

# Bosch Greenstar 57, 100, 131, 151 Heating Boiler

Engineering  
Submittal  
Sheet



# BOSCH

## Overview

Gas-fired Condensing Boilers in 4 output sizes for space heating and DHW tank loading.

### Product Details:

- ▶ FW200 Outdoor Reset Control standard
- ▶ DHW priority (DHW sensor included)
- ▶ Modulating premix burner
- ▶ Direct-vent sealed combustion
- ▶ 30 psi relief valve
- ▶ Low NOx emissions ahead of 2012 SCAQMD regulations
- ▶ Hydronics manifold bracket with NPT connections
- ▶ High altitude flexibility - 7,000' no de-rate on Greenstar models 57 - 131
- ▶ Vent length up to 100' each way with 3" PVC pipe, up to 8 elbows
- ▶ Venting combined length up to 81' with 2" PVC (except Bosch Greenstar 151 models)
- ▶ Heatronic
  - System and zoning control for pumps and valves
  - Solar thermal integration for DHW generation and space heating support
- ▶ Provisions for low water cut-off in boiler
- ▶ High temperature manual reset
- ▶ Single zone piping with up to 70' (21 m) of 3/4" baseboard directly off the boiler. Longer lengths and radiant applications in primary/secondary piping.

## Engineering specification

- ▶ The boiler shall be a Bosch Greenstar 57 condensing boiler for space heating and DHW tank loading, with an AFUE of 96.1% and a DOE heating capacity of 50.8 MBH. Its high altitude capability shall be up to 7,000' with no de-rating.
- ▶ The boiler shall be a Bosch Greenstar 100 condensing boiler for space heating and DHW tank loading, with an AFUE of 96.0% and a DOE heating capacity of 89.4 MBH. Its high altitude capability shall be up to 7,000' with no de-rating.
- ▶ The boiler shall be a Bosch Greenstar 131 condensing boiler for space heating and DHW tank loading, with an AFUE of 96.0% and a DOE heating capacity of 116.7 MBH. Its high altitude capability shall be up to 7,000' with no de-rating.
- ▶ The boiler shall be a Bosch Greenstar 151 condensing boiler for space heating and DHW tank loading, with an AFUE of 94.3% and a DOE heating capacity of 134.4 MBH.

It shall be certified by CSA International and run on Natural Gas or LPG. The boiler shall be Energy Star rated and qualified for Federal Tax Credit. It shall meet the 2012 SCAQMD regulations for Low NOx emissions.

The boiler shall have the FW200 outdoor reset control standard with DHW priority. It shall include provisions for the connection of a low water cut off inside the appliance. Overall dimensions shall be 33-15/32" x 17-21/64" x 13-57/64" (height x with x depth).

Venting options shall be 2", and up to 100' each way with 3" PVC pipe including up to 8 elbows.

Direct zone piping shall be possible with up to 70' (21 m) of 3/4" of baseboard directly off the boiler. Longer loops and radiant applications shall use primary/secondary piping.

The boiler shall include a limited 5-year parts & labor warranty.

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Technical data Greenstar 57 Heating Boiler			
Output	Unit	NG	LPG (propane)
Maximum nominal output (Pmax) 104/86 °F (40/30 °C)	BTU/hr (kW)	54,900 (16.1)	55,300 (16.2)
Maximum nominal output (Pmax) 122/86 °F (50/30 °C)	BTU/hr (kW)	54,300 (15.9)	54,600 (16.0)
Maximum nominal output (Pmax) 176/140 °F (80/60 °C)	BTU/hr (kW)	50,800 (14.9)	51,200 (15.0)
Max. nominal thermal load (Qmax) heating (Hi) 180/79 °F (82/26 °C)	BTU/hr (kW)	51,500 (15.1)	51,900 (15.2)
Max. nominal thermal load (Qmax) heating (Hs) 180/79 °F (82/26 °C)	BTU/hr (kW)	57,200 (16.8)	56,400 (16.5)
Min. nominal output (Pmin) 104/86 °F (40/30 °C)	BTU/hr (kW)	12,600 (3.7)	21,500 (6.3)
Min. nominal output (Pmin) 122/86 °F (50/30 °C)	BTU/hr (kW)	12,600 (3.7)	21,500 (6.3)
Min. nominal output (Pmin) 176/140 °F (80/60 °C)	BTU/hr (kW)	11,300 (3.3)	19,400 (5.7)
Min. nominal thermal load (Qmin) heating (Hi) 180/79 °F (82/26 °C)	BTU/hr (kW)	11,600 (3.4)	19,800 (5.8)
Min. nominal thermal load (Qmin) heating (Hs) 180/79 °F (82/26 °C)	BTU/hr (kW)	12,900 (3.8)	21,500 (6.3)

Technical data Greenstar 57 Heating Boiler			
Gas supply requirements	Unit	NG	LPG (propane)
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)	56 (1.6)	–
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)	–	22 (0.6)
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)

Technical data Greenstar 57 Heating Boiler			
Condensate	Unit	NG	LPG (propane)
Max. condensate quantity (t <sub>R</sub> = 86 °F (30 °C))	gph (l/h)	0.32 (1.2)	0.32 (1.2)
pH level, approx.		4.8	4.8

Technical data Greenstar 57 Heating Boiler			
General	Unit	NG	LPG (propane)
Voltage	VAC	120	120
Frequency	Hz	60	60
Max. power consumption (central heating mode)	W	205	205
Max. power consumption (Stand-by)	W	< 6	< 6
Noise level	dB(A)	≤ 33	≤ 33
Maximum supply temperature	°F ( °C)	194 (90)	194 (90)
Max. permissible operating pressure (P <sub>MS</sub> ) heating	psi (bar)	30 (2.07)	30 (2.07)
Permissible ambient temperature	°F ( °C)	32 - 122 (0 - 50)	32 - 122 (0 - 50)
Nominal water capacity (heating)	Gal (L)	0.925 (3.5)	0.925 (3.5)
Weight (without packaging)	lbs. (kg)	103.6 (47)	103.6 (47)
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 100 Heating Boiler			
Output	Unit	NG	LPG (propane)
Maximum nominal output (Pmax) 104/86 °F (40/30 °C)	BTU/hr (kW)	93,800 (27.5)	93,800 (27.5)
Maximum nominal output (Pmax) 122/86 °F (50/30 °C)	BTU/hr (kW)	93,100 (27.3)	93,100 (27.3)
Maximum nominal output (Pmax) 176/140 °F (80/60 °C)	BTU/hr (kW)	89,400 (26.2)	89,400 (26.2)
Max. nominal thermal load (Qmax) heating (Hi) 180/79 °F (82/26 °C)	BTU/hr (kW)	90,800 (26.6)	90,800 (26.6)
Max. nominal thermal load (Qmax) heating (Hs) 180/79 °F (82/26 °C)	BTU/hr (kW)	100,800 (29.5)	98,600 (28.9)
Min. nominal output (Pmin) 104/86 °F (40/30 °C)	BTU/hr (kW)	23,900 (7.0)	39,900 (11.7)
Min. nominal output (Pmin) 122/86 °F (50/30 °C)	BTU/hr (kW)	23,900 (7.0)	39,900 (11.7)
Min. nominal output (Pmin) 176/140 °F (80/60 °C)	BTU/hr (kW)	21,800 (6.4)	36,200 (10.6)
Min. nominal thermal load (Qmin) heating (Hi) 180/79 °F (82/26 °C)	BTU/hr (kW)	22,200 (6.5)	36,800 (10.8)
Min. nominal thermal load (Qmin) heating (Hs) 180/79 °F (82/26 °C)	BTU/hr (kW)	24,600 (7.2)	40,100 (11.7)

Technical data Greenstar 100 Heating Boiler			
Gas supply requirements	Unit	NG	LPG (propane)
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)

Technical data Greenstar 100 Heating Boiler			
Condensate	Unit	NG	LPG (propane)
Max. condensate quantity (t <sub>R</sub> = 86 °F (30 °C))	gph (l/h)	0.6 (2.3)	0.6 (2.3)
pH level, approx.		4.8	4.8

Technical data Greenstar 100 Heating Boiler			
General	Unit	NG	LPG (propane)
Voltage	VAC	120	120
Frequency	Hz	60	60
Max. power consumption (central heating mode)	W	205	205
Max. power consumption (Stand-by)	W	< 6	< 6
Noise level	dB(A)	≤ 39	≤ 39
Maximum supply temperature	°F ( °C)	194 (90)	194 (90)
Max. permissible operating pressure (P <sub>MS</sub> ) heating	psi (bar)	30 (2.07)	30 (2.07)
Permissible ambient temperature	°F ( °C)	32 - 122 (0 - 50)	32 - 122 (0 - 50)
Nominal water capacity (heating)	Gal (L)	0.925 (3.5)	0.925 (3.5)
Weight (without packaging)	lbs. (kg)	103.6 (47)	103.6 (47)
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 131 Heating Boiler			
Output	Unit	NG	LPG (propane)
Maximum nominal output (Pmax) 104/86 °F (40/30 °C)	BTU/hr (kW)	122,800 (36.0)	122,800 (36.0)
Maximum nominal output (Pmax) 122/86 °F (50/30 °C)	BTU/hr (kW)	121,800 (35.7)	121,800 (35.7)
Maximum nominal output (Pmax) 176/140 °F (80/60 °C)	BTU/hr (kW)	116,700 (34.2)	116,700 (34.2)
Max. nominal thermal load (Qmax) heating (Hi) 180/79 °F (82/26 °C)	BTU/hr (kW)	118,700 (34.8)	118,700 (34.8)
Max. nominal thermal load (Qmax) heating (Hs) 180/79 °F (82/26 °C)	BTU/hr (kW)	131,900 (38.6)	129,100 (37.8)
Min. nominal output (Pmin) 104/86 °F (40/30 °C)	BTU/hr (kW)	35,100 (10.3)	46,100 (13.5)
Min. nominal output (Pmin) 122/86 °F (50/30 °C)	BTU/hr (kW)	34,800 (10.2)	45,700 (13.4)
Min. nominal output (Pmin) 176/140 °F (80/60 °C)	BTU/hr (kW)	31,700 (9.3)	42,000 (12.3)
Min. nominal thermal load (Qmin) heating (Hi) 180/79 °F (82/26 °C)	BTU/hr (kW)	32,400 (9.5)	42,700 (12.5)
Min. nominal thermal load (Qmin) heating (Hs) 180/79 °F (82/26 °C)	BTU/hr (kW)	36,000 (10.5)	46,400 (13.6)

Technical data Greenstar 131 Heating Boiler			
Gas supply requirements	Unit	NG	LPG (propane)
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)	130 (3.7)	–
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)	–	52 (1.5)
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)

Technical data Greenstar 131 Heating Boiler			
Condensate	Unit	NG	LPG (propane)
Max. condensate quantity (t <sub>R</sub> = 86 °F (30 °C))	gph (l/h)	0.8 (3.1)	0.8 (3.1)
pH level, approx.		4.8	4.8

Technical data Greenstar 131 Heating Boiler			
General	Unit	NG	LPG (propane)
Voltage	VAC	120	120
Frequency	Hz	60	60
Max. power consumption (central heating mode)	W	205	205
Max. power consumption (Stand-by)	W	< 6	< 6
Noise level	dB(A)	≤ 44	≤ 44
Maximum supply temperature	°F ( °C)	194 (90)	194 (90)
Max. permissible operating pressure (P <sub>MS</sub> ) heating	psi (bar)	30 (2.07)	30 (2.07)
Permissible ambient temperature	°F ( °C)	32 - 122 (0 - 50)	32 - 122 (0 - 50)
Nominal water capacity (heating)	Gal (L)	0.925 (3.5)	0.925 (3.5)
Weight (without packaging)	lbs. (kg)	103.6 (47)	103.6 (47)
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 Heating Boiler			
Output at elevation 0 - 2000 feet (0 - 610 m)	Unit	NG	LPG (propane)
Maximum nominal output (Pmax) 104/86 °F (40/30 °C)	BTU/hr (kW)	137,500 (40.3)	137,500 (40.3)
Maximum nominal output (Pmax) 122/86 °F (50/30 °C)	BTU/hr (kW)	137,500 (40.3)	137,500 (40.3)
Maximum nominal output (Pmax) 176/140 °F (80/60 °C)	BTU/hr (kW)	134,400 (39.4)	134,400 (39.4)
Max. nominal thermal load (Qmax) heating (Hi) 180/79 °F (82/26 °C)	BTU/hr (kW)	136,500 (40.0)	136,500 (40.0)
Max. nominal thermal load (Qmax) heating (Hs) 180/79 °F (82/26 °C)	BTU/hr (kW)	151,600 (44.4)	148,300 (43.5)
Min. nominal output (Pmin) 104/86 °F (40/30 °C)	BTU/hr (kW)	35,500 (10.4)	46,400 (13.6)
Min. nominal output (Pmin) 122/86 °F (50/30 °C)	BTU/hr (kW)	35,100 (10.3)	46,100 (13.5)
Min. nominal output (Pmin) 176/140 °F (80/60 °C)	BTU/hr (kW)	31,700 (9.3)	42,000 (12.3)
Min. nominal thermal load (Qmin) heating (Hi) 180/79 °F (82/26 °C)	BTU/hr (kW)	32,400 (9.5)	42,700 (12.5)
Min. nominal thermal load (Qmin) heating (Hs) 180/79 °F (82/26 °C)	BTU/hr (kW)	36,000 (10.5)	46,400 (13.6)

Technical data Greenstar 151 Heating Boiler			
Output at elevation 2000 - 4500 feet (611 - 1372 m) above sea level	Unit	NG	LPG (propane)
Maximum nominal output (Pmax) 104/86 °F (40/30 °C)	BTU/hr (kW)	123,750 (36.3)	129,250 (37.9)
Maximum nominal output (Pmax) 122/86 °F (50/30 °C)	BTU/hr (kW)	123,750 (36.3)	129,250 (37.9)
Maximum nominal output (Pmax) 176/140 °F (80/60 °C)	BTU/hr (kW)	120,960 (35.5)	126,336 (37.0)

Technical data Greenstar 151 Heating Boiler			
Output at elevation 4500 - 7000 feet (1373 - 2134 m) above sea level	Unit	NG	LPG (propane)
Maximum nominal output (Pmax) 104/86 °F (40/30 °C)	BTU/hr (kW)	114,125 (33.5)	119,625 (35.1)
Maximum nominal output (Pmax) 122/86 °F (50/30 °C)	BTU/hr (kW)	114,125 (33.5)	119,625 (35.1)
Maximum nominal output (Pmax) 176/140 °F (80/60 °C)	BTU/hr (kW)	111,552 (32.7)	116,928 (34.3)

Technical data Greenstar 151 Heating Boiler			
Gas supply requirements	Unit	NG	LPG (propane)
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)

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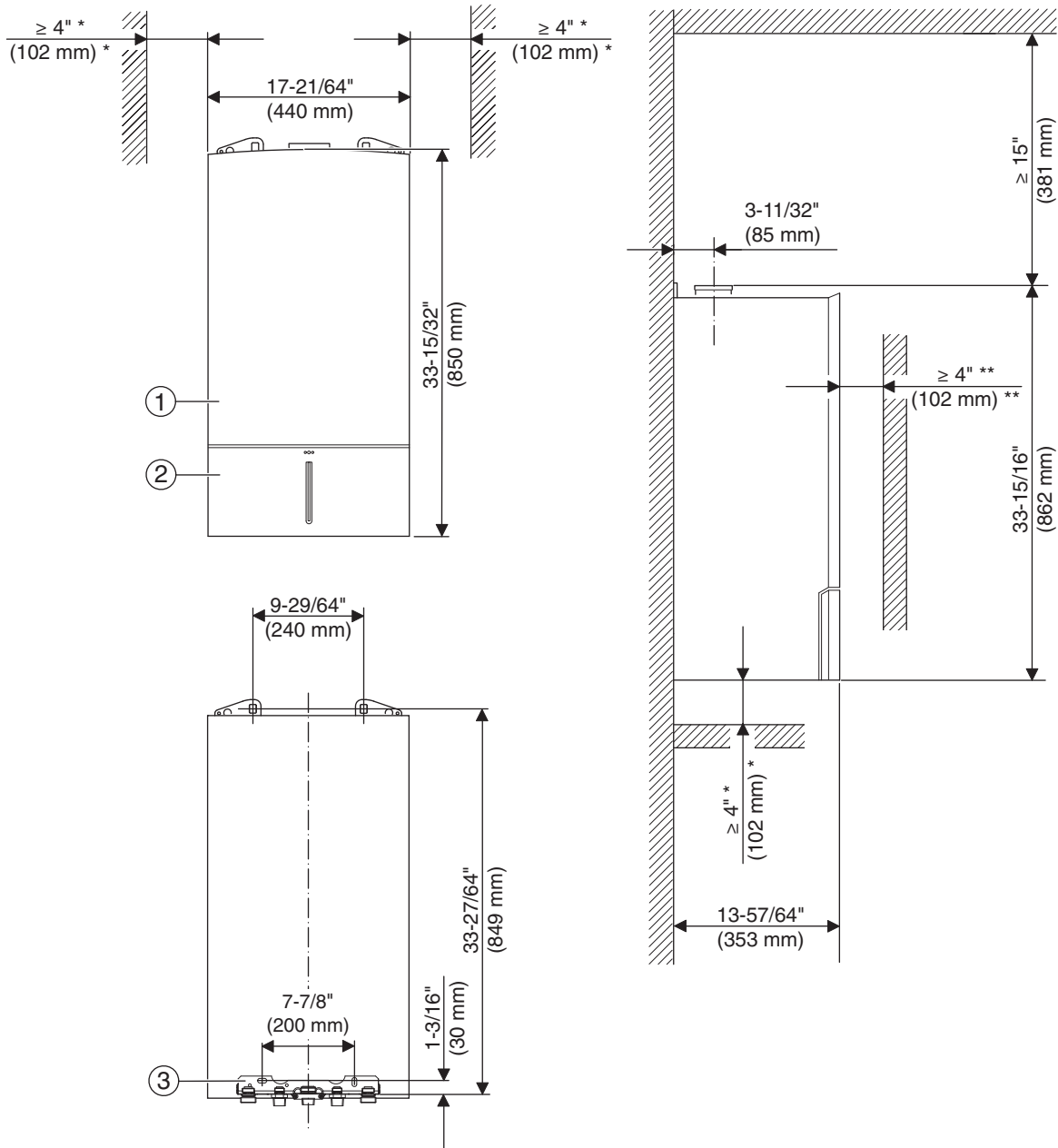


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Technical data Greenstar 151 Heating Boiler			
Condensate	Unit	NG	LPG (propane)
Max. condensate quantity ( $t_R = 86\text{ °F}$ (30 °C))	gph (l/h)	0.9 (3.5)	0.9 (3.5)
pH level, approx.		4.8	4.8

Technical data Greenstar 151 Heating Boiler			
General	Unit	NG	LPG (propane)
Voltage	VAC	120	120
Frequency	Hz	60	60
Max. power consumption (central heating mode)	W	205	205
Max. power consumption (Stand-by)	W	< 6	< 6
Noise level	dB(A)	≤ 45	≤ 45
Maximum supply temperature	°F ( °C)	194 (90)	194 (90)
Max. permissible operating pressure ( $P_{MS}$ ) heating	psi (bar)	30 (2.07)	30 (2.07)
Permissible ambient temperature	°F ( °C)	32 - 122 (0 - 50)	32 - 122 (0 - 50)
Nominal water capacity (heating)	Gal (L)	0.925 (3.5)	0.925 (3.5)
Weight (without packaging)	lbs. (kg)	103.6 (47)	103.6 (47)
Dimensions, W x H x D	inch (mm)	17-21/64" × 33-15/32" × 13-57/64" (440 × 850 × 353)	

Greenstar Heating Boiler Product 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