

# Bosch Greenstar 100 P & 151 P Wall Hung Combi Boiler

Engineering  
Submittal  
Sheet



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## Overview



**ZWB28-3: Greenstar Combi 100 P**

**ZWB42-3: Greenstar Combi 151 P**



MA Plumbing Board approved

## 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 CRC200, 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).

# Bosch Greenstar 100P & 151P Wall Hung Combi Boiler



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Technical Data Greenstar 100 P (ZWB28-3) Combi Boiler			
Output at elevation 0 - 2000 feet (0 - 610 m)	Unit	NG	LPG (propane)
Max. input rate 180/79 °F (82/26 °C)	BTU/hr (kW)	100,000 (29.3)	98,600 (28.9)
Max. output rate 104/86 °F (40/30 °C)	BTU/hr (kW)	93,800 (27.5)	93,800 (27.5)
Max. output rate 122/86 °F (50/30 °C)	BTU/hr (kW)	93,100 (27.3)	93,100 (27.3)
Max. output rate 176/140 °F (80/60 °C)	BTU/hr (kW)	89,400 (26.2)	89,400 (26.2)
Output rate domestic hot water (DHW), 113 °F (45 °C)	BTU/hr (kW)	93,600 (27.4)	93,600 (27.4)
Output rate domestic hot water (DHW), 140 °F (60 °C)	BTU/hr (kW)	91,400 (26.8)	91,400 (26.8)
Min. input rate 180/79 °F (82/26 °C)	BTU/hr (kW)	24,600 (7.2)	40,100 (11.7)
Min. output rate 104/86 °F (40/30 °C)	BTU/hr (kW)	23,900 (7.0)	39,900 (11.7)
Min. output rate 122/86 °F (50/30 °C)	BTU/hr (kW)	23,900 (7.0)	39,600 (11.6)
Min. output rate 176/140 °F (80/60 °C)	BTU/hr (kW)	21,800 (6.4)	36,200 (10.6)
Gas supply requirements			
Natural Gas – Hs = 1,010 BTU/ft <sup>3</sup> (37.3MJ/m <sup>3</sup> )	ft <sup>3</sup> /hr (m <sup>3</sup> /h)	99 (2.8)	–
Liquid Propane Gas – HD-S = 2,500 BTU/ft <sup>3</sup> (93.1MJ/m <sup>3</sup> )	ft <sup>3</sup> /hr (m <sup>3</sup> /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	gps	12.0/3.2	11.7/4.9
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)	
CO <sub>2</sub> at max. nominal output	%	9.4	11.0
CO <sub>2</sub> at minimum nominal output	%	8.6	10.4
General			
Condensate Max. condensate quantity (t <sub>R</sub> = 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 (P <sub>MS</sub> ) 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)	

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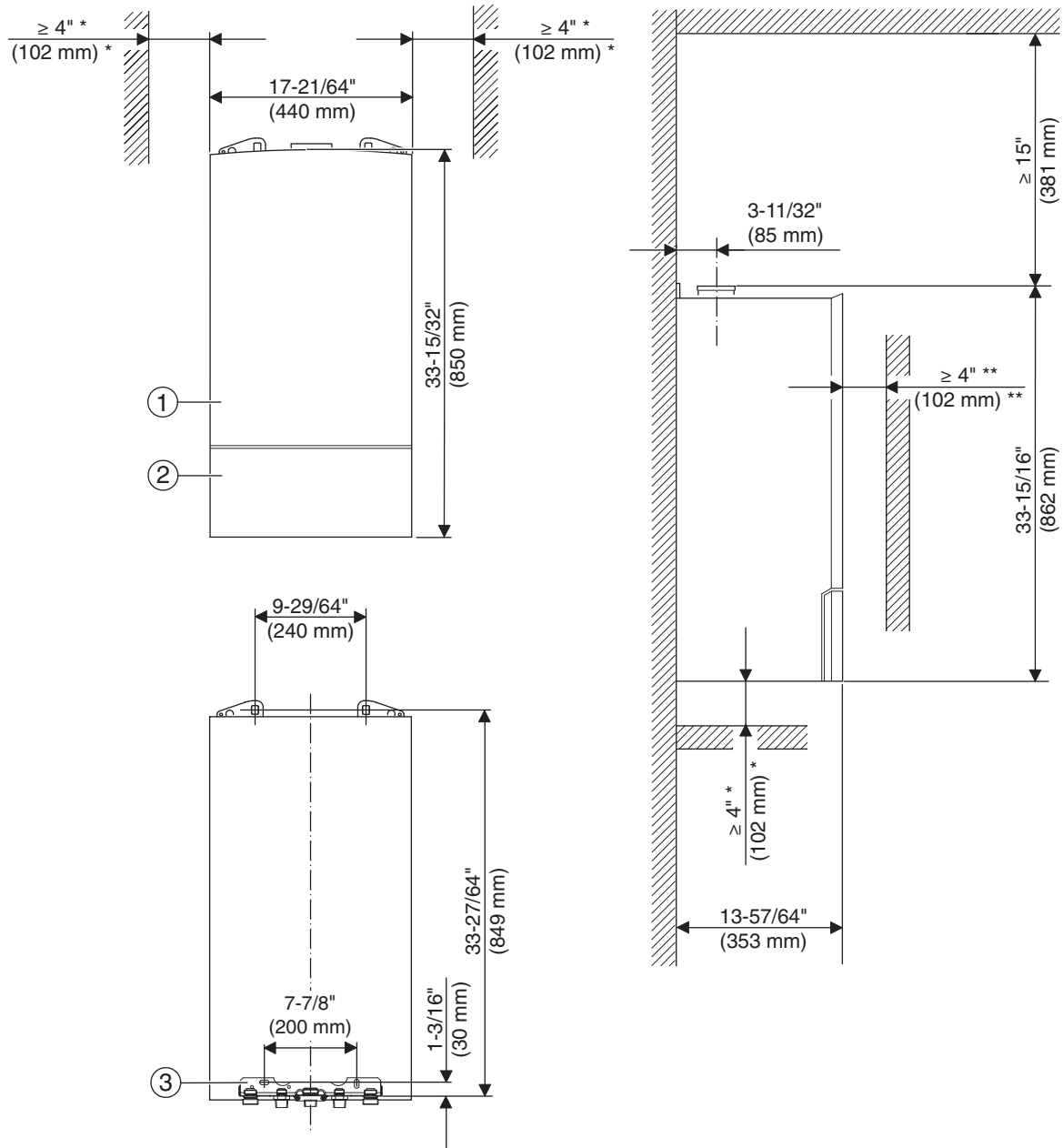
Technical Data Greenstar 151 P (ZWB42-3) Combi Boiler			
Output at elevation 0 - 2000 feet (0 - 610 m)	Unit	NG	LPG (propane)
Max. input rate 180/79 °F (82/26 °C)	BTU/hr (kW)	151,600 (44.4)	148,300 (43.5)
Max. output rate 104/86 °F (40/30 °C)	BTU/hr (kW)	137,500 (40.3)	137,500 (40.3)
Max. output rate 122/86 °F (50/30 °C)	BTU/hr (kW)	137,500 (40.3)	137,500 (40.3)
Max. output rate 176/140 °F (80/60 °C)	BTU/hr (kW)	134,400 (39.4)	134,400 (39.4)
Output rate domestic hot water (DHW), 113 °F (45 °C)	BTU/hr (kW)	137,500 (40.3)	137,500 (40.3)
Output rate domestic hot water (DHW), 140 °F (60 °C)	BTU/hr (kW)	135,800 (39.8)	135,800 (39.8)
Min. input rate 180/79 °F (82/26 °C)	BTU/hr (kW)	36,000 (10.5)	46,400 (13.6)
Min. output rate 104/86 °F (40/30 °C)	BTU/hr (kW)	35,500 (10.4)	46,400 (13.6)
Min. output rate 122/86 °F (50/30 °C)	BTU/hr (kW)	35,100 (10.3)	46,100 (13.5)
Min. output rate 176/140 °F (80/60 °C)	BTU/hr (kW)	31,700 (9.3)	42,000 (12.3)
Gas supply requirements			
Natural Gas – Hs = 1,010 BTU/ft <sup>3</sup> (37.3MJ/m <sup>3</sup> )	ft <sup>3</sup> /hr (m <sup>3</sup> /h)	149 (4.2)	–
Liquid Propane Gas – HD-S = 2,500 BTU/ft <sup>3</sup> (93.1MJ/m <sup>3</sup> )	ft <sup>3</sup> /hr (m <sup>3</sup> /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	gpm (l/min)	3.96 (15)	
Nominal DHW quantity (at 140 °F (60 °C) outlet temperature)	gpm (l/min)	3.61 (11.4)	
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	gps	18.0/4.5	17.5/5.6
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)	
CO <sub>2</sub> at max. nominal output	%	9.4	11.0
CO <sub>2</sub> at minimum nominal output	%	8.6	10.4
General			
Condensate Max. condensate quantity (t <sub>R</sub> = 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 (P <sub>MS</sub> ) 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)	

# Bosch Greenstar 100P & 151P Wall Hung Combi Boiler



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## Greenstar (ZWB) 100 P & 151 P Combi Boiler Dimensions and Minimum Clearances



- 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