



# The Brute™ 150-850

Residential and Commercial Volume Water Heaters



Highly Versatile, Energy Saving Solutions  
for Large Volumes of Hot Water



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# The Brute™ 150-850



The Brute™ 150-850 volume water heaters offer performance and design features – such as condensing, multi-pass stainless steel heat exchangers, advanced fully-modulating controls with 5:1 turndown, and exceptional efficiencies as high as 97% – to make them a highly versatile, energy-saving product line for a broad range of residential and commercial applications.

## Modulating Technology

Modulation allows Brute™ 150-850 volume water heaters to automatically adjust how much fuel is used to match demand, from 20% to 100% of full power. Brute™ 150-850 volume water heater models will operate at 100% only when demand is at its highest, and they will modulate down as demand decreases. The result is energy savings of up to 30% compared to standard “on-off” units.



## Easy on the Environment

The Brute™ 150-850 volume water heaters also feature low NOx emissions. NOx, Nitrogen Oxide, is a group of gases that form when fuel is burned at high temperatures, and it can react with other volatile compounds (VOC) to form air pollution known as smog. Brute™ 150-850 volume water heater models produce very low levels of nitrogen oxides, less than 10 ppm, so they provide efficient heat while minimizing the impact on the environment.



## Integrated Touch Screen Control System

The Integrated Touch Screen Control System, standard on all Brute™ 150-850 models, monitors all aspects of boiler operation and includes several features that can improve the performance and efficiency of the entire heating system. It also allows for easier integration of cascade systems into building automation networks.



# Highly Efficient, Volume Water Heating for Residential and Commercial Applications

## Standard Features

- 8 sizes, 150-850 MBTU/Hr. input
- High efficiency, condensing design
- Full-modulation burner, with 5:1 turndown
- Field-convertible for natural gas and propane
- Sealed combustion chamber
- Premix stainless steel burner
- Direct spark ignition system
- Negative pressure gas valve
- Operates at low gas pressure
- Low NOx operation, less than 10 ppm
- Horizontal or vertical direct vent
- Vent and air pipe lengths of up to 100 equivalent feet each
- Certified for AL29-4C, CPVC, PVC, & rigid polypropylene vent material
- Horizontal air and vent terminals
- Condensate trap with integrated float switch
- SOLA electronic PID modulating boiler control
- 8" color touch screen display
- Full-text display of control status, settings, diagnostic info, and error history
- "Test" screen allows easy testing of control settings
- Password protection for adjustable settings
- Built-in cascade function for staging of up to 8 units
- Built-in circulator & pump relays
- DHW tank sensor
- Separate low voltage and line voltage terminal strips
- Auxiliary limit control terminals
- Alarm output terminals
- Modbus communication
- Accepts external (4-20mA or 0-10VDC) modulation signal
- Water flow switch (399-500)
- On/Off power switch
- Manual reset high limit
- Gasket-less stainless steel heat exchanger with welded construction
- ASME "H" – Stamp
- Certified for 160 psi working pressure
- Burner sight glass
- 125 psi safety relief valve
- Temperature and pressure gauge
- Drain valve
- Non-ferrous trim and piping connections
- Top location of all vent, fuel, electrical, & piping connections
- Zero clearance to combustible surfaces
- 8-Year limited warranty on heat exchanger
- 1-Year limited warranty on parts
- Optional bronze circulator (150-500 models only)



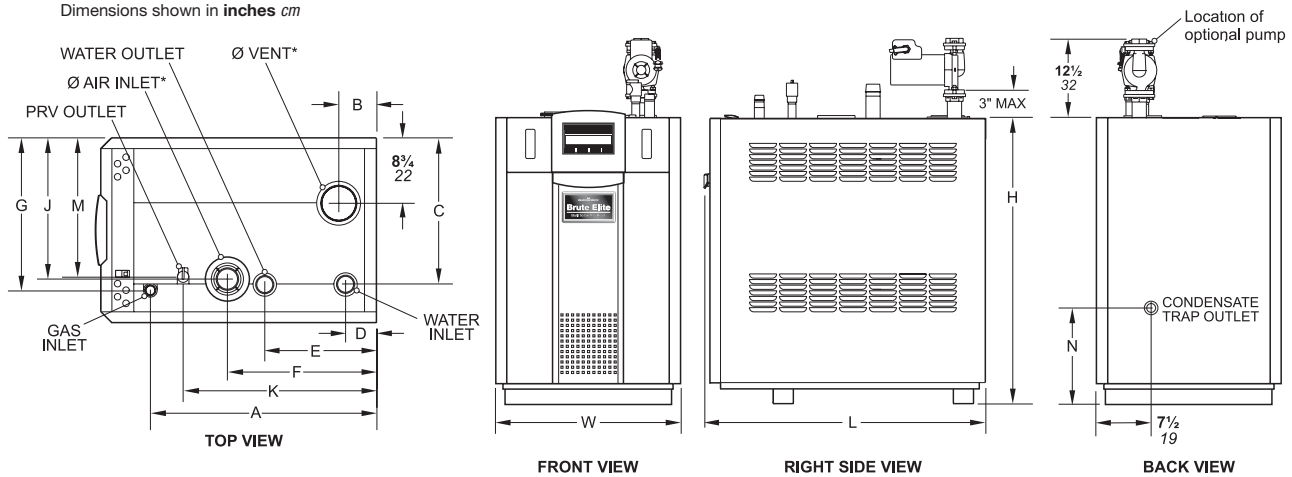
- Large, 8-inch color touch screen
- Easy-to-use menus for login, quick startup, advanced setup, tests, and diagnostics
- Integrated PID temperature and ignition control
- Accepts 4-10mA or 0-10VDC input for modulation
- Lead Lag with up to 8 other Brute™ 150-850 boilers
- Quick start feature for easy one boiler setups
- Outdoor reset with customizable reset curves, DHW override and warm weather shutdown
- Complete diagnostics for analog and digital inputs
- Test feature allows for forced min. and max. firing
- Display holds, alerts, and errors in clear text form
- Password protected parameters for installer use



# Specs at a Glance

\* Brute™ Series is shipped with adapters for the air and vent that accept standard pipe of the proper size and type.

Dimensions shown in **inches** *cm*



## The Brute™ 150-850 Dimensional Data

| Model Number | W<br>in. | L<br>in. | A<br>in. | B<br>in. | C<br>in. | D<br>in. | E<br>in. | F<br>in. | G<br>in. | H<br>in. | J<br>in. | K<br>in. | M<br>in. | N<br>in. | Air Inlet Conn.*<br>in. | Vent Conn.*<br>in. | Shipping Weight<br>lbs. |
|--------------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|-------------------------|--------------------|-------------------------|
| BNTV-150     | 25       | 19 1/2   | 13 1/4   | 5 1/4    | 19       | 3 1/4    | 10 3/4   | 7 1/2    | 14 1/4   | 38 1/4   | 19 1/2   | 7 1/2    | 15 1/4   | 13       | 3                       | 3                  | 228                     |
| BNTV-199     | 25       | 26 3/4   | 20 1/2   | 5 1/4    | 19       | 3 1/4    | 17 3/4   | 7 1/2    | 14 1/4   | 38 1/4   | 19 1/2   | 11 3/4   | 15 1/4   | 13       | 3                       | 3                  | 270                     |
| BNTV-285     | 25       | 26 3/4   | 20 1/4   | 7 1/4    | 19 3/4   | 4 1/4    | 11 1/4   | 13 1/2   | 14       | 38 1/4   | 15       | 17       | 18 3/4   | 13       | 4 1/2                   | 4 1/2              | 299                     |
| BNTV-399     | 25       | 31 1/2   | 25       | 5 1/4    | 19 3/4   | 4 1/4    | 14 3/4   | 18 1/2   | 19 1/4   | 38 1/4   | 16 1/2   | 21 3/4   | 18 3/4   | 13       | 4 1/2                   | 4 1/2              | 364                     |
| BNTV-500     | 25       | 37 3/4   | 30 1/4   | 5 1/4    | 19 3/4   | 4 1/4    | 15 1/2   | 20       | 20 1/2   | 38 1/4   | 19       | 26       | 18 3/4   | 13       | 4 1/2                   | 4 1/2              | 419                     |
| BNTV-600     | 25       | 37 3/4   | 29 3/4   | 5        | 19 1/2   | 4 1/4    | 15       | 20       | 3        | 38 1/4   | 19       | 26       | 18 3/4   | 8 1/4    | 4 1/2                   | 4 1/2              | 426                     |
| BNTV-750     | 25       | 51       | 35 1/2   | 6        | 19 1/2   | 5 1/4    | 19       | 40 1/2   | 3 1/4    | 38 1/4   | 19       | 30 3/4   | 18 3/4   | 8 1/4    | 4 1/2                   | 6 1/2              | 481                     |
| BNTV-850     | 25       | 55 1/4   | 39 3/4   | 6        | 19 1/2   | 5 1/4    | 19       | 44 3/4   | 3 1/2    | 38 1/4   | 19       | 35       | 18 3/4   | 8 1/4    | 4 1/2                   | 6 1/2              | 502                     |

| Model Number | W<br>cm | L<br>cm | A<br>cm | B<br>cm | C<br>cm | D<br>cm | E<br>cm | F<br>cm | G<br>cm | H<br>cm | J<br>cm | K<br>cm | M<br>cm | N<br>cm | Air Inlet Conn.*<br>cm | Vent Conn.*<br>cm | Shipping Weight<br>kg |
|--------------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|------------------------|-------------------|-----------------------|
| BNTV-150     | 64      | 49      | 34      | 14      | 48      | 8       | 28      | 19      | 36      | 97      | 49      | 19      | 39      | 33      | 7.6                    | 7.6               | 103                   |
| BNTV-199     | 64      | 68      | 52      | 14      | 48      | 8       | 45      | 19      | 36      | 97      | 49      | 30      | 39      | 33      | 7.6                    | 7.6               | 123                   |
| BNTV-285     | 64      | 68      | 52      | 19      | 50      | 11      | 29      | 34      | 36      | 97      | 38      | 43      | 48      | 33      | 11                     | 11                | 136                   |
| BNTV-399     | 64      | 80      | 64      | 13      | 50      | 11      | 37      | 47      | 49      | 97      | 42      | 55      | 48      | 33      | 11                     | 11                | 165                   |
| BNTV-500     | 64      | 96      | 77      | 13      | 50      | 11      | 38      | 51      | 52      | 97      | 48      | 66      | 48      | 33      | 11                     | 11                | 190                   |
| BNTV-600     | 64      | 96      | 76      | 13      | 50      | 11      | 38      | 51      | 8       | 97      | 48      | 66      | 48      | 21      | 11                     | 11                | 193                   |
| BNTV-750     | 64      | 130     | 90      | 15      | 50      | 13      | 48      | 103     | 8       | 97      | 48      | 78      | 48      | 21      | 11                     | 17                | 218                   |
| BNTV-850     | 64      | 130     | 101     | 15      | 50      | 13      | 48      | 114     | 9       | 97      | 48      | 89      | 48      | 21      | 11                     | 17                | 228                   |

\*Brute™ Series is shipped with adapters for the air and vent that accept standard pipe of the proper size and type.

Dimensions are nominal and are shown in inches, cm.

## The Brute™ 150-850 Sizing Data

| Model Number | Input |       | Output |       | Thermal Efficiency % |
|--------------|-------|-------|--------|-------|----------------------|
|              | MBH   | kW    | MBH    | kW    |                      |
| BNTV-150     | 150   | 44.0  | 142.5  | 42.8  | 95.0                 |
| BNTV-199     | 199   | 58.3  | 193.0  | 56.6  | 97.0                 |
| BNTV-285     | 285   | 83.5  | 270.8  | 79.3  | 95.0                 |
| BNTV-399     | 399   | 116.9 | 383.0  | 112.3 | 96.0                 |
| BNTV-500     | 500   | 146.5 | 480.0  | 141.1 | 96.0                 |
| BNTV-600     | 600   | 175.8 | 582.0  | 170.5 | 97.0                 |
| BNTV-750     | 750   | 219.8 | 705.0  | 206.7 | 94.0                 |
| BNTV-850     | 850   | 249.1 | 816.0  | 239.1 | 96.0                 |



Dimensions and specifications subject to change without notice in accordance with our policy of continuous product improvement.

**Committed to American Manufacturing,  
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WATER HEATERS

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