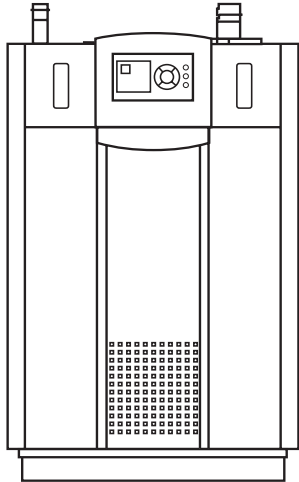


Brute®



Date:

Project #:

Engineer:

Prepared By:

Bid Date:

Residential Hydronic Boiler

BNTH | Hydronic Boiler
Indoor Sizes 080-210

Submittal Data  **BRADFORD WHITE**

Project Name:

Location:

Contractor:

Standard Equipment

- Large LCD display with touchpad user-interface
- Quick start feature for basic installations
- Password-protected parameters for installer use
- Customizable display screen and LCD contrast
- Test feature allows forced min or max firing
- Complete on-screen diagnostics
- Displays in clear text form
- 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 – 10ppm 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
- Indirect water heater priority (sensor included)
- ASME 30 psi (207 kPa) working pressure heat exchanger (50 psi optional)
- Stainless steel heat exchanger with welded construction
- ASME "H" stamp
- 30 psi (207 kPa) ASME rated pressure relief valve
- Temperature and 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
- Electronic PID modulating control
- Direct spark ignition
- Integrated PID temperature and ignition controls
- Alarm output
- Accepts external (4- 20mA or 0-10VDC) modulation signal
- Outdoor reset (sensor included)
- On/Off toggle switch
- Manual reset high limit
- Burner site glass
- Flue gas temperature cutoff
- Zero clearance to combustible surfaces
- Meets Energy Star 'Most Efficient' criteria
- 12-year limited warranty

Boiler Data

Number of Units:

Fuel

- Natural
 Propane

Pump Options

- Pump-included
 No pump

Factory Mounted Options

- 50 psi rating and relief valve
 Alarm bell for ignition failure with silencing switch
 Additional automatic reset high limit
 Color touch-screen display



Sizing Data

| Model | Input | | Output | | AFUE | Gas Conn. Size inches | Water Conn. Size inches | Product Weight | | Shipping Weight | |
|-----------------------------------|---------|------|---------|------|------|--------------------------|----------------------------|----------------|----|-----------------|-----|
| | BTU/h | kW | BTU/h | kW | | | | lbs | kg | lbs | kg |
| <input type="checkbox"/> BNTH 080 | 80,000 | 23.4 | 74,000 | 21.7 | 95% | 1/2 NPT | 1 NPT | 130 | 59 | 202 | 92 |
| <input type="checkbox"/> BNTH 105 | 105,000 | 30.8 | 96,000 | 28.1 | 95% | 1/2 NPT | 1 NPT | 155 | 70 | 216 | 98 |
| <input type="checkbox"/> BNTH 150 | 150,000 | 44.0 | 138,000 | 40.4 | 95% | 1/2 NPT | 1 NPT | 180 | 82 | 228 | 104 |
| <input type="checkbox"/> BNTH 210 | 210,000 | 61.5 | 194,000 | 61.5 | 95% | 1/2 NPT | 1 NPT | 195 | 88 | 270 | 123 |

NOTES:

1. For other boiler ratings:

$$\text{Boiler Horsepower: HP} = \frac{\text{Output}}{33,475} \quad \text{Radiation Surface: EDR sq. ft.} = \frac{\text{Output}}{150}$$

Accessories for Field Mounting

| | | |
|---|---|---|
| <input type="checkbox"/> Water flow switch | <input type="checkbox"/> 2" Flush-mount terminal | <input type="checkbox"/> Color touch-screen display upgrade |
| <input type="checkbox"/> Low water cutoff | <input type="checkbox"/> 3" Flush-mount terminal | <input type="checkbox"/> Common vent kit (one required for each unit) |
| <input type="checkbox"/> 3" Concentric vent terminal | <input type="checkbox"/> Propane conversion kit | |
| <input type="checkbox"/> High & Low gas pressure switches | <input type="checkbox"/> Condensate neutralizer kit | |
| <input type="checkbox"/> 2" Concentric vent terminal | <input type="checkbox"/> BACnet gateway | |
| <input type="checkbox"/> Boiler pump | <input type="checkbox"/> LON gateway | |

Clearances

| Appliance Surface | Required Clearance from Combustible Material | | Suggested Service Access Clearance | |
|-------------------|--|-----|------------------------------------|-----|
| | inches | cm | inches | cm |
| Left Side | 1 | 2.5 | 1 | 2.5 |
| Right Side | 1 | 2.5 | 12 | 31 |
| Top | 1 | 2.5 | 24 | 61 |
| Back | 1 | 2.5 | 6 | 15 |
| Closet, Front | 1 | 2.5 | 6 | 15 |
| Alcove, Front | 1 | 2.5 | 24 | 61 |
| Vent | 0 | 0 | - | - |

Vent System

Max Equivalent* Vent and Air Pipe Length (each)

| Size | 2" dia / 5.1cm | | 3" dia / 7.6cm | |
|------|----------------|-------|----------------|-------|
| 080 | 40 ft | 12.2m | 100 ft | 30.5m |
| 105 | 40 ft | 12.2m | 100 ft | 30.5m |
| 150 | n/a | | 100 ft | 30.5m |
| 210 | n/a | | 100 ft | 30.5m |

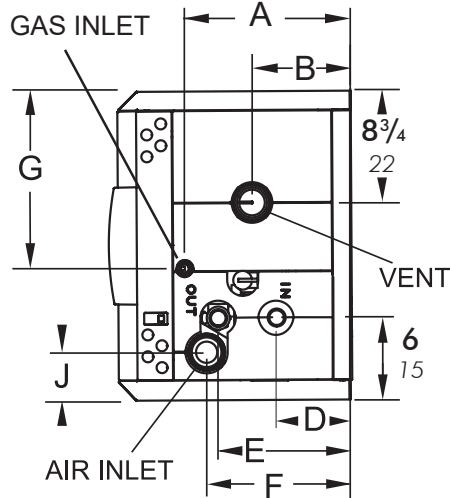
Intake (air) pipe may be PVC, CPVC, ABS or galvanized pipe.

Installations in the U.S. require exhaust vent pipe that is PVC or CPVC complying with ANSI/ASTM D1785 F441 or stainless steel complying with UL1738. Laars supplies the first section of vent pipe which is 16" of CPVC with each boiler. Installations in Canada require exhaust vent pipe that is certified to ULC S636.

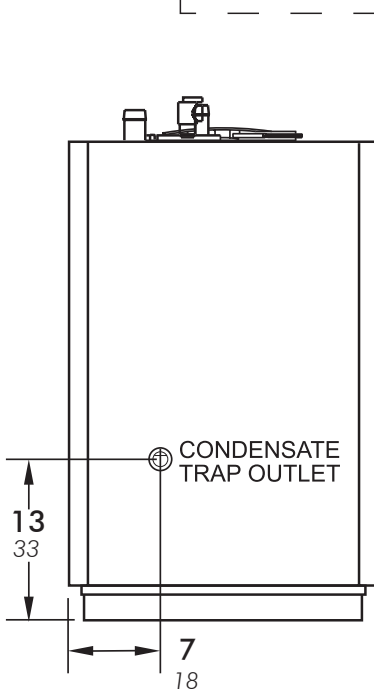
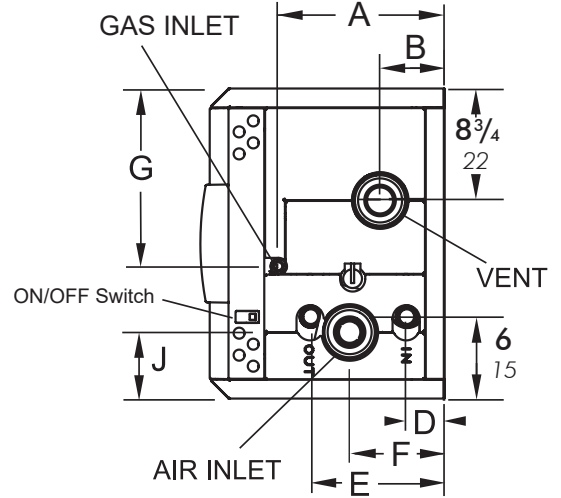
*To calculate equivalent length, measure the linear feet of the pipe, and add 5 feet (1.5m) for each elbow used.

**Dimensional
Data**

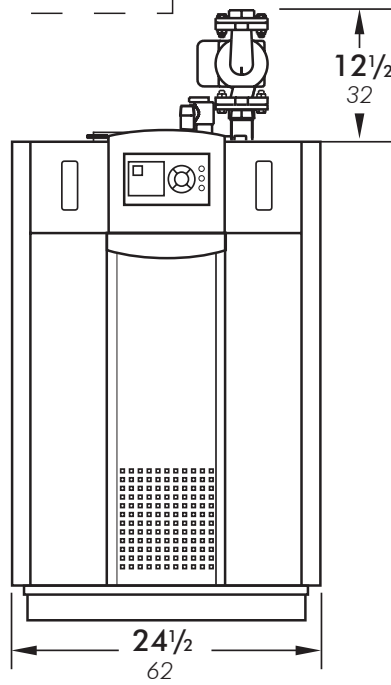
MODELS 080 & 105



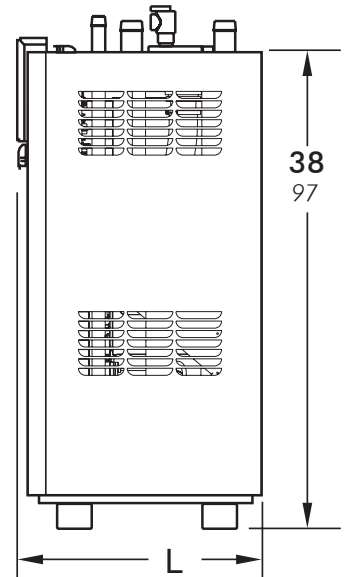
MODELS 150 - 210



BACK VIEW



FRONT VIEW



RIGHT SIDE VIEW

Dimensions are nominal and are shown in **inches cm**
Optional pump is shown only in the front view

| Size | A | | B | | D | | E | | F | | G | | J | | L | | AIR INLET | | VENT | |
|------|--------|----|-------|----|-------|----|--------|----|--------|----|--------|----|-------|----|--------|----|-----------|-----|------|-----|
| | in | cm | in | cm | in | cm | in | cm | in | cm | in | cm | in | cm | IN | CM | IN | CM | IN | CM |
| 80 | 13 1/2 | 34 | 9 1/2 | 24 | 7 1/2 | 19 | 10 3/4 | 28 | 11 3/4 | 30 | 13 3/4 | 35 | 3 1/2 | 9 | 19 1/2 | 49 | 2 | 5.1 | 2 | 5.1 |
| 105 | 13 1/2 | 34 | 8 | 21 | 6 | 16 | 10 3/4 | 28 | 11 3/4 | 30 | 14 1/4 | 36 | 3 1/2 | 9 | 19 1/2 | 49 | 2 | 5.1 | 2 | 5.1 |
| 150 | 13 1/4 | 34 | 5 1/4 | 14 | 3 1/4 | 8 | 10 3/4 | 28 | 7 1/2 | 19 | 14 1/4 | 36 | 5 | 13 | 19 1/2 | 49 | 3 | 7.6 | 3 | 7.6 |
| 210 | 20 1/2 | 52 | 5 1/4 | 14 | 3 1/4 | 8 | 17 3/4 | 45 | 7 1/2 | 19 | 14 1/4 | 36 | 5 | 13 | 26 3/4 | 68 | 3 | 7.6 | 3 | 7.6 |

**Electrical
Data**

| Sizes | Boiler | | | Pump Connections Ratings (System Pump and DHW Pump Connections) |
|----------------------|--------|--------|--------------------|--|
| | Volts | Phase | Amps | |
| 80-210 No Pump | 120 | Single | 2* | 115V – Maximum 1HP or 7.4A max |
| 080-210 With Pump | 120 | Single | Less than 6* | 115V – Maximum 1HP or 7.4A max |

* Minimum 15A circuit required

**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 |
| 080 | 7.6 | 14.9 | 6.1 | 10.1 | 5.1 | 7.1 | 4.3 | 5.8 | 3.8 | 4.6 |
| 105 | 10.0 | 23.1 | 8.0 | 17.0 | 6.7 | 12.4 | 5.7 | 9.6 | 5.0 | 7.6 |
| 150 | 14.3 | 28.5 | 11.4 | 19.0 | 9.5 | 13.6 | 8.1 | 11.2 | 7.1 | 8.8 |
| 210 | 20.0 | 24.1 | 16.0 | 16.7 | 13.4 | 11.6 | 11.3 | 9.0 | 9.9 | 6.9 |

| 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 |
| 080 | 29 | 4.5 | 23 | 3.1 | 19 | 2.2 | 16 | 1.8 | 14 | 1.4 |
| 105 | 38 | 7.0 | 30 | 5.2 | 25 | 3.8 | 22 | 2.9 | 19 | 2.3 |
| 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 |

Note that pumps are sized for a) 25-30°F temperature rise across the boiler;
b) 30 feet of external boiler loop piping (1"); c) six 90° elbows.

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



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Warranty: (800) 531-2111

www.BradfordWhite.com

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