210,000 | 61.5 | 194,000 | 61.5 | 95.0 | N/A | N/A | ½ NPT | 1 NPT | 270 | 123 |
| <input type="checkbox"/> BNTH 285 | 285,000 | 83.5 | 264,000 | 77.4 | 95.0 | N/A | N/A | ¾ NPT | 1¼ NPT | 299 | 136 |

NOTES:

For other boiler ratings:

Boiler Horsepower: HP = $\frac{\text{Output}}{33,475}$

Radiation Surface: EDR sq. ft. = $\frac{\text{Output}}{150}$

Clearances

| Appliance Surface | Suggested Service Access Clearance | |
|-------------------|------------------------------------|-----|
| | inches | cm |
| Left Side | 12 | 31 |
| Right Side | 12 | 31 |
| Top (for flue) | 48 | 122 |
| Back | 12 | 31 |
| Closet, Front | 1 | 2.5 |
| Alcove, Front | 24 | 61 |
| Vent | Per Vent Manufacturer | |

Certified by CSA for zero clearance to combustible materials on all sides.

Electrical Data

| Sizes | Boiler | | | Pump Connections Ratings (System Pump and DHW Pump Connections) |
|-----------|--------|--------|--------------|--|
| | Volts | Phase | Amps | |
| No Pump | 120 | Single | 2* | 115V – Maximum 1HP or 7.4A max |
| With Pump | 120 | Single | Less than 6* | 115V – Maximum 1HP or 7.4A max |

* Minimum 15A circuit required

Vent System

| Size | Intake (Air) | Exhaust (Vent) | Maximum Allowable | |
|------|--------------|----------------|--------------------|-------|
| | Pipe | Pipe | Equivalent Length* | |
| 150 | 3" | 3" | 100 ft | 30 m |
| 210 | 3" | 3" | 100 ft | 30 m |
| 285 | 3" | 3" | 20 ft | 6.1 m |
| | 4" | 4" | 100 ft | 30 m |

Installations in the U.S. require exhaust vent pipe that is a combination of PVC & CPVC complying with ANSI/ASTM D1785 F441, polypropylene pipe that complies with ULC S636, or stainless steel complying with UL1738. Installations in Canada require exhaust vent pipe that is certified to ULC S636.

Intake (air) pipe may be ABS, PVC, CPVC or galvanized material.

Installer must comply fully with manufacturer's installation instructions, including use of minimum exhaust length CPVC, to maintain ANSI Z21.13 safety certification.

Closet and alcove installations do not allow the use of PVC under any circumstances

* To calculate max equivalent length, measure the linear feet of the pipe, and add 5 feet (1.5m) for each elbow used.

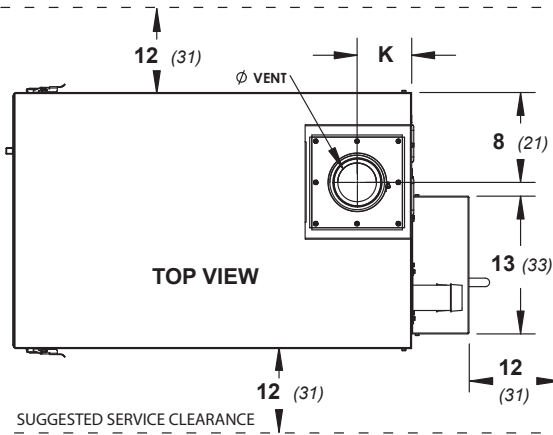
** Allowed only if the vent pipe is no more than 20 equivalent feet longer than the air pipe.

Water Flow Requirements

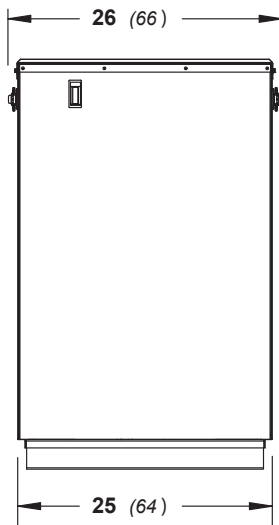
| Size | Temperature Rise in °F | | | | | | | | | |
|------|------------------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
| | 20°F | | 25°F | | 30°F | | 35°F | | 40°F | |
| | Flow gpm | H/L feet | Flow gpm | H/L feet | Flow gpm | H/L feet | Flow gpm | H/L feet | Flow gpm | H/L feet |
| 150 | 14 | 29 | 11 | 19 | 10 | 14 | 8 | 11 | 7 | 9 |
| 210 | 20 | 24 | 16 | 17 | 13 | 12 | 11 | 9 | 10 | 7 |
| 285 | 27 | 26 | 22 | 18 | 18 | 14 | 15 | 11 | 13 | 8 |

| Size | Temperature Rise in °C | | | | | | | | | |
|------|------------------------|----------|-------------|----------|-------------|----------|-------------|----------|-------------|----------|
| | 11°C | | 14°C | | 17°C | | 19°C | | 22°C | |
| | Flow lpm | H/L m | Flow lpm | H/L m | Flow lpm | H/L m | Flow lpm | H/L m | Flow lpm | H/L m |
| 150 | 54 | 8.7 | 43 | 5.8 | 36 | 4.1 | 31 | 3.4 | 27 | 2.1 |
| 210 | 76 | 7.3 | 61 | 5.1 | 51 | 3.5 | 43 | 2.7 | 37 | 2.4 |
| 285 | 102 | 7.8 | 81 | 5.3 | 68 | 4.3 | 58 | 3.2 | 51 | 2.4 |

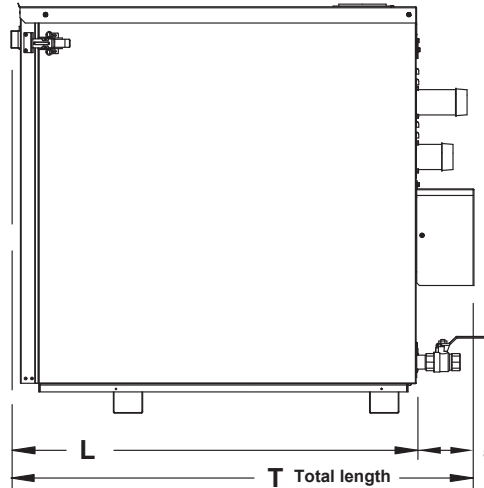
**Dimensional
Data, Sizes
150 - 399**



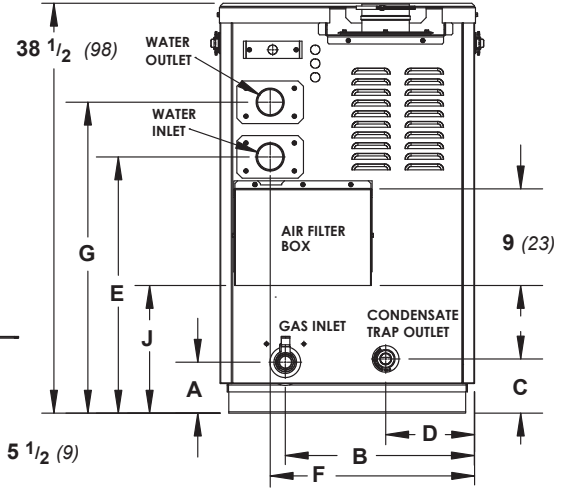
Dimensions shown in Inches and (cm's)



FRONT VIEW



RIGHT SIDE VIEW



BACK VIEW

| SIZE | A | | B | | C | | D | | E | |
|-----------|--------|------|-----|----|-----|----|---------|------|---------|----|
| | in | cm | in | cm | in | cm | in | cm | in | cm |
| 150 | 6-1/4" | 16 | 11" | 28 | 13" | 33 | 17-1/4" | 43.8 | 23-1/2" | 60 |
| 199 / 210 | 6-1/4" | 16 | 11" | 28 | 13" | 33 | 17-1/4" | 43.8 | 23-1/2" | 60 |
| 285 | 6" | 15.5 | 11" | 28 | 5" | 13 | 17-1/4" | 43.8 | 24" | 61 |

The 'BACK VIEW' shown is of a 500 MBH model. All other units will be similar, yet different.

All models are shipped with adapters for the air and vent that accept standard pipe of the proper size and type.

| SIZE | F | | G | | J | | K | | L (Length) | | T (Total Length) | | VENT Ø | |
|-----------|-----|------|---------|----|---------|------|--------|------|------------|------|------------------|------|--------|-----|
| | in | cm | in | cm | in | cm | in | cm | in | cm | in | cm | in | cm |
| 150 | 18" | 45.7 | 27" | 69 | 23-1/2" | 60 | 5-1/4" | 13 | 20" | 60 | 25-1/2" | 65 | 3 | 7.6 |
| 199 / 210 | 18" | 45.7 | 27" | 69 | 24-1/2" | 60 | 5-1/4" | 13 | 27" | 68.6 | 32-1/2" | 82.5 | 3 | 7.6 |
| 285 | 19" | 48 | 28-1/4" | 72 | 12" | 30.5 | 7-1/4" | 18.4 | 27" | 68.6 | 32-1/2" | 82.5 | 4 | 11 |

Bradford White Corporation reserves the right to change specifications, components, features, or to discontinue products without notice.



200 Lafayette St.
Middleville, MI 49333
Warranty: (800) 531-2111

www.BradfordWhite.com

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