The Buderus commercial Thermostream boilers are designed with many physical attributes setting them above the competition and increasing their longevity and efficiency.

Buderus G315 G515 G615 Boiler

Bosch Cast Iron Commercial Boilers

www.BoschHeatingAndCooling.com
The Most Flexible Boiler System in the Industry

Meet the Bosch Buderus G315, G515, G615 Boiler

The G315, G515 and G615 are designed to maximize the heating value of every ounce of fuel and are built with the highest quality materials. Established in 1731, Buderus uses state-of-the-art techniques in the design and manufacturing of its boilers.

The G315 and G515 come with a full 3½" of thermal insulation, and the G615 comes with a full 4" of thermal insulation to reduce standby heat loss. All Buderus cast iron commercial boilers are manufactured with the Buderus GL-180M cast iron with a silicone “barrier skin.” To streamline the appearance of the boilers, the supply and return connections for the G315 are located at the rear of the boiler, while the G515/G615 have top supply and a rear return. These boilers are for use with hot water and can be installed with gas, oil or dual fuel burners.

Features

- High efficiency—combustion efficiencies up to 88.2%
- 350 to 3,982 MBH Output
- Thermostream design eliminates thermal shock
- Boiler fully serviced and cleaned from the front
- Savings in overall equipment costs, installations and annual operating costs
- Suitable for operation with B5 Oil, natural gas, LPG
- Easy installation of third party burners with the aid of predrilled burner plates
- Reliable operation without shunt pump and return temperature control through Thermostream technology
Thermostream Design
The Buderus developed Thermostream principle is proven for higher efficiency and improved system reliability in high volume heating systems. Condensation and thermal shock are made impossible by design, as cool return water mixes internally and is preheated with supply water before exposure to directly heated surfaces. This process eliminates hot and cold spots in the boiler and balances water flow throughout all boiler sections. The Thermostream design permits continuous low temperature operation under normal return water without requiring a minimum boiler return temperature. Internal water circulation and injection into each boiler section combined with deflection plates ensure condensate-free boiler operation—even under no flow conditions.

Design Benefits
- Eliminates need for bypass loop or shunt pump
- Eliminates hot and cold spots in the boiler
- Operates at low return water temperatures without thermal shock
- Minimum supply temp of 122°F with standard control
- Ensures balanced flow through boiler sections

Heating Water Routing
The flow and return are arranged at the back of the boiler, at the top. A special feed pipe is integrated into the top hubs of the boiler sections, into which cold return water flows. This construction provides hydraulic separation of the flow and return water. For every boiler section, there are generally two symmetrical holes positioned at the sides of the feed pipe. A regulated volume of return water is therefore supplied evenly to the boiler sections.

Heating Water Flow
The boiler water is heated by the inner heat transfer surfaces (combustion chamber and secondary heating surface) and rises. Colder water sinks at the external wall and flows towards the inner heating surface.
Full Three Pass Design—for High Efficiency
Buderus developed the full three-pass system to increase the heat transfer and efficiency of boilers. This design allows more heat to be transferred during all three passes, unlike conventional boilers that only use one pass to transfer heat. This system maximizes the total possible heat available with the lowest fuel consumption possible. To greatly decrease standby loss, Buderus has manufactured a 3½" and 4" thick thermal insulation.

The Three-Pass Boiler is Designed for
- Optimized combustion with positive pressure-fired boilers and tailored chamber geometry—no need for a heat-consuming refractory or target wall eliminating the need for costly repairs
- Minimal stack losses with the modified three-pass flue design’s large heat transfer areas
- Low standby losses with a full 3½" to 4" jacket of thermal insulation around the entire block—even underneath the boiler

How It Works
The flame fires into the first chamber. Then the flue products flow through the second pass to the front of the boiler. From there they reverse direction again—moving through the third pass to the back, and finally exiting via the flue connection into the chimney. Because the gases are held in the boiler longer this allows the cast iron to absorb the maximum amount of heat, resulting in a lower stack temperature and a higher efficiency.
**Intelligent Heating—by Design**

Buderus, the world leader in heating technology, manufactures the highest quality boilers based on centuries of experience. With its innovative design and quality manufacturing, a Buderus boiler will outlast and out-perform virtually any other commercial hot water boiler system in the world.

The G315, G515 and G615 are designed to maximize the heating value of every ounce of fuel and are built with the highest quality materials. Established in 1731, Buderus uses state-of-the-art techniques in the design and manufacturing of its boilers.

**Boiler Construction**

The boiler sections are assembled with beveled, surface-profiled push nipples for long, trouble-free watertight operation. Boiler flueways are manufactured to be gas tight with tongue and groove section design and elastic, high temperature resistant sealing rope. A permanent dry door gasket ensures repeated positive sealing of the full swing burner door. Because flue gases cannot escape through the seams between boiler sections, the boilers are able to retain heat more efficiently.

**GL-180M Gray Cast Iron**

Buderus GL-180M silicone injected, gray cast iron obtains its superior material characteristics primarily from a high carbon (graphite) and silicone content.

Buderus GL-180M gray cast iron has excellent corrosion resistance, exceptional casting characteristics, 40% greater flexibility and elasticity as well as high thermal conductivity. Buderus developed the special substances that are impregnated during the casting process to improve the mechanical properties of cast iron. The graphite precipitates into smaller, modified flakes which produce GL-180M cast iron with 40% greater elasticity and a high silicone barrier for corrosion protection. All sections are heat treated to relieve thermal stresses. Additional elements further enhance the properties of the GL-180M. The graphite appears in two different forms in the microstructure: nodular form producing excellent tensile strength and great elasticity and graphite flakes producing excellent corrosion resistance against acidic combustion products.
G Series Internal View

A  Distribution Pipe
B  Steel Push Nipple
C  Second Pass Flueway
D  Combustion Area
E  Outside Water Passage
The boiler must be placed on a smooth, level concrete base, 33½" wide. Cement in the base or place on its top either 4" x ¼" flat steel plates or 4" x 2" x ¼" angle irons for boiler support. Dimensions L1 and L2 are specified in the table above. Buderus recommends the use of Beckett, Gordon Piatt, Power Flame and Riello burners for oil/gas firing (Buderus stocks Riello and Beckett burners).

<table>
<thead>
<tr>
<th>Model</th>
<th>G315/5</th>
<th>G315/6</th>
<th>G315/7</th>
<th>G315/8</th>
<th>G315/9</th>
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<tr>
<td><strong>Performance Data</strong></td>
<td></td>
<td></td>
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<tr>
<td>Gross Output MBH</td>
<td>350</td>
<td>454</td>
<td>559</td>
<td>663</td>
<td>768</td>
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<td>Number of Sections</td>
<td>5</td>
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<tr>
<td>Max. Input Gas MBH</td>
<td>433</td>
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<td>Net IBR MBH</td>
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<td>Boiler HP</td>
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<td>Max. Operating Pressure (psi)</td>
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<td>Combustion Efficiency Oil</td>
<td>86.8%</td>
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<td>Combustion Efficiency Gas</td>
<td>84.2%</td>
<td>84.3%</td>
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<tr>
<td>Thermal Efficiency Oil</td>
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<td>84.9%</td>
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<td>85.7%</td>
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<tr>
<td>Thermal Efficiency Gas</td>
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<td><strong>Piping Connections</strong></td>
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<td>Vent Connection Size, in.</td>
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<td>Supply, in.</td>
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<td>Return, in.</td>
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<td><strong>Physical Dimensions</strong></td>
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<td>Overall Boiler Length, in. (LG)</td>
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<td>50½</td>
<td>56½</td>
<td>63½</td>
<td>69½</td>
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<td>Boiler Block Length, in. (LK)</td>
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<td>44½</td>
<td>50½</td>
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<td>63½</td>
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<td>Boiler Door Thickness, in.</td>
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<td>28</td>
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<td>Height, in.</td>
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<td>40½</td>
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<tr>
<td>Fire Box Depth, in. (LF)</td>
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<td>37½</td>
<td>43¾</td>
<td>50</td>
<td>56⅛</td>
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<td>Fire Box Diameter, in.</td>
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<td>15⅛</td>
<td>15⅛</td>
<td>15⅛</td>
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<tr>
<td>Fire Box Volume (cu. ft.)</td>
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<td>6.39</td>
<td>7.59</td>
<td>8.79</td>
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<td>Dry Weight (lbs.)</td>
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<td>1,391</td>
<td>1,585</td>
<td>1,779</td>
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<td>Water Content (gal.)</td>
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<td>45.2</td>
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<td>Operating Weight (lbs.)</td>
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<td>1,768</td>
<td>2,024</td>
<td>2,280</td>
<td>2,545</td>
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<tr>
<td><strong>Foundation Dimensions</strong></td>
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<td>Foundation Length L1, in.</td>
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<td>42⅛</td>
<td>48½</td>
<td>54⅛</td>
<td>61⅛</td>
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<tr>
<td>Flat Plate Length L2, in.</td>
<td>28⅛</td>
<td>35</td>
<td>41⅛</td>
<td>47⅛</td>
<td>54⅛</td>
</tr>
</tbody>
</table>
The boiler must be placed on a smooth, level concrete base, 33½" wide. Cement in the base or place on its top either 4" x ¼" flat steel plates or 4" x 2" x ¼" angle irons for boiler support. Dimensions L1 and L2 are specified in the table above. Buderus recommends the use of Beckett, Gordon Piatt, Power Flame and Riello burners for oil/gas firing (Buderus stocks Riello and Beckett burners).
The boiler must be placed on a smooth, level concrete base, 33½” wide. Cement in the base or place on its top either 4” x ¼” flat steel plates or 4” x 2” x ¼” angle irons for boiler support. Dimensions L1 and L2 are specified in the table above. Buderus recommends the use of Beckett, Gordon Piatt, Power Flame and Riello burners for oil/gas firing (Buderus stocks Riello and Beckett burners).
Commercial Boiler Specifications

1. Suitable for forced draft firing with No. 2 fuel oil, natural gas, or propane. Maximum operating pressure of the boiler(s) shall be 87 psi. They shall bear the ASME stamp and IBR rating.

2. Boiler(s) shall be fabricated with GL-180M high silicone cast iron. They shall be of wet base, double wall, sectional construction with precision machined steel push nipples. Boiler(s) shall have a 10-year limited warranty against defects in the heat exchanger.*

3. Boiler(s) shall be of full three pass design, capable of achieving combustion efficiencies up to 87.1% on oil and up to 84.5% on gas at full firing rate. Boiler(s) shall contain no refractory material or combustion target wall.

4. Boiler(s) shall be capable of sustained operation at any return water temperature without any means external to the boiler to temper or preheat return water. When operating with standard high temperature controls a water temperature of 122°F must be reached within ten minutes at the boiler supply during burner operation.

5. Access to boiler firesides for inspection and service shall be through a fully insulated and jacketed door, field adjustable for left or right hinging. The seal between door and boiler casing shall be a permanent dry gasket for repeated positive sealing. All flue passages shall be accessible only through the front door and removable rear clean-out covers.

6. Boiler(s) shall be furnished with a heavy-gauge baked enamel jacket with a full 3½" or 4" insulation on top and on all sides, flanged water connections and a cast iron flue collector for long life.

Operational Requirements for the G315, G515, and G615

- Maintain minimum 122°F supply temperature with standard high temperature controls during burner operation within 10 minutes after burner starts up.
- No additional requirements for firing with 2-stage or full modulation burners (gas or oil).
- No minimum return water temperature and no minimum flow requirement.
- Boiler(s) shall not require return water temperature control or minimum flow condition.
Complete Your System

Once you have a Buderus boiler, you can add a Buderus indirect fired hot water tank, an optional Buderus Logamatic Control or both. The Logamatic Control maximizes your comfort and fuel savings. It will also accommodate specialized heating applications such as radiant flooring. Combined, this premium heating system will provide years of exceptional comfort and economical savings.

Convenient Logamatic Control

Logamatic Controls can be used to adjust the firing rates of burners in multi-boiler systems. Controls can be pre-programmed with automatic night and day functions and set to trigger automatic adjustments based on shifts in outdoor or indoor temperatures. An optional module is available for direct communication with building management systems.

Heatronic 4000 Control Series

The Heatronic 4000 is pre-loaded with the parameters for Bosch and Buderus commercial boilers. Pre-programmed options include fuel type, boiler type, high and low fire outputs, motor speed, pump purge time, maximum temperature output, and min/max modulation parameters. The Heatronic 4000 works with up to four condensing and non-condensing boilers that are either modulating, single stage or two stage. Designed to accurately maintain target water temperature based on outdoor temperature reset or a fixed setpoint for space or process heating applications. Optional features to increase efficiency and boiler plant reliability include domestic hot water and setpoint heating, boiler run-time balancing, stand-by primary pump operation, and pump exercising.

4000 Logamatic Control Series

The intelligent regulation of energy is the heart of any heating system. A Logamatic Control provides the ability to make finer adjustments than are possible by manually turning the boiler off and on or relying on traditional thermostats. Multiple design innovations increase the versatility of Buderus Logamatic Controls including the automatic adjustment between various modes of operation. A change in modes can be set to correspond with time, date or temperature. Modes can also be changed manually. All Logamatic Controls now include summer, winter and vacation modes which effectively regulates energy consumption. This regulation is effective in single or multi-boiler systems, with any heat source and with one or multiple heating zones.

Integrated multi-boiler system controller with the following features and optional control modules:

- Outdoor reset, staged burner operation
- Control of single, two-stage and modulating burners (up to 8 boilers)
- Automatic and load/switch dependent boiler rotation
- Operation of boiler pumps, 2-way valves, 3 or 4-way valves and system pumps
- BMS interface capability
- External load capability: DHW and other on-demand loads
- Self diagnostics and system parameter display
About Bosch

Bosch Group
The Bosch Group is a leading global supplier of technology and services in the areas of Automotive, Industrial Technology, Consumer Goods and Building Technology. The company was founded in Stuttgart, Germany, in 1886 and presently has more than 440 subsidiaries and is represented in over 150 countries.

In the U.S., Canada and Mexico, the Bosch Group manufactures and markets automotive original equipment and aftermarket solutions, industrial drives and control technology, power tools, security and communication systems, packaging technology, thermotechnology, household appliances and software solutions. The Bosch Group’s products and services are designed to improving quality of life by providing innovative and beneficial solutions. In this way, the company offers technology worldwide that is “Invented for life.” Additional information is available online at boschheatingandcooling.com and bosch.ca.

Bosch Thermotechnology in North America
Bosch Thermotechnology is a leading source of high quality water heating and comfort systems. The company offers gas tankless, electric whole house and point-of-use water heaters, Bosch and Buderus floor-standing and wall mounted boilers, Bosch and FHP geothermal, water-source and air-source systems as well as controls and accessories for all product lines. Bosch Thermotechnology is committed to being Simply Smart by offering products that work together as integrated systems that enhance quality of life in an ultra-efficient and environmentally friendly manner. For more information, visit boschheatingandcooling.com.

Bosch Water-Source Heat Pumps: Made in the U.S.A.
Bosch and FHP water-source and geothermal heat pumps are made by highly trained and skilled workers in our factory based in Fort Lauderdale, Florida. They are manufactured with rigorous standards and factory testing ensuring high efficient operation over the life of the unit. Bosch’s ISO 9001 and ISO 14001 certified facilities provide consistent quality in every unit built.