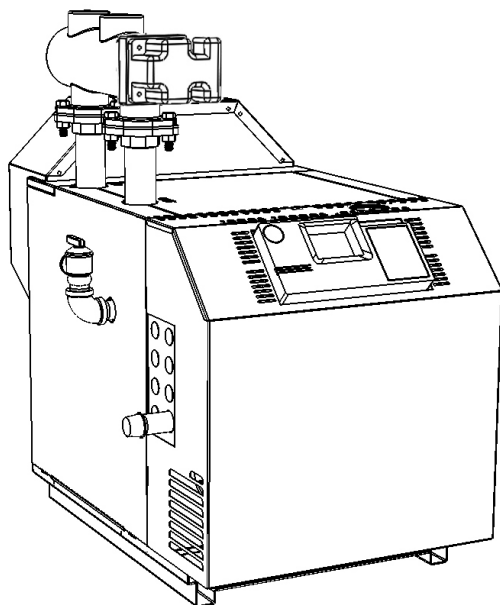


## User's Manual for

**Brute® Mini**Residential  
Gas-Fired  
Hydronic Boilers

Sizes 50-200 MBTU/h

**FOR YOUR SAFETY:** This product must be installed and serviced by a professional service technician, qualified in hot water boiler and heater installation and maintenance. Improper installation and/or operation could create carbon monoxide gas in flue gases which could cause serious injury, property damage, or death. Improper installation and/or operation will void the warranty.

**⚠ WARNING**

**If the information in this manual is not followed exactly, a fire or explosion may result causing property damage, personal injury or loss of life.**

Do not store or use gasoline or other flammable vapors and liquids in the vicinity of this or any other appliance.

**WHAT TO DO IF YOU SMELL GAS**

- Do not try to light any appliance.
- Do not touch any electrical switch; do not use any phone in your building.
- Immediately call your gas supplier from a nearby phone. Follow the gas supplier's instructions.
- If you cannot reach your gas supplier, call the fire department.

Installation and service must be performed by a qualified installer, service agency, or gas supplier.

**⚠ AVERTISSEMENT**

**Assurez-vous de bien suivre les instructions données dans cette notice pour réduire au minimum le risque d'incendie ou d'explosion ou pour éviter tout dommage matériel, toute blessure ou la mort.**

Ne pas entreposer ni utiliser d'essence ni d'autres vapeurs ou liquides inflammables dans le voisinage de cet appareil ou de tout autre appareil.

**QUE FAIRE SI VOUS SENTEZ UNE ODEUR DE GAZ:**

- Ne pas tenter d'allumer d'appareils.
- Ne touchez à aucun interrupteur. Ne pas vous servir des téléphones dans le bâtiment où vous êtes.
- Appelez immédiatement votre fournisseur de gaz depuis un voisin. Suivez les instructions du fournisseur.
- Si vous ne pouvez rejoindre le fournisseur de gaz, appelez le service des incendies.

L'installation et l'entretien doivent être assurés par un installateur ou un service d'entretien qualifié ou par le fournisseur de gaz.

## SECTION 1 STARTUP AND SHUTDOWN

### 1.A Familiarize yourself to your boiler

Study the entire hydronic heating system. The unit does not have an external power button. Locate the power switch which is mounted nearby as per local codes. Locate the fuel valve and make sure that it is turned on and the unit has a supply of fuel.

The digital dashboard is located at the front of the boiler and has several indicator LED's that display the current status of the boiler while it is in operation. See Figure 1.

Getting to know the Digital Dashboard.

For full operating details, please refer to the Installation & Operating Manual which should be stored near the boiler.

The small clear cover is removable and must be placed back into it's original position when adjustments are completed.

The primary indicators on the digital dashboard are illustrated in Figure 1. Normal Operation indicators are Green.

### 1.B System Start Up

1. Give the entire heating system an overall visual inspection. Check for Water, Power, and Fuel. Make certain that the boiler (or any part of the hydronic heating system) has not been drained or winterized. Inspect the boiler for any damage. Inspect the area around the boiler and remove any items or combustibles that might have been stored in the boiler room. *If the unit has been* drained or does not have power or fuel, or has been damaged, **DO NOT CONTINUE**. Contact your qualified service technician.

Otherwise, if the boiler is ready for startup,

- Locate the power switch nearby and make sure that the power is OFF.
- Locate the fuel valve and make sure that it is turned

on and the unit has a supply of fuel.

2. With all visual inspections completed as per the previous step, locate the thermostat and raise the thermostat temperature to above the current room temperature, to give the boiler a call for heat.
3. Turn ON the power switch to the boiler and observe the boiler as it goes through it's start up sequence.
4. The third decimal, lower right of the JX Control display will light indicating a call for heat. See Figure 1.
5. The Ignition LED's will light in sequence starting with the LIMITS. Then Vent POWER and Vent SWITCH will turn on.
- 6 The spark will energize and the pilot valve will turn on. There will be an audible spark every 1 second until flame is sensed. Once the flame is sensed, the FLAME Indicator will stay on.

NOTE: If flame is not sensed in 75 seconds the pilot valve will de-energize, the spark will terminate, and the green "flame" LED will blink. After a 5 minute delay the sequence will retry at step 5. There will be an unlimited number of retries.

7. When pilot flame is sensed, the main valve is energized.

NOTE: The limits, damper switch and pilot flame are continuously monitored during main valve operation. If any of these are opened or pilot flame is lost the main valve is immediately de-energized. A blinking green LED will indicate the cause of the shutdown (limits, v-sw, or flame).

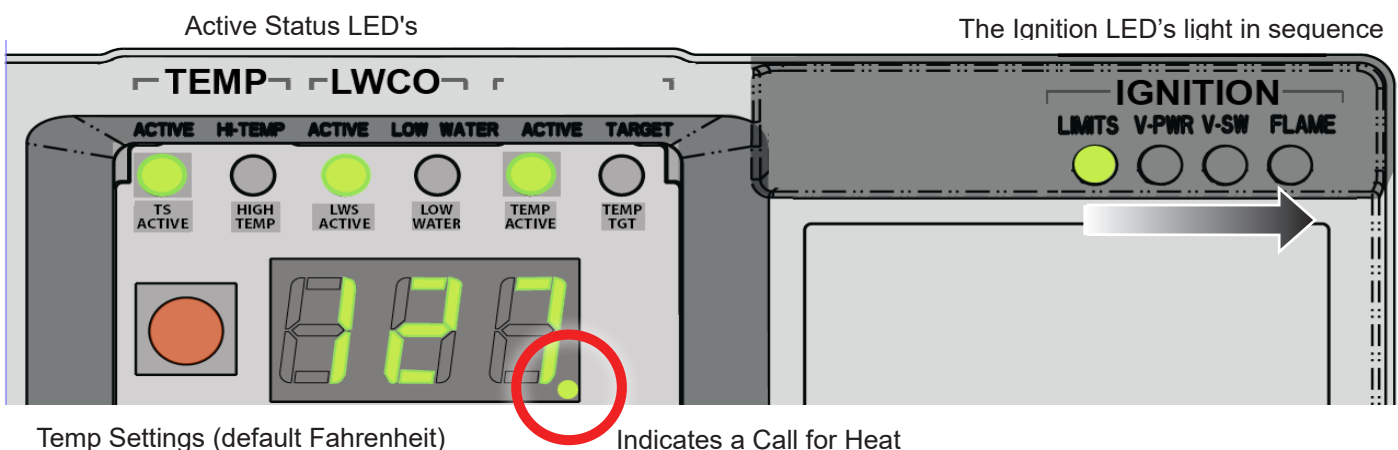


Figure 1. The indicator lights on the Digital Dashboard

**⚠ WARNING**

Should overheating occur or the gas supply fails to shut off, do not turn off or disconnect the electrical supply to the pump. Instead, shut off the gas supply at a location external to the appliance.

**⚠ WARNING**

Do not use this boiler if any part has been under water. Immediately call a qualified service technician to inspect the boiler and to replace any part of the control system and any gas control which has been under water.

8. Allow the boiler to operate until the target temperature or high temperature set point is reached. The yellow "target" LED or the yellow "hi-temp" LED will light. The main burner and pilot flame will turn off. The "flame" LED will turn off.
9. The damper will begin to close and the "v-pwr", "v-sw", and "limits" LEDs will turn off.
10. Lower the room thermostat temperature to remove the call for heat. The third decimal, lower right of the control display will turn off

**1.C System Shutdown**

1. Turn OFF the main power switch.
2. Close the manual gas valves
3. If you think the unit might freeze, drain it. All water must be removed from the heat exchanger, or damage from freezing may occur. To completely drain the boiler, first drain the right side by opening the boiler drain. Then remove the PRV and related fittings. Then remove the top and left side panels. Remove BOTH 1/2" plugs from the side of the boiler located at the bottom of the casting. Once the water is fully drained, reinstall the plugs and panels. Refer to the Installation and Operating Manual.
4. Also be sure to protect the piping in the building from freezing.

**1.D Blocked Vent Safety Shut Off**

This boiler is equipped with a blocked vent safety shut off system (BVSSS) to shut off the boiler if the vent is obstructed for any reason. Operation with an obstructed vent will cause the combustion system to create Carbon Monoxide (CO). Do not attempt to restart the boiler if it has been shut off by the BVSSS. Turn the power off and call a qualified Service Technician.

**1.E Flame Roll-out Safety Shut Off**

This boiler is equipped with a flame roll-out safety shut off system. The flame roll-out safety shut off is located inside the front cover and just above the burners. The flame roll-out safety switch should only be replaced by a qualified Service Technician. If the boiler shuts off or will not start up due to the flame roll-out safety switch, then turn the power off and call a qualified Service Technician. .

**⚠ WARNING**

The Warranty does not cover damage caused by lack of required maintenance, lack of water flow, or improper operating practices.

**⚠ AVERTISSEMENT**

La garantie ne couvre pas les dommages causés par l'absence d'entretien, absence de débit d'eau, ou pratiques de fonctionnement irrégulières

**⚠ WARNING**

Installation, maintenance, and service must be performed by a qualified installer, service agency, or gas supplier.

**⚠ AVERTISSEMENT**

L'installation, l'entretien, et l'entretien doivent être assurés par un installateur ou un service d'entretien qualifié ou par le fournisseur de gaz.

**1.F Maintenance**

1. Lubricate any motor bearings that are not sealed bearings per the instructions.
2. If a strainer is employed in a pressure reducing valve or the piping, clean it every six months or as needed.
3. At start-up, and periodically thereafter, the burner and pilot flames should be observed. If the flame has the appearance of "sooting" tips, check for debris near the orifices. Clean any debris from orifice area and remove burners to ensure they are debris free inside and out. If this doesn't clear the issue the heat exchanger likely needs cleaning.
4. Ensure Vent Damper motors open and close by watching the connecting rod between the stack and the motor housing. The boiler should never start if the damper is not in the open position. If it does, it is critical to safe operation that this gets repaired.

5. Inspect the venting system for obstruction, leakage or corrosion at least once a year.
6. Keep the boiler area clear and free from combustible materials, gasoline, and other flammable vapors and liquids.
7. Be sure that all combustion air and ventilation openings are unobstructed.
8. The JX has easy access through the top cover and the flue collector for inspection of the heat exchanger. It is critical to ensure that the flue collector sits in the proper position so that no flue products will escape into the living area of the building.
9. If the boiler is not going to be used for long periods of time in locations where freezing occurs, it should be completely drained of all water. To accomplish this, there is a drain valve on the right side of the boiler which can be opened. This will drain the right side of the boiler. There are two plugs located on the left side of the heater which can be accessed by removing the side panel which must be removed to drain that side. Both sides must be drained.

**For complete details on Maintenance and Troubleshooting for this boiler, please refer to the Installation and Operating Manual, available online at the manufacturer's website.**

**⚠ WARNING**

The Warranty does not cover damage caused by lack of required maintenance, lack of water flow, or improper operating practices.

**⚠ AVERTISSEMENT**

La garantie ne couvre pas les dommages causés par l'absence d'entretien, absence de débit d'eau, ou pratiques de fonctionnement irrégulières

**⚠ WARNING****Carbon Monoxide Hazard**

This product burns gas to produce heat. The appliance must be properly installed, operated, and maintained to avoid exposure to appreciable levels of carbon monoxide and the installer is required to confirm that at least one carbon monoxide alarm is installed in the living space before the appliance is put into operation.

It is important for carbon monoxide alarms to be installed, maintained, and replaced following the alarm manufacturer's instructions and applicable local codes.

**⚠ AVERTISSEMENT****Danger lié au monoxyde de carbone**

Ce produit brûle des gaz pour produire de la chaleur. L'appareil requiert une installation, un fonctionnement et une maintenance adéquates afin d'éviter l'exposition à des niveaux appréciables de monoxyde de carbone; l'installateur est requis de confirmer qu'au moins une alarme de détection de monoxyde de carbone est installée dans l'espace de vie avant que l'appareil ne soit mis en service.

Il importe que les alarmes de détection de monoxyde de carbone soient installées, maintenues et remplacées selon les directives du manufacturier et les codes locaux applicables.

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



H2413400A



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[www.BradfordWhite.com](http://www.BradfordWhite.com)

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