Buderus SB Series
Stainless Steel Condensing Boilers

High efficiency commercial boiler solutions with up to 98% efficient with inputs of 563 to 5443 MBH

BOSCH
Invented for life
The best of both. The new Buderus SB WS Series by Bosch.

New for 2013!

Bosch introduces the Buderus SB line of stainless steel commercial condensing boilers.

Introducing the SB Series.
Our newest commercial boiler line is being introduced under the Bosch brand, while maintaining a strong identity with the Buderus name as the product category. The new Buderus SB series of high-efficiency condensing boilers feature design flexibility for retrofit and new construction projects. The high mass design is tailored to fully meet space heating retrofit applications. This series can be used with multiple fuels including natural gas, propane or heating oil.

The boiler insulation comes pre-installed and convenient top connections allow easy access to piping for reduced installation effort. Project costs are reduced due to simplified piping – a high water content heat exchanger requires no minimum flow rate, which eliminates the need for a costly dedicated boiler circulator.

New from Bosch
Buderus SB series condensing gas commercial boilers - perfect for large applications. Bosch is a global innovator providing sustainable business partnerships based on trust, values and quality.
With inputs ranging from 563 to 5443 MBH, the new SB Series has an increased maximum operating pressure to 80 psi, and a 10 year non-prorated limited warranty. Bosch is the perfect partner to offer a broad spectrum of commercial boiler applications.

**Condensing Boiler Technology**

Condensing boiler technology is the most efficient, environmentally friendly form of fuel heating available today. Condensing technology recovers the condensation heat retained latently in flue gases — part of the energy that normally disappears up the chimney in other heating systems. Thanks to lower fuel consumption and lower heating costs, condensing boilers usually pay for themselves in only 2 to 5 years.

Additionally, a modern condensing heating system increases the value of the building as well as quality of life by reducing emissions. Condensing technology offers an intelligent, easy-to-install solution to rising fuel costs. High efficiency condensing equipment achieves qualifying points for LEED certification of commercial buildings.

**Condensing Technology Improves Energy Utilization By Up To 15%**

With condensing technology, the water vapor contained in the flue gases condenses on the cooler heat exchanger surfaces of the boiler, transferring heat into the boiler water. Large heat-transfer surfaces, a counter-flow heat exchanger design, and cold return water temperatures together optimize condensation opportunities.

The heat released from condensation is transmitted directly into the boiler water, minimizing thermal flue gas losses. The seasonal efficiency of the Buderus SB Series Condensing Boilers can reach up to 98%, reducing heating costs by up to 20% in comparison with conventional heating.

### Reduced installation cost and complexity:

- Top connections for easy access to piping
- One package for the jacket pack
- Same base construction of all models
- Simple piping, no primary/secondary piping with extra circulator needed

### Increased opportunities for specifying

- Pressure rating up to 80 psi
- Wider output range
- Increased warranty up to 10 years
- Multi fuel options available: NG, LPG, low sulfur oil and heating oil type 2

**SB625/745WS Boiler Efficiency Curves**

![Boiler Efficiency Curves](image)
Flexible high mass design for retrofit and new construction projects.

A modulating burner and two return-water connections ensure high energy efficiency & low pollutant emissions.

The SB Series Condensing Boilers have more than exemplary economy to offer. Equipped with a two-staged or modulating forced-draft burner, they achieve extremely low pollutant emissions. High- and low-temperature heating circuit returns to the boiler should be connected separately to achieve higher efficiencies and higher rates of condensation. Buderus condensing boilers are equipped with two return water connections, which allow for separate return flows and optimal efficiencies.

When return-flow temperatures below the dew point of combustion gases are reduced further, even more heat is reclaimed from the flue products. In the SB Series, low flue gas temperatures are ensured by low return water flow temperatures, highly efficient heat exchanger surfaces, two-stage or full modulating burners, and continuous operation. Condensing boilers are ideally suited for direct piping in commercial systems to make maximum use of low return water temperatures. Direct piping lowers system complexity, and installation and maintenance costs. Outdoor reset can be done directly through the boiler without the use of costly 3- or 4-way valves or primary/secondary piping.

Multiple Return Connections
Low & medium temperature return connections create maximum heat transfer along the second and third flue passes increasing overall boiler efficiency.

316Ti Advantage
The titanium infused stainless steel heat exchanger is designed for greater strength and longer service life.
Bosch is a long-standing, reliable business partner delivering support, products and accessories to the market. Work with one manufacturer for coverage of the entire output range.

**Operating features and benefits:**

- Inexpensive installation with comprehensive equipment and simple system technology
- Large, full-swing openings of the main combustion chamber and fire tube heating surface assure easy inspection and service.
- No operational requirement with regard to water flow, minimum return temperature or temperature rise through the boiler.
- The heating circuit flow and low temperature return flow can be connected without any additional equipment, e.g. flow monitors or shunt pumps.
- Smaller circulators for lower electrical consumption
- Larger delta T’s for improved efficiency

**Robotic Welding**
for precision, reliability and durability
## Technical Specifications

**Buderus SB625WS Series**

### Performance Data (Unit of Measure)

<table>
<thead>
<tr>
<th>SB625WS Model</th>
<th>160</th>
<th>220</th>
<th>290</th>
<th>370</th>
<th>480</th>
<th>640</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gas input (MBH [kW])</td>
<td>563</td>
<td>788</td>
<td>1,014</td>
<td>1,314</td>
<td>1,689</td>
<td>2,200</td>
</tr>
<tr>
<td></td>
<td>[164.9]</td>
<td>[230.9]</td>
<td>[297.1]</td>
<td>[385.0]</td>
<td>[494.9]</td>
<td>[644.7]</td>
</tr>
<tr>
<td>Gross rated output (MBH [kW])</td>
<td>544</td>
<td>762</td>
<td>990</td>
<td>1,280</td>
<td>1,642</td>
<td>2,190</td>
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<tr>
<td></td>
<td>[159.7]</td>
<td>[223.6]</td>
<td>[290.2]</td>
<td>[375.2]</td>
<td>[481.5]</td>
<td>[642.0]</td>
</tr>
<tr>
<td>IBR Net Rating (MBH [kW])</td>
<td>TBD</td>
<td>TBD</td>
<td>TBD</td>
<td>TBD</td>
<td>TBD</td>
<td>TBD</td>
</tr>
<tr>
<td>Boiler horsepower (H.P)</td>
<td>16.3</td>
<td>22.8</td>
<td>29.6</td>
<td>38.2</td>
<td>49.1</td>
<td>65.4</td>
</tr>
</tbody>
</table>

### General Data (Unit of Measure)

- **Boiler category**: Condensing
- **Heat exchanger construction**: Stainless steel
- **Maximum allowable working pressure (PSIG [bar])**: 80 [5.5] 80 [5.5] 80 [5.5] 80 [5.5] 80 [5.5] 80 [5.5]
- **Water content (Gallons [Liters])**: 85.3 [323] 95.1 [360] 130.7 [495] 146.6 [555] 196.2 [743] 203.4 [770]
- **Venting category**: II, IV

### Operational Data (Unit of Measure)

- **Required vent connection pressure (Inch W.C. [mbar])**: +0.01 - +0.2 [0.025 - 0.498] +0.01 - +0.2 [0.025 - 0.498] +0.01 - +0.2 [0.025 - 0.498] +0.01 - +0.2 [0.025 - 0.498] +0.01 - +0.2 [0.025 - 0.498] +0.01 - +0.2 [0.025 - 0.498]
- **Minimum flow rate (GPM [LPM])**: none
- **Maximum flow rate (GPM [LPM])**: none
- **Maximum supply water temperature (°F [°C])**: 210 [98.8]
- **Minimum return water temperature (°F [°C])**: none

### Boiler Dimensions Data (Unit of Measure)

<table>
<thead>
<tr>
<th></th>
<th></th>
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<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>D</td>
<td>Flue depth (inch [mm])</td>
<td>2³/₄ [70]</td>
<td>2³/₄ [70]</td>
<td>2³/₄ [70]</td>
<td>2³/₄ [70]</td>
<td>2³/₄ [70]</td>
<td>2³/₄ [70]</td>
</tr>
</tbody>
</table>
## Technical Specifications

### Buderus SB745WS Series

<table>
<thead>
<tr>
<th>SB745WS Model</th>
<th>800</th>
<th>1050</th>
<th>1300</th>
<th>1550</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Performance Data</strong> (Unit of Measure)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gas input (MBH [kW])</td>
<td>3003 [880]</td>
<td>3754 [1100]</td>
<td>4692 [1375]</td>
<td>5443 [1595]</td>
</tr>
<tr>
<td>IBR Net Rating (MBH [kW])</td>
<td>TBD</td>
<td>TBD</td>
<td>TBD</td>
<td>TBD</td>
</tr>
<tr>
<td>Boiler horsepower (H.P)</td>
<td>81.8</td>
<td>109.1</td>
<td>136.3</td>
<td>158.1</td>
</tr>
<tr>
<td>Natural gas combustion efficiency (%)</td>
<td>TBD</td>
<td>TBD</td>
<td>TBD</td>
<td>TBD</td>
</tr>
<tr>
<td>Natural gas thermal efficiency (%)</td>
<td>TBD</td>
<td>TBD</td>
<td>TBD</td>
<td>TBD</td>
</tr>
</tbody>
</table>

### General Data (Unit of Measure)

- **Boiler category**: Condensing
- **Heat exchanger construction**: Stainless steel
- **Heating surface (Sq. Ft [m2])**:
  - 800: 426.25 [39.6]
  - 1050: 500.52 [46.5]
  - 1300: 604.93 [56.2]
  - 1550: 670.37 [62.28]
- **Maximum allowable working pressure (PSIG [bar])**:
  - 80 [5.5]
- **Water content (Gallons [Liters])**:
  - 800: 348.7 [1320]
  - 1050: 368.5 [1395]
  - 1300: 482.1 [1825]
  - 1550: 501.9 [1900]
- **Weight - dry (lbs [kg])**:
  - 800: 4422 [2006]
  - 1050: 4939 [2240]
  - 1300: 6006 [2724]
  - 1550: 7216 [3273]
- **Weight - shipping (lbs [kg])**:
  - 800: 4830 [2191]
  - 1050: 5400 [2449]
  - 1300: 6590 [2989]
  - 1550: 7950 [3606]
- **Venting category**: II, IV

### Operational Data (Unit of Measure)

- **Fireside pressure drop (Inch W.C. [mbar])**:
  - 800: 2.288 [5.7]
  - 1050: 2.529 [6.3]
  - 1300: 2.729 [6.8]
  - 1550: 2.970 [7.4]
- **Required vent connection pressure (Inch W.C. [mbar])**:
  - 800: +0.01 − +0.2 [0.025 − .498]
  - 1050: +0.01 − +0.2 [0.025 − .498]
  - 1300: +0.01 − +0.2 [0.025 − .498]
  - 1550: +0.01 − +0.2 [0.025 − .498]
- **Minimum flow rate (GPM [LPM])**:
  - 800: none
  - 1050: none
  - 1300: none
  - 1550: none
- **Maximum flow rate (GPM [LPM])**:
  - 800: none
  - 1050: none
  - 1300: none
  - 1550: none
- **Maximum supply water temperature (°F [°C])**:
  - 800: 210 [98.8]
  - 1050: none
  - 1300: none
  - 1550: none
- **Minimum return water temperature (°F [°C])**:
  - 800: none
  - 1050: none
  - 1300: none
  - 1550: none

### Boiler Dimensions Data (Unit of Measure)

<table>
<thead>
<tr>
<th>Dimension</th>
<th>800</th>
<th>1050</th>
<th>1300</th>
<th>1550</th>
</tr>
</thead>
<tbody>
<tr>
<td>B [Overall width (Inch [mm])]</td>
<td>41 ⁴/₉ [1060]</td>
<td>41 ⁴/₉ [1060]</td>
<td>46 ⁴/₉ [1180]</td>
<td>48 ⁴/₉ [1225]</td>
</tr>
<tr>
<td>C [Height of burner plate (center line) (Inch [mm])]</td>
<td>54 ⁴/₉ [1390]</td>
<td>54 ⁴/₉ [1390]</td>
<td>58 ⁴/₉ [1495]</td>
<td>62 ⁴/₉ [1590]</td>
</tr>
<tr>
<td>D [Flue depth (Inch [mm])]</td>
<td>2 ⁴/₉ [70]</td>
<td>2 ⁴/₉ [70]</td>
<td>2 ⁴/₉ [70]</td>
<td>2 ⁴/₉ [70]</td>
</tr>
<tr>
<td>H [Height of water fittings (inch [mm])]</td>
<td>75 [1905]</td>
<td>75 [1905]</td>
<td>80 ⁴/₉ [2040]</td>
<td>85 ⁴/₉ [2160]</td>
</tr>
<tr>
<td>H1 [Boiler height (inch [mm])]</td>
<td>74 ⁴/₉ [1890]</td>
<td>74 ⁴/₉ [1890]</td>
<td>79 ⁴/₉ [2025]</td>
<td>85 ⁴/₉ [2165]</td>
</tr>
<tr>
<td>L [Length (inch [mm])]</td>
<td>100 ⁴/₉ [2560]</td>
<td>110 ⁴/₉ [2810]</td>
<td>118 ⁴/₉ [3010]</td>
<td>121 ⁴/₉ [3080]</td>
</tr>
<tr>
<td>L1 [Base Length (inch [mm])]</td>
<td>94 ⁴/₉ [2400]</td>
<td>104 ⁴/₉ [2650]</td>
<td>112 ⁴/₉ [2850]</td>
<td>112 ⁴/₉ [2850]</td>
</tr>
</tbody>
</table>
About Bosch

The Bosch Group has been a leading global supplier of technology and services in the areas of Automotive, Industrial Technology, Consumer Goods and Building Technology for over 100 years. Every Bosch product is built with one goal in mind; to enhance the quality of life by providing innovative technological solutions. Bosch is a leader in the development of next generation technologies that deliver improved performance and peace of mind while conserving and sustaining natural resources.

Bosch Thermotechnology in North America

Bosch Thermotechnology is a leading source of high quality water heating and comfort heating systems in North America. The company offers both residential and commercial solutions under the Bosch, Buderus and FHP brands. The Bosch line included tankless and point-of-use water heaters, solar thermal systems, wall-mounted boilers, heat pump water heaters and geothermal heat pumps. Buderus products include wall-mounted and floor-standing boilers, solar thermal solutions, indirect DHW tanks, and panel radiators. FHP branded products include ground source heat pumps for commercial applications. All brand offer controls and accessories. Bosch Thermotechnology is committed to reinventing energy efficiency by offering smart products that work together as integrated systems, which enhance quality of life in an ultra efficient and environmentally friendly manner.

The Bosch Engineering Solutions Team (BEST).

The increasing demand for sustainability and energy efficiency is shaping the HVAC and plumbing industries. Whether engaged in new construction or renovation; builders, contractors, architects and engineers are being challenged to keep pace with market and regulatory requirements. Successful application of energy conservation and green building codes requires broad technical expertise to ensure code-compliant, safe, and energy-efficient mechanical solutions.

BEST was formed to give our customers a resource for solution-centric inquiries. An integrated team with engineering expertise from all product disciplines. We understand that you need to meet traditional building requirements, and we appreciate the priorities of energy efficiency and green construction practices; our team has deep experience developing and implementing energy efficient systems.

Services

- Design review & optimization
- Equipment selection support
- System integration
- Customized training
- System commissioning & start-up

Bosch Thermotechnology Corp.

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