Overview

ZWB28-3: Greenstar Combi 100 P
ZWB42-3: Greenstar Combi 151 P

Product Details

- Gas-fired, sealed combustion, modulating combination boilers that condense in both space heating and DHW production
- Certified by AHRI, ASME, CSA
- Low NOx emissions ahead of 2012 SCAQMD regulations
- AFUE Ratings of 95%
- High strength stainless steel flat plate heat exchanger for endless domestic hot water (DHW)
- Hydronic bracket for securing bottom of boiler to wall, union connections and M NPT threads
- Coated heat exchanger allows service intervals to be extended to 5 years for cleaning
- Venting solutions include: concentric, one or two pipe venting
  - Approved materials are CPVC, PVC (3" only), rigid PP, flexible PP and stainless steel
- 3" PVC venting can be up to 100’ with up to 8 elbows
- 2" CPVC lengths can be up to 81’
- Control
  - Heatronic III with high limit dials for space heating and DHW for simplicity and ease of operation
  - Digital display for fluid temperature leaving the heat exchanger, service function codes, and operation icons
  - Outdoor Reset when installed with the FW200 or the Bosch Smart Control, sold as an optional accessory
- Limited lifetime warranty on heat exchanger, 5 year parts, 1 year labor

Engineering specification

The boiler shall be a Bosch Greenstar 100 P or 151 P wall hung combination boiler for space heating and domestic hot water (DHW) production via a stainless steel flat plate heat exchanger 3 way valve.

The boiler shall be certified to meet the AHRI, ASME standards and shall be certified by CSA. The boiler shall come equipped for Natural Gas fuel source. A Liquid Propane (LP) conversion kit shall be available as an optional accessory.

The boiler shall be Energy Star rated with an AFUE rating of 95% and qualified for Federal Tax Credit. It shall meet the 2012 SCAQMD regulations for Low NOx emissions.

The boiler shall be equipped with a high-strength stainless steel flat plate exchanger and burner with double passage - ensuring consistent temperature output based on demand. The domestic hot water temperature shall be limited to 140°F to help prevent scale build-up within the heat exchanger.

Overall dimensions shall be 33-15/32" x 17-21/64" x 13-57/64" (height x with x depth).
## Technical Data Greenstar 100 P (ZWB28-3) Combi Boiler

<table>
<thead>
<tr>
<th>Output at elevation 0 - 2000 feet (0 - 610 m)</th>
<th>Unit</th>
<th>NG</th>
<th>LPG (propane)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Max. input rate 180/79 °F (82/26 °C)</td>
<td>BTU/hr (kW)</td>
<td>100,000 (29.3)</td>
<td>98,600 (28.9)</td>
</tr>
<tr>
<td>Max. output rate 104/86 °F (40/30 °C)</td>
<td>BTU/hr (kW)</td>
<td>93,800 (27.5)</td>
<td>93,800 (27.5)</td>
</tr>
<tr>
<td>Max. output rate 122/86 °F (50/30 °C)</td>
<td>BTU/hr (kW)</td>
<td>93,100 (27.3)</td>
<td>93,100 (27.3)</td>
</tr>
<tr>
<td>Max. output rate 176/140 °F (80/60 °C)</td>
<td>BTU/hr (kW)</td>
<td>89,400 (26.2)</td>
<td>89,400 (26.2)</td>
</tr>
<tr>
<td>Output rate domestic hot water (DHW), 113 °F (45 °C)</td>
<td>BTU/hr (kW)</td>
<td>93,600 (27.4)</td>
<td>93,600 (27.4)</td>
</tr>
<tr>
<td>Output rate domestic hot water (DHW), 140 °F (60 °C)</td>
<td>BTU/hr (kW)</td>
<td>91,400 (26.6)</td>
<td>91,400 (26.6)</td>
</tr>
<tr>
<td>Min. input rate 180/79 °F (82/26 °C)</td>
<td>BTU/hr (kW)</td>
<td>24,600 (7.2)</td>
<td>40,100 (11.7)</td>
</tr>
<tr>
<td>Min. output rate 104/86 °F (40/30 °C)</td>
<td>BTU/hr (kW)</td>
<td>23,900 (7.0)</td>
<td>39,900 (11.7)</td>
</tr>
<tr>
<td>Min. output rate 122/86 °F (50/30 °C)</td>
<td>BTU/hr (kW)</td>
<td>23,900 (7.0)</td>
<td>39,600 (11.6)</td>
</tr>
<tr>
<td>Min. output rate 176/140 °F (80/60 °C)</td>
<td>BTU/hr (kW)</td>
<td>21,800 (6.4)</td>
<td>36,200 (10.6)</td>
</tr>
</tbody>
</table>

### Gas supply requirements

- Natural Gas – Hs = 1,010 BTU/ft³ (37.3MJ/m³) ft³/hr (m³/h) | 99 (2.8) | – |
- Liquid Propane Gas – HD-S = 2,500 BTU/ft³ (93.1MJ/m³) ft³/hr (m³/h) | – | 39 (1.1) |
- NG in. W.C. (mbar) | 3.5 - 10.5" (8.7 - 26.1) |
- LPG (propane) in. W.C. (mbar) | – | 8 - 13" (19.9 - 32.3) |

### DHW

- Max. DHW flow rate @ 72° rise: gpm (l/min) | 2.64 (10) |
- Nominal DHW quantity (at 140 °F (60 °C) outlet temperature): gpm (l/min) | 2.03 (7.7) |
- Outlet temperature °F (°C) | 104 - 140 (40 - 60) |
- Max. cold water inlet temperature °F (°C) | 140 (60) |
- Max. approved DHW pressure psi (bar) | 150 (10.3) |
- Minimum water pressure psi (bar) | 4.35 (0.3) |

### Flue Gas

- Flue gas mass flow at maximum/minimum nominal output gpm | 12.0/3.2 |
- Flue gas temperature 176/140 °F (80/60 °C) at maximum/minimum nominal heat input °F (°C) | 147/133 (64/56) |
- Flue gas temperature 104/86 °F (40/30 °C) at maximum/minimum nominal heat input °F (°C) | 117/90 (47/32) |
- CO₂ at max. nominal output % | 9.4 |
- CO₂ at minimum nominal output % | 8.6 |

### General

- Condensate Max. condensate quantity IT₉ = 86 °F (30 °C) gph (l/h) | 0.6 (2.3) |
- pH level, approx. % | 4.8 |
- Voltage VAC | 120 |
- Frequency Hz | 60 |
- Max. power consumption (central heating mode) W | 205 |
- Max. power consumption (Stand-by) W | < 6 |
- Noise level dB(A) | ≤ 39 |
- Maximum supply temperature °F (°C) | 187 (86) |
- Max. permissible operating pressure (Pₘₚₜₜ) heating psi (bar) | 30 (2.07) |
- Permissible ambient temperature °F (°C) | 32 - 122 (0 - 50) |
- Nominal water capacity (heating) Gal (L) | 0.925 (3.5) |
- Weight (without packaging) lbs. (kg) | 110.2 (50) |
- Dimensions, W x H x D inch(mm) | 17-21/64" × 33-15/32" × 13-57/64" (440 × 850 × 353) |
### Technical Data Greenstar 151 P (ZWB42-3) Combi Boiler

<table>
<thead>
<tr>
<th>Output at elevation 0 - 2000 feet (0 - 610 m)</th>
<th>Unit</th>
<th>NG</th>
<th>LPG (propane)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Max. input rate 180/79 °F (82/26 °C)</td>
<td>BTU/hr (kW)</td>
<td>151,600 (44.4)</td>
<td>148,300 (43.5)</td>
</tr>
<tr>
<td>Max. output rate 104/86 °F (40/30 °C)</td>
<td>BTU/hr (kW)</td>
<td>137,500 (40.3)</td>
<td>137,500 (40.3)</td>
</tr>
<tr>
<td>Max. output rate 122/86 °F (50/30 °C)</td>
<td>BTU/hr (kW)</td>
<td>137,500 (40.3)</td>
<td>137,500 (40.3)</td>
</tr>
<tr>
<td>Max. output rate 176/140 °F (80/60 °C)</td>
<td>BTU/hr (kW)</td>
<td>134,400 (39.4)</td>
<td>134,400 (39.4)</td>
</tr>
<tr>
<td>Output rate domestic hot water (DHW), 113 °F (45 °C)</td>
<td>BTU/hr (kW)</td>
<td>137,500 (40.3)</td>
<td>137,500 (40.3)</td>
</tr>
<tr>
<td>Output rate domestic hot water (DHW), 140 °F (60 °C)</td>
<td>BTU/hr (kW)</td>
<td>135,800 (39.8)</td>
<td>135,800 (39.8)</td>
</tr>
<tr>
<td>Min. input rate 180/79 °F (82/26 °C)</td>
<td>BTU/hr (kW)</td>
<td>36,000 (10.5)</td>
<td>46,400 (13.6)</td>
</tr>
<tr>
<td>Min. output rate 104/86 °F (40/30 °C)</td>
<td>BTU/hr (kW)</td>
<td>35,500 (10.4)</td>
<td>46,400 (13.6)</td>
</tr>
<tr>
<td>Min. output rate 122/86 °F (50/30 °C)</td>
<td>BTU/hr (kW)</td>
<td>35,100 (10.3)</td>
<td>46,100 (13.5)</td>
</tr>
<tr>
<td>Min. output rate 176/140 °F (80/60 °C)</td>
<td>BTU/hr (kW)</td>
<td>31,700 (9.3)</td>
<td>42,000 (12.3)</td>
</tr>
</tbody>
</table>

### Gas supply requirements

- **Natural Gas** – Hs = 1,010 BTU/ft³ (37.3MJ/m³) ft³/hr (m³/h) 149 (4.2) –
- **Liquid Propane Gas** – HD-S = 2,500 BTU/ft³ (93.1MJ/m³) ft³/hr (m³/h) – 59 (1.7)
- **NG in. W.C. (mbar)** 3.5 - 10.5” (8.7 - 26.1) –
- **LPG (propane) in. W.C. (mbar)** – 8 - 13” (19.9 - 32.3)

### DHW

- **Max. DHW flow rate @ 72° rise**
- **Nominal DHW quantity (at 140 °F (60 °C) outlet temperature)**
- **Outlet temperature °F (°C)** 104 - 140 (40 - 60)
- **Max. cold water inlet temperature °F (°C)** 140 (60)
- **Max. approved DHW pressure psi (bar)** 150 (10.3)
- **Minimum water pressure psi (bar)** 4.35 (0.3)

### Flue Gas

- **Flue gas mass flow at maximum/minimum nominal output**
- **Flue gas temperature 176/140 °F (80/60 °C) at maximum/minimum nominal heat input °F (°C)** 171/135 (77/57)
- **Flue gas temperature 104/86 °F (40/30 °C) at maximum/minimum nominal heat input °F (°C)** 133/91 (56/33)
- **CO₂ at max. nominal output %** 9.4
- **CO₂ at minimum nominal output %** 8.6

### General

- **Condensate Max. condensate quantity (tR = 86 °F (30 °C))** gph (l/h) 0.9 (3.5)
- **pH level, approx. %** 4.8
- **Voltage VAC** 120
- **Frequency Hz** 60
- **Max. power consumption (central heating mode) W** 205
- **Max. power consumption (Stand-by) W** < 6
- **Noise level dB(A)** ≤ 45
- **Maximum supply temperature °F (°C)** 190 (88)
- **Max. permissible operating pressure (Pmax) heating psi (bar)** 30 (2.07)
- **Permissible ambient temperature °F (°C)** 32 - 122 (0 - 50)
- **Nominal water capacity (heating) Gal (L)** 0.925 (3.5)
- **Weight (without packaging) lbs. (kg)** 110.2 (50)
- **Dimensions, W x H x D inch(mm)** 17-21/64” × 33-15/32” × 13-57/64” (440 × 850 × 353)
Greenstar (ZWB) 100 P & 151 P Combi Boiler Dimensions and Minimum

1. Appliance jacket
2. Service cover
3. Hydraulics connection plate

(*) Zero clearance from combustibles permitted, but 4" (102 mm) recommended for serviceability
(**) Distance to door, if mounted inside a closet