Make sure to keep the user’s manual in the vicinity of the boiler, after reading it.

The user’s manual describes the features of the product and the safety requirements. Please read and make sure you fully understand the user’s manual before using the products to ensure an extended lifecycle.
Thank you for purchasing a **KITURAMI boiler**. Please carefully read and make sure you fully understand the user’s manual to ensure correct operation and maintenance of the product, and keep the manual safe. If the boiler operates abnormally or you have any questions about its functions, etc., please refer to the manual.

**Precautions for Safety**

※ The user’s manual uses symbols to indicate that caution should be exercised to prevent accidents caused by incorrect operation, or damage to the users and their properties. Please carefully read and make sure you fully understand the symbols and their meanings to ensure correct operation of the product.

※ The precautions are classified into three categories:

- **DANGER**: Hazard or unsafe practices that may result in severe personal injury or death.
- **WARNING**: Hazard or unsafe practices that may result in severe personal injury or death.
- **CAUTION**: To reduce the risk of fire, explosion, electric shock, or personal injury when using boiler, please refer to the manual carefully.

---

**Structure and Name**

**How to Operate**

**Precautions for Operation**

**How to Clean**

**How to Install**

**Test Operation and Installation of the Indoor Thermometer**

**Specifications for the Boiler**

**Troubleshooting**

**Memo**
How to Operate

Name of Each Component (CTC-3550N)

- **Boiler water temperature**: Water temperature in the boiler.
- **Exhaust function lamp**: This lamp is turned on when the boiler exhaust fan works.
- **Season selection button**: You can set the heating water temperature. You can set the preferred temperature.
- **Circulation pump lamp**: The water is being circulated.
- **Low water-level lamp**: The water is insufficient in the boiler.
- **Power S/N Boiler operation switch (ON/OFF)**
How to Operate

Name of Each Part of the Room Thermostat (CTR-6070)

<table>
<thead>
<tr>
<th>No.</th>
<th>Name</th>
<th>Component</th>
<th>Function</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Current temperature</td>
<td>LED DISPLAY</td>
<td>• Display of current temperature in numbers.</td>
<td>• In case of an abnormality in the boiler, the LED flashes.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>• If the Option function works, display of the operation.</td>
</tr>
<tr>
<td>2</td>
<td>Operation/check</td>
<td>LED</td>
<td>• LED is lit if the room controller works.</td>
<td>• Flash of LED in case of a boiler abnormality (check)</td>
</tr>
<tr>
<td>3</td>
<td>Room temperature setting switch</td>
<td>VOLUME</td>
<td>• Room temperature setting volume</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Room Function selection</td>
<td>Room S/W+LED</td>
<td>• Setting and display for the room function</td>
<td>• Operation at set temperature</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>• Initial mode</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>• Option function: Heating water temperature setting function</td>
</tr>
<tr>
<td>5</td>
<td>Bath Function selection</td>
<td>BATH S/W+LED</td>
<td>• Setting and display for the bath function</td>
<td>• Water temperature is maintained at 83°C (adjustable).</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>• Automatic return to heating function after 2.5 hours.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>• Option function: Hot water temperature setting function</td>
</tr>
<tr>
<td>6</td>
<td>Power Restart button</td>
<td>SWITCH</td>
<td>• his switch is used to turn the power of the boiler on/off. After turning off and on, manual return is done.</td>
<td>• Manual return (restart) is possible up to 3 times. (Clear after 5 minutes)</td>
</tr>
</tbody>
</table>
How to Operate

· ON/OFF Set point of fan and circulation pump

<table>
<thead>
<tr>
<th>Heating water temp. Setting</th>
<th>Fan</th>
<th>Circulation pump</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>ON</td>
<td>OFF</td>
</tr>
<tr>
<td>Summer (45)</td>
<td>45</td>
<td>50</td>
</tr>
<tr>
<td>Autumn (55)</td>
<td>48</td>
<td>55</td>
</tr>
<tr>
<td>Spring (65)</td>
<td>56</td>
<td>65</td>
</tr>
<tr>
<td>Early winter (75)</td>
<td>64</td>
<td>75</td>
</tr>
<tr>
<td>Winter (85)</td>
<td>64</td>
<td>75</td>
</tr>
</tbody>
</table>

How to Ignite the Firewood

1) Ignition through using tinder
   Put the "Tinder" in the central part of the firebox, add the firewood, and light the Beongaetan using papers, etc. Keep the ashtray hole open until the firewood is ignited to a certain level. When the firewood is completely lit close the hole.

2) Ignition Through Using the Wood
   Stack completely dried wood (thin wood) in the firebox in a zigzag pattern and light the firewood using paper or cardboard box scraps.
   -> Continuous combustion is possible through adding more firewood as soon as wood is lit
   <When inserting the firewood>.
   Insert wood in a good size enough to close the wood hatch completely

3) Insert wood in a good size enough to close the wood hatch completely.
   Ex) The burning time may be differ with the kind of wood and, in general, 20kg of firewood may be burnt for 4-5 hours.
Precautions

Use the power outlet exclusive for the boiler, and be cautious for leakage.

- The operating power is AC 230 and 50 Hz. Operate the boiler only after checking the voltage.
- Do not touch the power cable or operate the boiler with wet hands to avoid electric shock. Never clean the boiler with water as a leak, shock or failure of the boiler may result.

Do not place combustible or inflammable materials in the vicinity of the boiler.

- Put a fire extinguisher in the boiler room
- Do not stack wooden materials or place inflammable or combustible materials in the vicinity of the boiler, and keep the area surrounding the boiler clear.

Never disassemble, repair or modify without approval of the manufacturer.

- Shock or fire may result.
- Contact the local distributor when the boiler needs repairing.

Never touch the stovepipe while you operate boiler.

- You may get burnt.

Prevent frozen rupture during winter season.

- If the product is connected to the pipes, and the pipes are fully filled with water, connect the power cable to the outlet. If there is insufficient water in the pipes, then supply water to the pipes in accordance with the water makeup method. Operating the rupture prevention circuit when the pipes are filled with insufficient water may cause the pump to run idle or cause overheating or failure of the pump.
- Fully insulate the pipes.
- Take the appropriate actions to prevent a frozen rupture by, for example, winding heating coils around the exposed pipes in the cold area. (It is also desirable to install the pipes adjacent to the heating pipes for insulation.)
- Do not wrap the water drain valve with an insulator.
- When you do not use the boiler for an extended period, drain the water from the boiler to prevent a frozen rupture, and disconnect the power cable from the outlet.
- The exposed pipes should be wrapped with an insulator 25mm thick or more to prevent the pipes from freezing (50 mm or more in cold areas)
- If you leave your home for a number of hours, open the hot water tap in the kitchen slightly to allow a small volume of water to flow into the hot water pipe to prevent a frozen rupture of the tap water pipe.

The boiler shall be inspected once a year.

- Request your distributor to conduct periodic inspections of the boiler (i.e., once or twice a year).
- You can operate the boiler safely only when the boiler has been properly inspected.
Precautions

Cautions in using wood fuel

Our product DO NOT guarantee any flaw occurred by using material EXCEPT wooden fuel like oval briquets, brown coals, etc.

Use the designated fuel only.

- Firewood can only be used in this boiler. Use of other fuel (brown coals, briquettes, or household waste may reduce the lifetime of the product and should be prohibited.

In a power failure, be careful about overheating.

- If electric power is not supplied, the blower and circulation pump do not work and the risk of overheating and fire is increased.

Do not add an excessive quantity of fuel at anytime.

- If an excessive large quantity of fuel is added, the hot water or steam can burn you, as overheating is likely to occur.

After adding firewood, tightly close the inlet.

- The sparks may cause a fire in the surroundings area.
- As sparks may be dispersed resulting in a fire during the time to treat the ash, clean the product after the complete removal of embers.

When opening/closing the wood hatch, be careful to not burn your self.

- When opening the wood hatch, open the door in a lateral direction in order to avoid possible heat burns.

Install the boiler in a structure where cleaning is easy.

- The use of wet wood requires frequent cleaning due to resin; use dry firewood if possible.
- If you use wet wood, you should clean the boiler every 3-4 days.
How to clean

How to clean the firewood combustion chamber

Especially, if firewood is used, the boiler should be cleaned at least once a week in order to save on fuel costs.

push out the ash using an ash cleaning tool

Cleaning upper part

Cleaning lower part

※ Note: When cleaning the cleaning port, fire chamber, or flue, disconnect the exhaust fan and open the door.

How to install

▶ Conditions to be checked prior to installation

The product shall be installed by authorized engineer pursuant to the methods stipulated in the user's manual.

- Install a boiler suitable for the purpose of use and the CH area.
- Install the boiler in a location such that exhaust gas or noise from the boiler does not cause inconvenience to the users or to residents in the vicinity of the boiler’s location.
- Do not install the boiler in a location adjacent to areas frequently accessed by people, such as a staircase or emergency exit.
- Secure sufficient space for the operation, inspection and repair of the boiler (1 m or more at the front, rear, and left- and right-hand sides of the boiler).
- The use of water (for CH) containing a large quantity of lime or salinity causes corrosion of the product. Always use tap water if possible.
How to install

- Use the outlet exclusion for the boiler.
  - Otherwise, fire may breakout.

- Prevent the stovepipe from contact with combustible materials.
  - Otherwise, fire may breakout.
  - Finish the contact points with an incombustible insulation material when installing the flue to prevent fire.

- Install the boiler in a boiler room, if any.
  - Install the boiler in a boiler room if possible to prevent exhaust gas from being introduced into the living room.
  - Do not install the boiler in a bathroom or a space without a vent. Lack of oxygen causes incomplete combustion.
  - Never install the boiler in an outdoor environment so as to prevent a rupture due to freezing.

- Drainage of boiler
  - If the capacity of the boiler is deficient for the heating area, the safety valve may open often. Install a nitrogen tank suitable for the capacity. (Overflow)
  - Connect hoses from the safety valve and the air vent to the sewage pipe on the floor to drain water.

- Keep the floor level by making use of incombustible materials such as cement blocks prior to installing the boiler.
  - Install the boiler at a location 50 mm above the floor.
  - When installing the boiler directly on the floor, the support of the boiler may be corroded, thereby reducing the lifecycle of the boiler.

- Make sure thoroughly for keeping pipe warmth of the Boiler.
  - The pipe may be exposed to the risk of a rupture due to freezing.
  - The exposed pipe should be wrapped with an insulator thicker than 25 mm to prevent the pipe from freezing (50mm or more in a cold area).
How to install

Installation of flue

▷ Install the flue 3m above the boiler along with a "T" unit at the end of the flue in order to prevent incomplete combustion caused by damaging winds.

Cautions for Installation

Install the flue in such a way that the flue is free from the wind pressure zone, rain or wind.

Warning: Installation of additional flue
1. Clearance greater than 30 cm should be ensured from the flue to prevent contact with combustible materials, and the flue should be finished with incombustible materials.
2. Sudden heat may be emitted by the flue when supplying the fuel. Do not store inflammable or combustible materials in the vicinity of the stove pipe. Install the flue, taking care to ensure sufficient clearance from the flue.

If there is a tall building or an obstacle within 1 m of the flue, install the flue 1 meter higher than the roof of the building.

- Install the flue at a location 3 meters or higher than the top of the boiler
- The height of the installed flue should be greater than three times the horizontal length.

If the flue is installed in a wind pressure zone, excessive soot resulting from incomplete combustion may result, thus reducing operational efficiency, safety shutdown may be triggered, causing abnormal operation of the boiler. To prevent this, the flue should be installed in a position outside the wind pressure zone.

- Especially, when you use wood or coal fuel, you should avoid the wind pressure band.
How to install

Standard Piping Diagram

**<Upward Piping System>**

**<Down Piping System>**
1. Please install the expansion tank 1m higher than from the top of the boiler

2. DO NOT use valve at the fall pipe or expansion tank pipe

3. Supply water pipe should be directly connected with expansion tank.
How to Connect the Room Thermometer

1) Install the attachment plate at 1.5M from the bottom having small thermal change.

2) Connect the cable with the terminal on the back of the room thermometer (CTR-6070).
   ※ When wiring the room thermometer connect the signal cables to meet the polarity and do not connect them with 110V or 220V power cables.

3) Attach the room thermometer (CTR-6070) by pushing against the wall so that the hanging part matches with the attachment loop and by pulling it downward.

4) The cable of the room thermostat should be independently installed with exposure.
   ※ Do not bury the cable in the bottom or in the same pipe. Otherwise, the sending/receiving signals may become unstable resulting in operation trouble. Also, if the cable coating is aged due to the passage of time, electric leakage or a short may be caused.

Checkpoints after Installation

- Do the pipe parts not show any signs of leaking?
- Is the boiler installed horizontally and parallel with the bottom?
- Is there any ignitable or combustible material, such as gasoline, gas cylinders, and thinner, etc., near the boiler?
- Is the flue properly installed?
- Is the oil pipe deaerated?
- Is the heating pipe deaerated?
- Are the hot water pipe and cold water pipe installed with isolation?
- Is the water supply pipe properly connected?
- Are the boiler pipes and flues covered with thermal insulator?
- Is the power AC 220V/50Hz?

※ If there is any problem with the above-stated matters, contact the distributor in order to get the required measures.
Boiler specifications

<table>
<thead>
<tr>
<th>Item</th>
<th>Model</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rated capacity (firewood) (kcal/h)</td>
<td>25,000</td>
<td>When 40Kg is combusted</td>
</tr>
<tr>
<td>Heating area (m²)</td>
<td>83 ~ 99</td>
<td></td>
</tr>
<tr>
<td>Fuel feeding quantity (kg)</td>
<td>40 ~ 50 / 18</td>
<td></td>
</tr>
<tr>
<td>Heating efficiency (%)</td>
<td>85%</td>
<td>Based on dry wood</td>
</tr>
<tr>
<td>Hot water efficiency (%)</td>
<td>85%</td>
<td>Based on dry wood</td>
</tr>
<tr>
<td>Max. service pressure (kg/cm²)</td>
<td>0.1(1)</td>
<td></td>
</tr>
<tr>
<td>Heating inlet/outlet (A)</td>
<td>32</td>
<td></td>
</tr>
<tr>
<td>Irrigation capacity (liter)</td>
<td>103</td>
<td></td>
</tr>
<tr>
<td>Heating area (m²)</td>
<td>3.7</td>
<td></td>
</tr>
<tr>
<td>Hot water inlet/outlet (A)</td>
<td>15</td>
<td></td>
</tr>
<tr>
<td>Flue hole (A)</td>
<td>150</td>
<td></td>
</tr>
<tr>
<td>External dimensions (WxDxH)</td>
<td>780 x 1,300 x 1,150 mm</td>
<td></td>
</tr>
<tr>
<td>Weight (kg)</td>
<td>250</td>
<td></td>
</tr>
<tr>
<td>Electric power (V)</td>
<td>AC 230V x 50Hz</td>
<td></td>
</tr>
</tbody>
</table>

Safety function
- Overheating shutdown function and overheating prevention function
- Low level function
- Freeze-rupture prevention function
- Air processing function for initial test operation
- Constant temperature function for firewood (Blower and circulation pump control)

※ Temperature of exhaust gas : ≥ 300℃
※ The outer design and specifications are subject to change for improving the performance of the product.

■ Product drawings

![KF-35B (Front/Side)]
If any abnormality is found during the operation of the boiler, do not take measures at your own discretion. Refer to the below-stated matters. If any disorder is generated in the boiler, the check lamp on the room thermostat flashes and the corresponding lamp is turned on to meet the state on the controller. If the abnormal state continues, contact a local distributor.

<table>
<thead>
<tr>
<th>Failure</th>
<th>Troubleshooting</th>
</tr>
</thead>
<tbody>
<tr>
<td>The controller is turned on but no power is supplied.</td>
<td>• Check whether the controller is plugged into the outlet and, after unplugging the controller, plug in other home appliances such as an electric iron, etc.</td>
</tr>
<tr>
<td></td>
<td>• If other home appliances work, contact a local distributor or A/S center.</td>
</tr>
<tr>
<td>Power is supplied but the boiler does not work.</td>
<td>• Check that the blower and circulation pump are properly connected.</td>
</tr>
<tr>
<td>The boiler works properly but the room is cold.</td>
<td>• In many cases, the driving part of the boiler circulation pump has a problem.</td>
</tr>
<tr>
<td></td>
<td>• Check the heating pipes for the existence of air and deaerate the pipes if required.</td>
</tr>
<tr>
<td>The combustion sound is loud.</td>
<td>• The flue is not adequately installed or is not thermally insulated. Correct the installation of the flue or thermally insulate the flue.</td>
</tr>
<tr>
<td></td>
<td>• If the abnormality continues, contact a local distributor or A/S center.</td>
</tr>
<tr>
<td>Black dirt is suddenly generated during operation without any disorder actuating the safety valve, or smoke is generated.</td>
<td>• Foreign substances are precipitated in the flue and cleaning port. Open the cleaning port, remove the flue, and remove the foreign substances using a cleaning tool. For cleaning method, refer to Page 7.</td>
</tr>
<tr>
<td>&quot;96&quot; flashes.</td>
<td>• The heating water temperature in the boiler is excessively high and the operation of the boiler is suspended. In this case, the circulation pump is actuated and reduces the heating water temperature in the boiler.</td>
</tr>
<tr>
<td></td>
<td>• If the abnormality continues, contact a local distributor or A/S center.</td>
</tr>
</tbody>
</table>
## Troubleshooting

<table>
<thead>
<tr>
<th>Failure</th>
<th>Troubleshooting</th>
</tr>
</thead>
</table>
| “95” flashes and the controller’s “Low Level Lamp” is on.              | • The water is insufficient in the boiler. Turn the tap on in order to check for a suspension in the water supply. If the water supply is suspended, take measures for a proper supply of water.  
  • If release is not continuously done and makeup water is not supplied, contact a local distributor or A/S center. |
| “04” flashes.                                                          | • The temperature sensor is disconnected.                                                                                                      |
| Blowing/Exhaust fans do not work.                                      | • Check the connector for wrong contact.                                                                                                       |
| Water flows out of the fire chamber or combustion pipe.               | • This is a natural phenomenon where the water is condensed (due to the difference in temperatures) if you light the firewood in the state where the heating temperature is low and this condensation phenomenon disappears when the temperature rises.  
  • Water may gather with condensation if the boiler in front of the cleaning port is not horizontally balanced and rain water may flow in through the flue when it rains. |