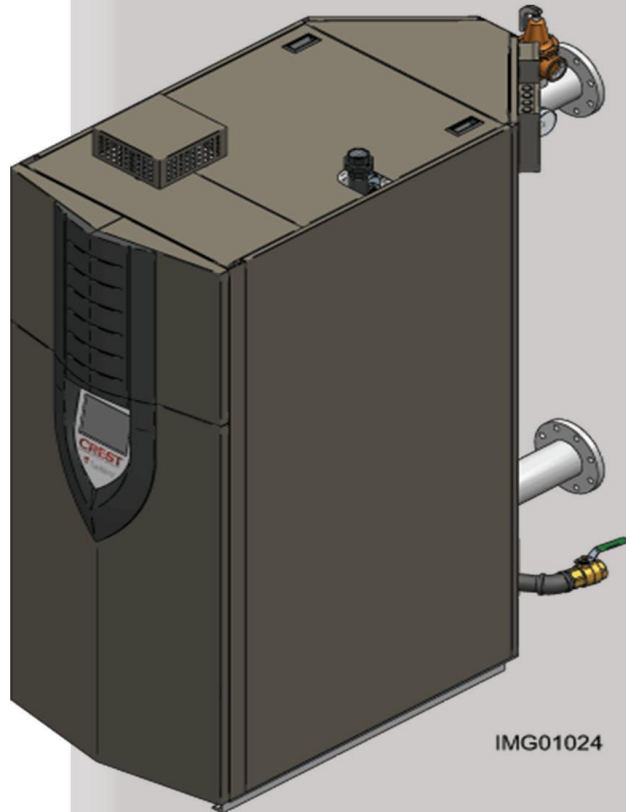


CREST[®]

CONDENSING BOILER

Installation & Operation Manual
Models: 751 - 6001
Series: 100 - 101 & 110 - 111



IMG01024



! WARNING

This manual must only be used by a qualified heating installer / service technician. Read all instructions, including this manual and the Crest Service Manual, before installing. Perform steps in the order given. Failure to comply could result in severe personal injury, death, or substantial property damage.

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Hazard definitions

The following defined terms are used throughout this manual to bring attention to the presence of hazards of various risk levels or to important information concerning the life of the product.

DANGER

DANGER indicates an imminently hazardous situation which, if not avoided, will result in death or serious injury.

WARNING

WARNING indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.

CAUTION

CAUTION indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury.

CAUTION

CAUTION used without the safety alert symbol indicates a potentially hazardous situation which, if not avoided, may result in property damage.

NOTICE

NOTICE indicates special instructions on installation, operation, or maintenance that are important but not related to personal injury or property damage.

Please read before proceeding

⚠ WARNING

Installer – Read all instructions, including this manual and the Crest Service Manual, before installing. Perform steps in the order given.

User – This manual is for use only by a qualified heating installer/service technician. Refer to the User's Information Manual for your reference.

Have this boiler serviced/inspected by a qualified service technician, at least annually.

Failure to comply with the above could result in severe personal injury, death or substantial property damage.

NOTICE

When calling or writing about the boiler – Please have the boiler model and serial number from the boiler rating plate.

Consider piping and installation when determining boiler location.

Any claims for damage or shortage in shipment must be filed immediately against the transportation company by the consignee.

Factory warranty (shipped with unit) does not apply to units improperly installed or improperly operated.

⚠ WARNING

Failure to adhere to the guidelines on this page can result in severe personal injury, death, or substantial property damage.

⚠ 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.

This appliance **MUST NOT** be installed in any location where gasoline or flammable vapors are likely to be present.

WHAT TO DO IF YOU SMELL GAS

- Do not try to light any appliance.
- Do not touch any electric switch; do not use any phone in your building.
- Immediately call your gas supplier from a near by 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 the gas supplier.

⚠ WARNING

DO NOT install units in rooms or environments that contain corrosive contaminants (see Table 1A on page 9). Failure to comply could result in severe personal injury, death, or substantial property damage.

⚠ WARNING

The California Safe Drinking Water and Toxic Enforcement Act requires the Governor of California to publish a list of substances known to the State of California to cause cancer, birth defects, or other reproductive harm, and requires businesses to warn of potential exposure to such substances.

This product contains a chemical known to the State of California to cause cancer, birth defects, or other reproductive harm. This boiler can cause low level exposure to some of the substances listed in the Act.

When servicing boiler –

- To avoid electric shock, disconnect electrical supply before performing maintenance.
- To avoid severe burns, allow boiler to cool before performing maintenance.

Boiler operation –

- Do not block flow of combustion or ventilation air to the boiler.
- Should overheating occur or gas supply fail to shut off, do not turn off or disconnect electrical supply to circulator. Instead, shut off the gas supply at a location external to the appliance.
- Do not use this boiler if any part has been under water. The possible damage to a flooded appliance can be extensive and present numerous safety hazards. Any appliance that has been under water must be replaced.

Boiler water –

- Thoroughly flush the system to remove debris. Use an approved pre-commissioning cleaner (see Start-Up Section), without the boiler connected, to clean the system and remove sediment. The high-efficiency heat exchanger can be damaged by build-up or corrosion due to sediment.

NOTE: Cleaners are designed for either new systems or pre-existing systems. Choose accordingly.

Freeze protection fluids –

- NEVER use automotive antifreeze. Use only inhibited propylene glycol solutions, which are specifically formulated for hydronic systems. Ethylene glycol is toxic and can attack gaskets and seals used in hydronic systems.

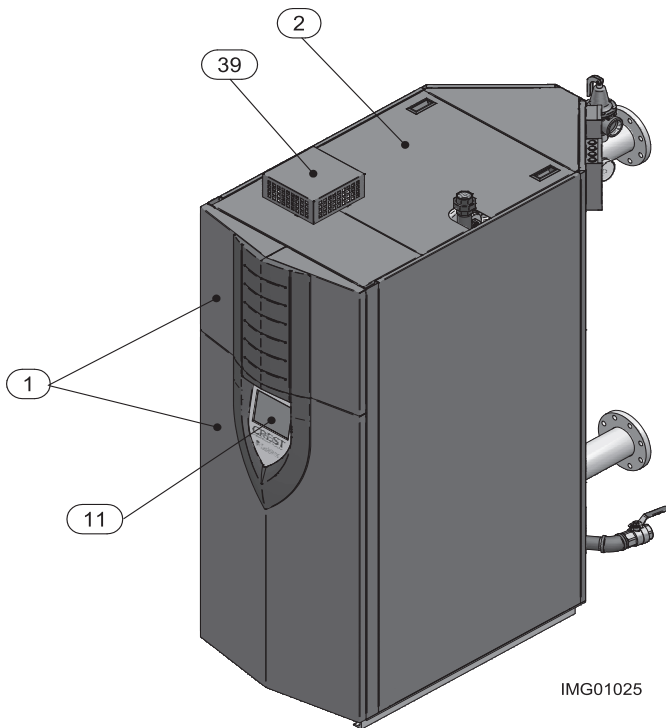
The Crest - How it works...

- 1. Front access panels**
Provides access to the controls compartment.
- 2. Top access panel**
Provides access to the burner compartment.
- 3. Air pressure switch**
The air pressure switch detects blocked flue/vent conditions.
- 4. Blower**
The blower pulls in air and gas through the venturi (item 34). Air and gas mix inside the blower and is pushed into the burner, where they burn inside the combustion chamber.
- 5. Boiler drain connection**
Location from which the heat exchanger can be drained.
- 6. Boiler inlet temperature sensor**
The boiler inlet temperature sensor monitors system return water temperature. If selected as the controlling sensor, the control module will adjust the boiler firing rate so the inlet temperature matches the set point.
- 7. Boiler outlet temperature sensor**
The boiler outlet temperature sensor monitors boiler outlet water temperature. If selected as the controlling sensor, the control module will adjust the boiler firing rate so the outlet temperature matches the set point.
- 8. Burner (not shown)**
Single chamber design with a stress free metal fiber outer mesh and durable stainless steel structure. Provides firing rates up to 15:1 turndown (Model 751), 20:1 turndown (Models 1001 - 1251 and 2501 - 3501), 25:1 turndown (Models 1501 - 2001), 12:1 turndown (Model 4001) and 10:1 turndown (Models 5001 - 6001).
- 9. Condensate drain connection**
The condensate drain connection provides a connection point to install a condensate drain line using flexible hose provided.
- 10. Control module (on control panel assembly)**
The control module responds to internal and external signals and controls the blower, gas valves, and pump(s), depending on the application, to meet the heating demand.
- 11. Electronic display**
Digital controls with SMART TOUCH screen technology, full color display, and an 8" user interface screen.
- 12. Flame inspection window**
Two large high temperature quartz observation windows provide views of the burner surface during firing.
- 13. Dual flame sensors (not shown)**
Two flame sensors are provided to monitor the main burner and transition flame.
- 14. Flue temperature sensor**
The flue sensor monitors flue gas temperature. The control module will modulate or shut the boiler down if the flue gas temperature gets too high.
- 15. Gas connection pipe**
The gas connection pipe is a threaded black iron pipe connection (see Gas Connections Section for specific model pipe size requirements). This pipe should be connected to the incoming gas supply to deliver gas to the boiler.
- 16. Gas shutoff valve (inside unit)**
The manual gas shutoff valve is used to isolate the boiler gas train from the gas supply.
- 17. Gas valves**
The gas valves sense the negative pressure created by the blower, allowing gas to flow only if the gas valves are powered and combustion air is flowing.
- 18. Condensate trap**
The condensate trap is sized for a 1" PVC outlet connection pipe.
- 19. High limit devices (primary and backup)**
The high limit devices are used to monitor the outlet water temperature - if either device senses the water temperature exceeding the predetermined setting, the boiler will shut down.
- 20. Ignition electrode**
An electrical spark across the electrodes will ignite the burner.
- 21. Line voltage junction box**
The line voltage junction box contains the connection points for the line voltage power to the boiler (and pumps if used).
- 22. Line voltage wiring connections (knockouts)**
Conduit connection points for the high voltage junction box.
- 23. Low gas pressure switch**
Monitors gas supply pressure to the boiler and shuts the boiler down in the event a low gas pressure condition occurs.
- 24. High gas pressure switch**
Monitors gas supply pressure to the boiler and shuts the boiler down in the event a high gas pressure condition occurs.
- 25. Low voltage connection board(s)**
Connection boards used to connect external low voltage devices.
- 26. Low voltage wiring connections (knockouts)**
Conduit connection points for the low voltage connection boards.
- 27. Low water cutoff probe (LWCO) (not shown)**
Ensures adequate water is supplied to the boiler. In the event of inadequate water levels, the boiler will shut down.
- 28. Power switch**
The On/Off power switch provides the ability to turn line voltage power to the boiler on and off.
- 29. Relief valve**
The safety relief valve protects the heat exchanger from an over pressure condition. The boiler comes with a 50 PSI relief valve as standard equipment. Optional settings are available.
- 30. Reset switch**
Reset switch for the low water cutoff. Hold the switch for 10 seconds to reset.
- 31. Test switch**
The test switch permits manual triggering of the LWCO safety circuit to test the contacts and evaluate the integrity of the circuit. Hold the switch for 10 seconds to test.
- 32. Firetube heat exchanger**
High grade stainless steel WAVE™ firetube design that extracts heat from flue gases and transfers it directly into boiler water.
- 33. Temperature and pressure gauge**
Monitors the outlet temperature of the boiler as well as the system water pressure.
- 34. Venturi**
The venturi controls air and gas flow into the burner.
- 35. Water inlet**
An ANSI flange connects the return water from the system to the heat exchanger.
- 36. Water outlet**
An ANSI flange connects the hot water supply from the boiler to the system.
- 37. Ignition transformer**
The transformer provides voltage to the ignition electrode (item 20).
- 38. Air arm temperature sensor (not shown)**
Monitors fuel-air delivery temperature to the burner.
- 39. Air inlet cover (shipped loose)**
Used with room air for combustion and to prevent debris from entering the boiler.
- 40. Fuses**
A low resistance resistor that acts as a sacrificial device to provide over current protection, of either the load or source circuit.
- 41. Air metering valve**
The air metering valve is used to control the amount of air used when firing.
- 42. Air metering valve air pressure switch**
The air metering valve air pressure switch is used to ensure the air metering valve is open when firing gas valve 2.
- 43. Proof of closure valve (not shown)**
An additional safety shutoff valve with proof of closure contacts is used on the Crest 6.0 model only.
- 44. Combustion measurement port**
Access point for combustion analyzer probe.

The Crest - How it works... *(continued)*

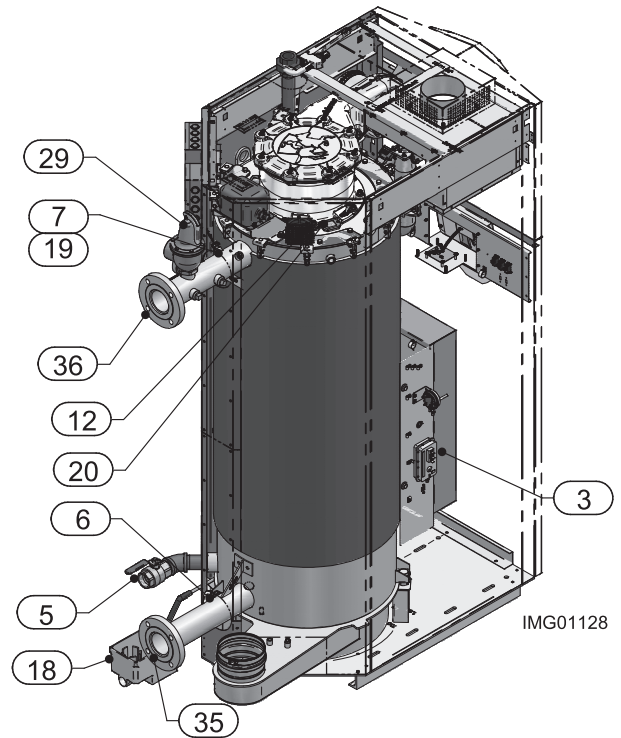
NOTICE

FBN1000 Series 100 model shown for illustration purposes only.



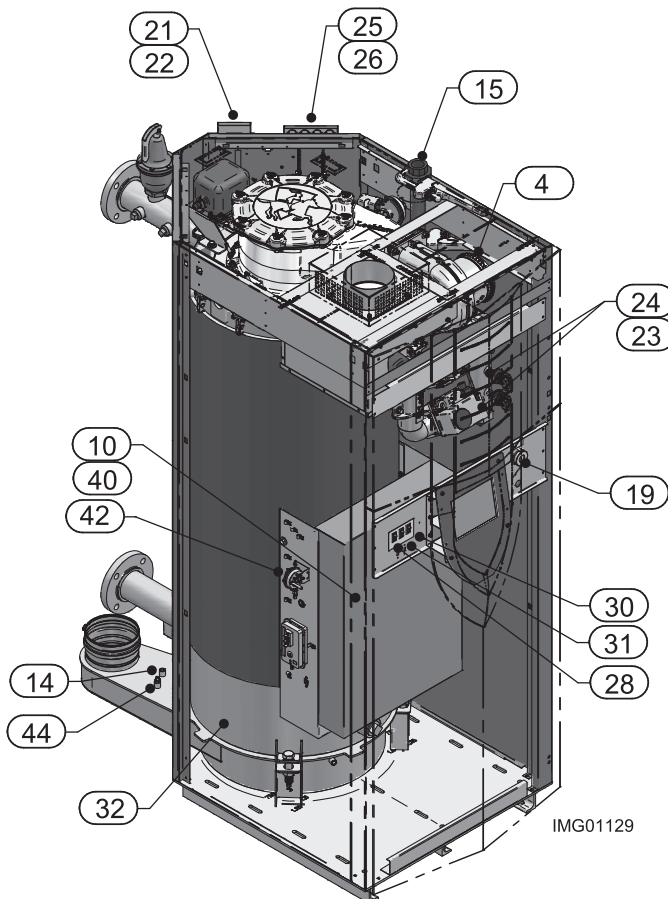
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Front View



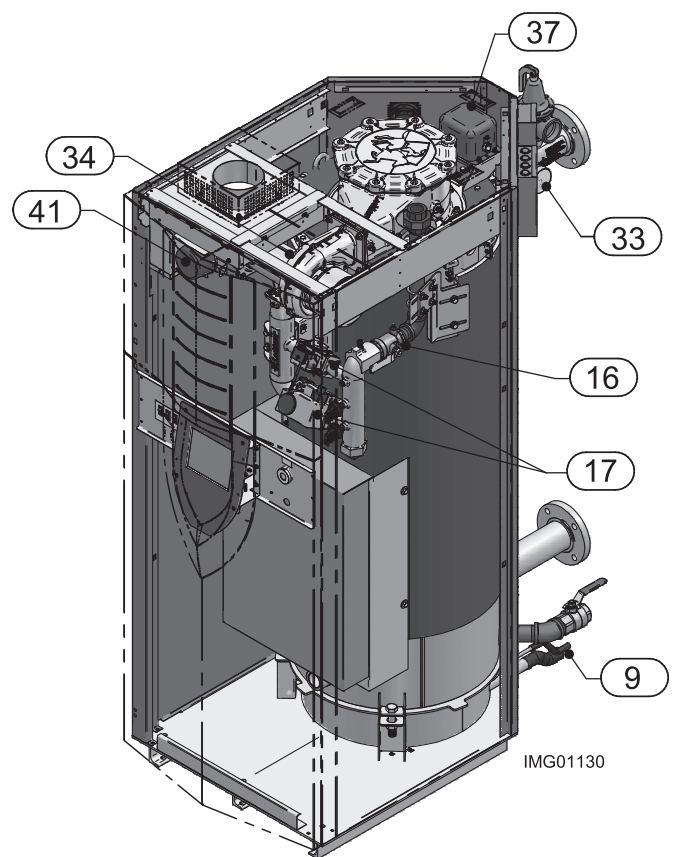
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Rear View



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Left Side (inside unit)



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Right Side (inside unit)