

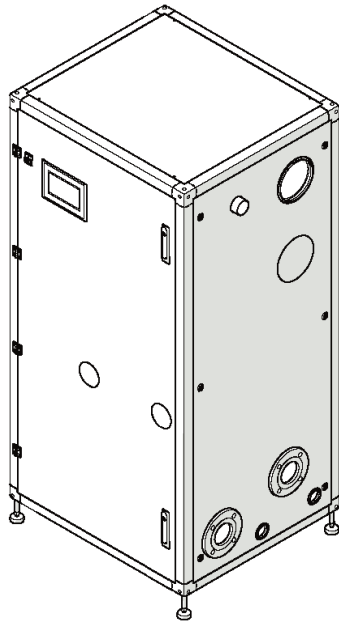
Bosch Buderus SSB1000TL/TL2/TL3/TL4 - Gen 2 Stainless Steel Condensing Boiler

Engineering
Submittal
Sheet



BOSCH

Boiler Components



Engineering Specifications

There shall be provided and installed Bosch Buderus ____ Model SSB1000TL in quantities of ____ Bosch Buderus Stainless Steel Boilers referred to as SSB are condensing hot water boilers, suitable for direct venting. The SSB is factory set for operation using Natural Gas but shall be field convertible to LP Gas using the supplied conversion kit.

The SSB SA series Boiler(s) shall utilize two individual plasma welded 441 dual tube stainless steel heat exchanger modules. Both Modules contain independent fan motor, gas valve, burner tube, circulator and all the necessary safety components to allow for true on-board redundancy. Each module is provided with isolation valves and drain to allow for independent service.

Boiler(s) shall be constructed, tested and labeled in accordance with ASME Section IV and shall bear the ASME stamp. Boilers shall be CSA approved for USA and Canada and have an applicable Canadian registration Number.

Heat exchanger modules shall be labeled for 80 psig (MAWP) maximum allowable working pressure rating. An integrated pressure sensor shall ensure minimum water pressures are maintained. In addition to the minimum water pressure sensor, each module shall encompass a low water cut-out (LWCO) and an individual flow-sensor on each module to identify low water or low flow conditions.

Boiler(s) shall be capable of up to 40:1 turndown ratio based upon supply and return water temperatures and/or outdoor reset control. Boiler(s) shall have a settable Power Mode parameter to allow for selection of desired module operation for either parallel or serial operation of up to 8 modules.

Boiler(s) shall be designed for large residential, commercial and light industrial applications.

Boiler(s) shall be equipped with a 75 lb. pressure relief valve per boiler module.

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Engineering Specifications

Boiler(s) shall be equipped with Manual Reset High Limits (MRHL), Low water cut-outs with test button, and Flow Sensors on each boiler module.

Boiler(s) shall be equipped with Low and High gas pressure switches with manual resets per ASME CSD-1 requirements.

Boiler(s) shall utilize multiple (twin-pipe) or single (concentric or single-pipe) terminations for both vertical and horizontal vent configurations as outlined in the boiler installation manual.

Boiler(s) shall be installed in a system that meets the water quality standards outlined in the boiler installation manual.

Boiler(s) shall function directly with hydronic emitters.

Boiler(s) may be controlled using an enable/disable command from "dry" closure contacts such as a relay or BMS system.

Boiler(s) shall be equipped with an optional outdoor air temperature sensor to control supply water temperature based upon outdoor air temperatures for increased fuel efficiency.

Boiler(s) shall contain an on-board, 7" color touch-screen which allows for multiple heating configurations including set point operation, outdoor reset using a demand signal, full outdoor

reset with constant circulation, permanent heat demand, analog 0-10 Vdc (4 – 20 mA) setpoint control.

The Boiler(s) control shall have multiple domestic hot water heating parameters designed for the most common application including boiler control of an indirect tank thru a manufacturer supplied 10k ohm NTC thermistor or a field supplied aquastat.

The Boiler(s) hydraulic manifold piping (water, gas and exhaust/air) shall be factory installed and self-contained within the Boiler(s) outer cabinet. All external Boiler(s) hydraulic connections shall be able to be connected in any configuration on either the left or right side of the Boiler(s) in order to allow for maximum installation flexibility and site requirements.

The Boiler(s) shall be capable of installation in combinations of 2, 3 or 4 TL modules with respective turn-down ratios of 20, 30 and 40 to 1. Multiple Boiler sections shall be engineered so that up to 4 Boilers may be interconnected using the manufacturers provided flanged connections. All manifold piping (water, gas and exhaust/air) between Boiler sections shall be engineered and sized by the manufacturer to accommodate the hydraulic requirements of up to a maximum of 4 Boilers.

Boiler(s) shall be equipped with a multi-speed circulator pump on each module.

General Data					
	Unit	SSB1000TL	SSB1000TL2	SSB1000TL3	SSB1000TL4
Boiler category	–	ASME Sect.IV	ASME Sect.IV	ASME Sect.IV	ASME Sect.IV
Type of Gas	–	Natural Gas, Propane	Natural Gas, Propane	Natural Gas, Propane	Natural Gas, Propane
Heat exchanger construction	–	441 Stainless Steel	441 Stainless Steel	441 Stainless Steel	441 Stainless Steel
Surface heat exchanger (total)	Sq. Ft (m2)	86 (8.0)	172 (16.0)	258 (24.0)	344 (32.0)
Gas Connections	Ø Inch	3" Flanged	3" Flanged	3" Flanged	3" Flanged
Water Connections	Ø Inch	5	5	5	5
Vent/Air Intake Connections	Ø Inch (Ø mm)	10 (254)	10 (254)	10 (254)	10 (254)
Vent Materials	–	PP, CPVC, Stainless Steel AL29-4C	PP, CPVC, Stainless Steel AL29-4C	PP, CPVC, Stainless Steel AL29-4C	PP, CPVC, Stainless Steel AL29-4C
Water Volume	Gallons (Liters)	20.0 (75)	40.0 (150)	60.0 (225)	80.0 (300)
Weight - dry	Lbs (kg)	849 (385)	1698 (770)	2547 (1155)	3396 (1540)
Shipping Weight	Lbs (kg)	941 (427)	1882 (854)	2823 (1281)	3764 (1708)
Min. clearance to combustibles **	Inch (mm)	2 (51)	2 (51)	2 (51)	2 (51)
Dimension LxWxH	Inch (mm)	31.5 x 35.4 x 70.9 (800x900x1800)	31.5 x 71.9 x 70.9 (800x1825x1800)	31.5 x 108.3 x 70.9 (800x2750x1800)	31.5 x 144.7 x 70.9 (800x3675x1800)

** The 2" minimum clearance is required for all sides of the boiler. The boiler may be installed on combustible (wood) floors excluding carpets.

Bosch Buderus SSB1000TL/TL2/TL3/TL4 - Gen 2 Stainless Steel Condensing Boiler



Performance Data					
	Unit	SSB1000TL	SSB1000TL2	SSB1000TL3	SSB1000TL4
Max Input*	BTU/hr (kW)	1,024,000 (300)	2,048,000 (600)	3,072,000 (900)	4,096,000 (1200)
Min Input	BTU/hr (kW)	100,000 (29)	100,000 (29)	100,000 (29)	100,000 (29)
Turndown	Ratio (%)	10:1 (10%)	20:1 (10%)	30:1 (10%)	40:1 (10%)
Combustion Eff.*	Efficiency (%)	95.4	95.4	95.4	95.4
Thermal Eff.*	Efficiency (%)	96.8	96.8	96.8	96.8
Gross Output*	BTU/hr (kW)	991,000 (290)	1,982,000 (580)	2,973,000 (870)	3,964,000 (1160)
Net Rating*	BTU/hr (kW)	861,700 (252)	1,723,400 (504)	2,585,100 (756)	3,446,800 (1008)

* = AHRI certified performance data

Operational Data					
	Unit	SSB1000TL	SSB1000TL2	SSB1000TL3	SSB1000TL4
Max. NG Pressure	Inch W.C. (mbar)	20 (50)	20 (50)	20 (50)	20 (50)
Min. NG Pressure	Inch W.C. (mbar)	3.5 (8.72)	3.5 (8.72)	3.5 (8.72)	3.5 (8.72)
Max. LPG Pressure	Inch W.C. (mbar)	20 (50)	20 (50)	20 (50)	20 (50)
Min. LPG Pressure	Inch W.C. (mbar)	8 (19.9)	8 (19.9)	8 (19.9)	8 (19.9)
CO2 Working Range NG (LP)	%	8.5 - 9.5 (10.3 - 10.7)	8.5 - 9.5 (10.3 - 10.7)	8.5 - 9.5 (10.3 - 10.7)	8.5 - 9.5 (10.3 - 10.7)
Max. Allowable Working Pressure (MAWP)	PSI (bar)	80 (5.5)	80 (5.5)	80 (5.5)	80 (5.5)
Max. water flow at max. power (ΔT 27 °F / 15 °C)	GPM (m3/h)	75.8 (17.2)	151.6 (34.4)	227.4 (51.6)	303.2 (68.8)
Recommended water flow @ max power (ΔT 36 °F / 20 °C)	GPM (m3/h)	56.8 (12.9)	113.6 (25.8)	170.4 (38.7)	227.2 (51.6)
Max. operating temperature	°F (°C)	194 (90)	194 (90)	194 (90)	194 (90)
Max HE allowable temperature	°F (°C)	210 (98.9)	210 (98.9)	210 (98.9)	210 (98.9)
Ambient storage temperature dry	°F (°C)	5 to 158 (-15 to 70)	5 to 158 (-15 to 70)	5 to 158 (-15 to 70)	5 to 158 (-15 to 70)
Ambient functioning temperature	°F (°C)	32 to 120 (0 to 49)	32 to 120 (0 to 49)	32 to 120 (0 to 49)	32 to 120 (0 to 49)
Electrical Req. 120VAC/1PH/60Hz	–	15.1 FLA *	30.2 FLA *	45.3 FLA *	60.4 FLA *

* FLA (Full Load Amperage) - maximum current drawn by the boiler if all pumps reach rated horsepower.

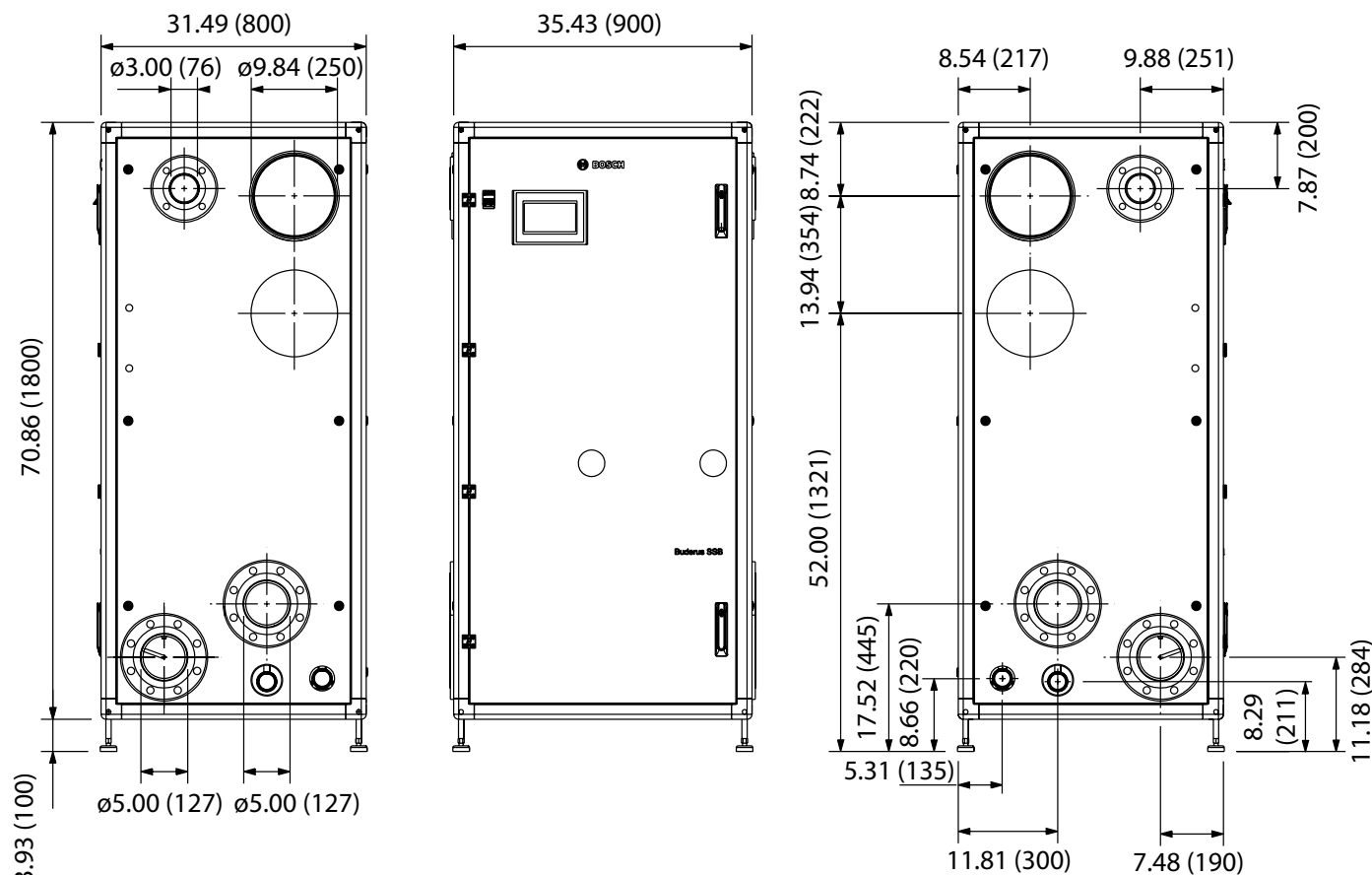
Approval Data				
Approval description	SSB1000TL	SSB1000TL2	SSB1000TL3	SSB1000TL4
Standard listings & approvals	CSA, ASME, AHRI			
Massachusetts Plumbing Board	Approved			
CRN #	AA2385.2C			
SCAQMD approval	Approved			

Bosch Buderus SSB1000TL/TL2/TL3/TL4 - Gen 2 Stainless Steel Condensing Boiler



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SSB1000TL Boiler Dimensions



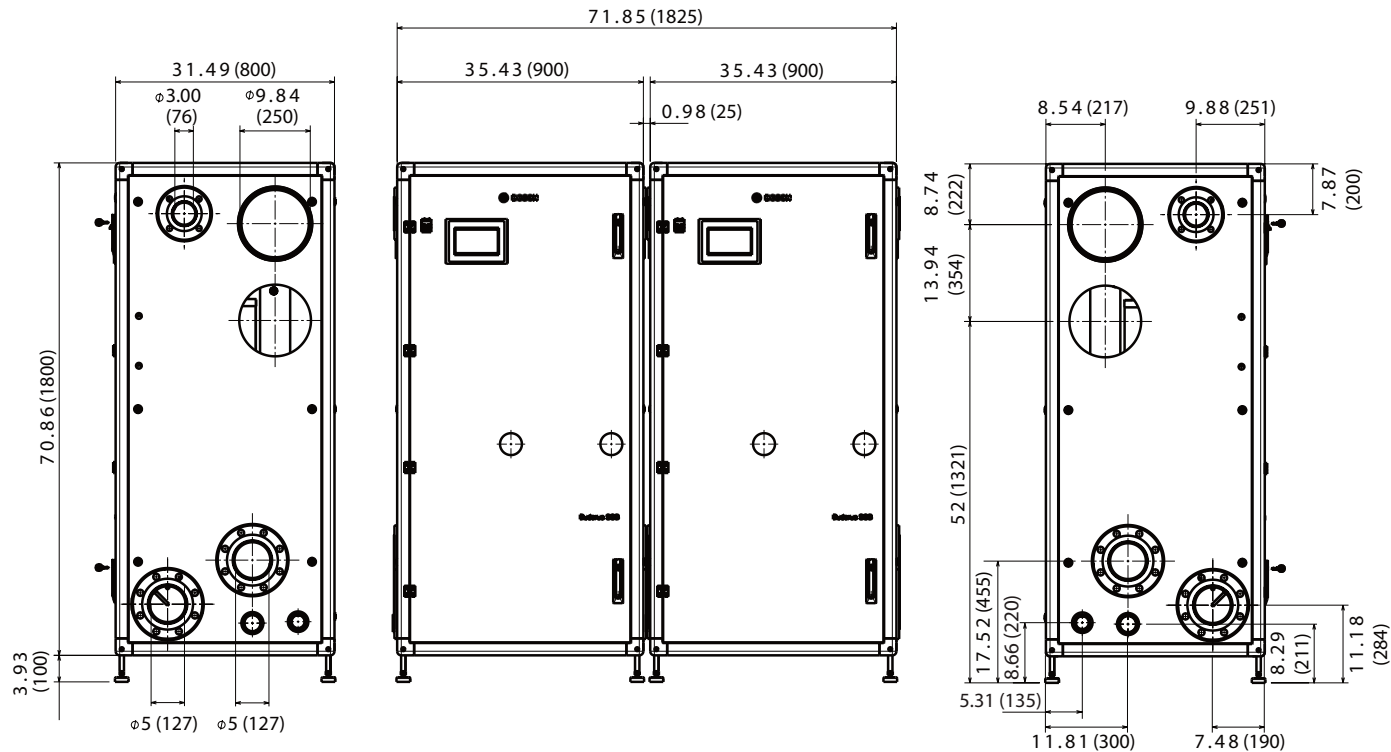
Dimensions in inches (mm)

Tolerances on all dimensions shown is $\pm 1/4"$ (6.35mm)

Bosch Buderus SSB1000TL/TL2/TL3/TL4 - Gen 2 Stainless Steel Condensing Boiler



SSB1000TL2 Boiler Dimensions



Dimensions in inches (mm)
Tolerances on all dimensions shown is $\pm 1/4"$ (6.35mm)

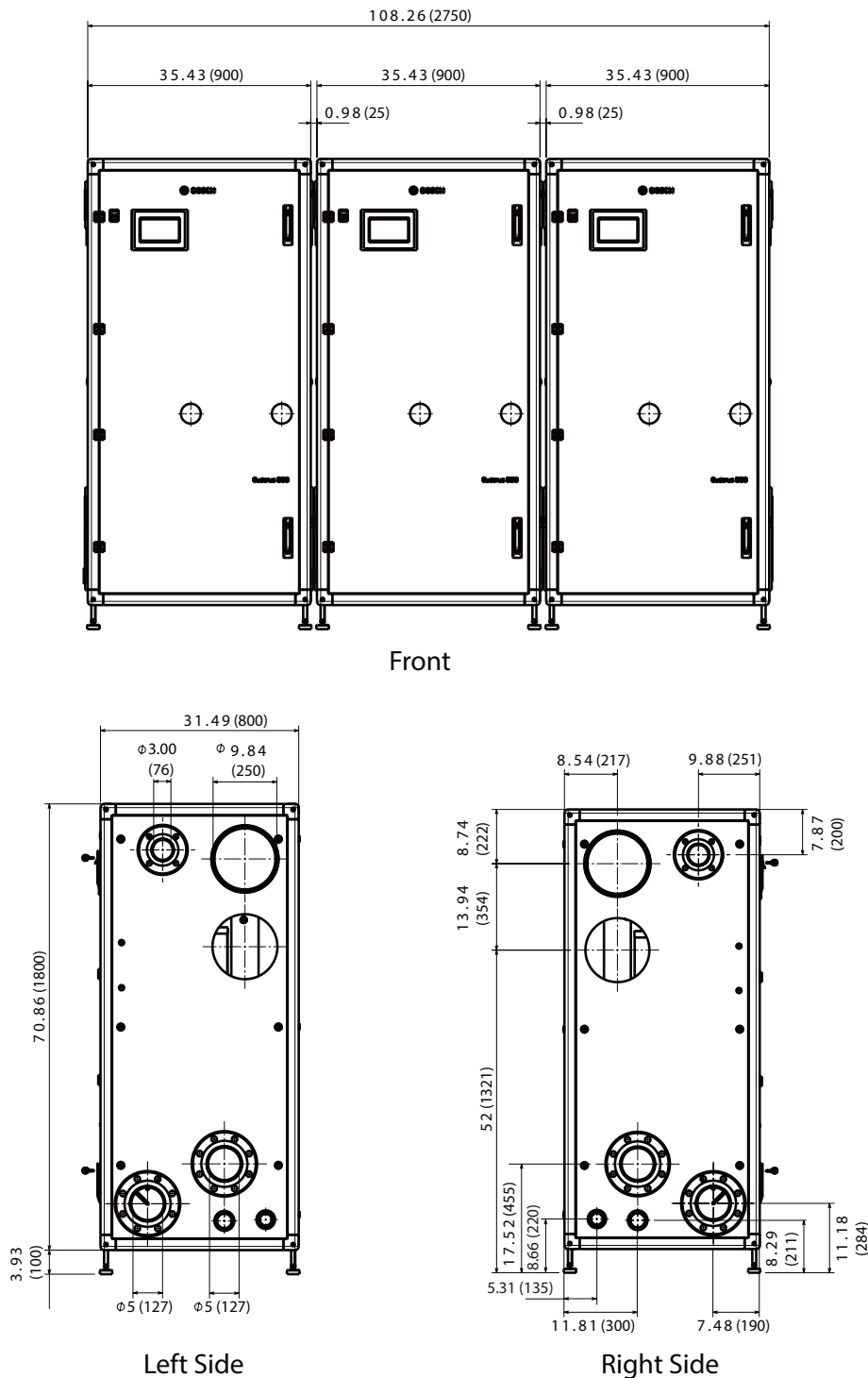
Bosch Buderus SSB1000TL/TL2/TL3/TL4 - Gen 2

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SSB1000TL3 Boiler Dimensions



Dimensions in inches (mm)
Tolerances on all dimensions shown is +/- 1/4" (6.35mm)
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Bosch Thermotechnology Corp.
Watertown, MA • Londonderry, NH • Ft. Lauderdale, FL

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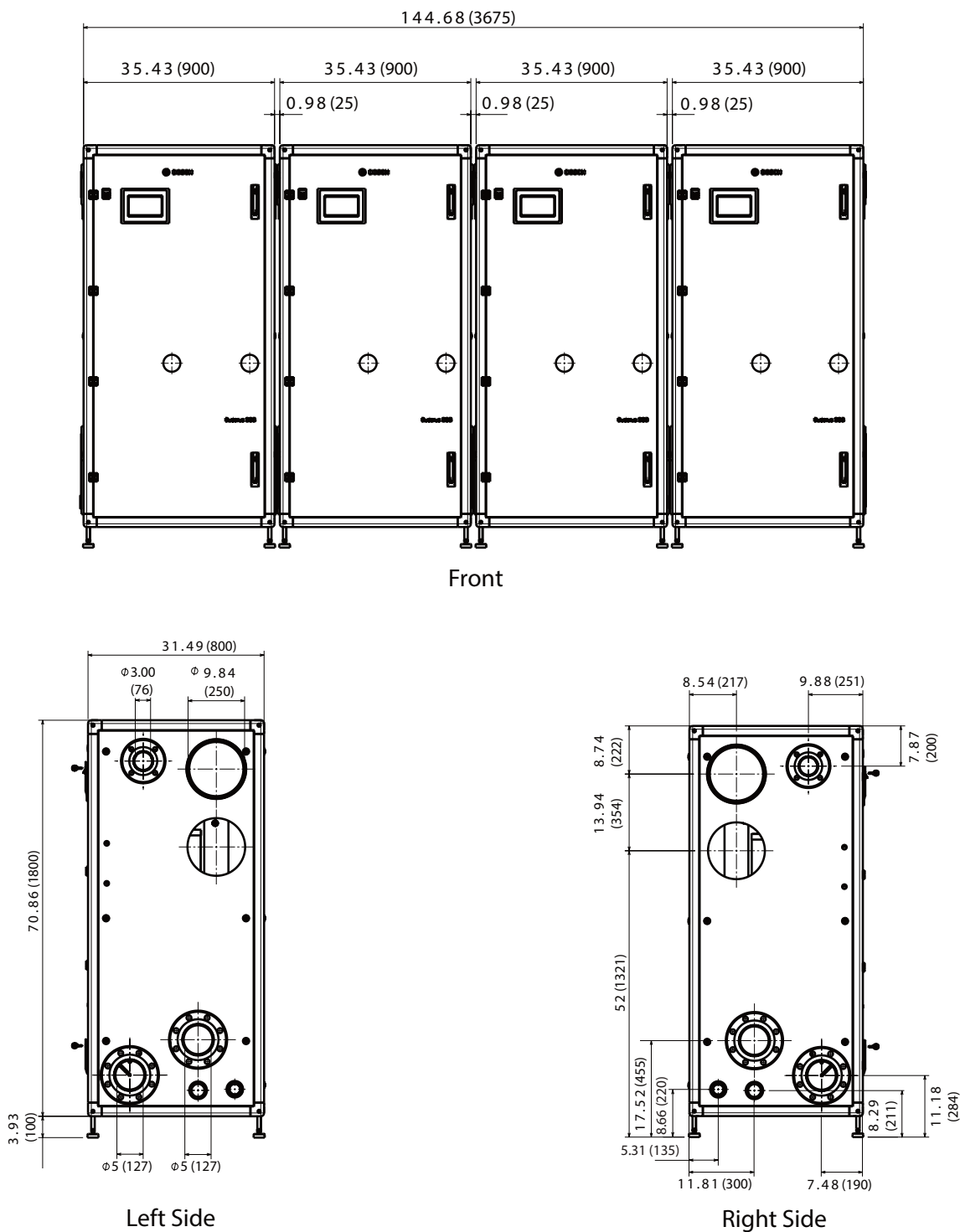
Tel: 1-800-283-3787 www.bosch-homecomfort.us

Bosch Buderus SSB1000TL/TL2/TL3/TL4 - Gen 2

Stainless Steel Condensing Boiler



SSB1000TL4 Boiler Dimensions



Dimensions in inches (mm)
Tolerances on all dimensions shown is $\pm 1/4"$ (6.35mm)

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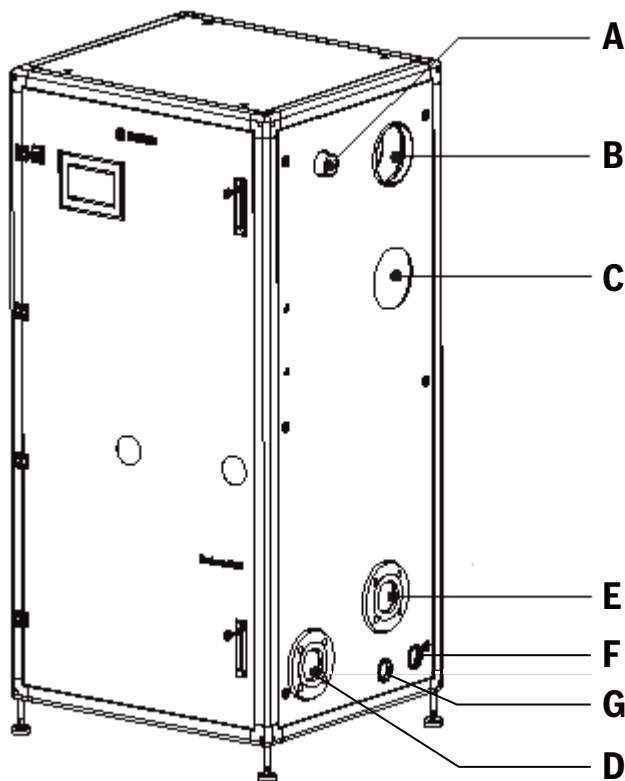
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Stainless Steel Condensing Boiler



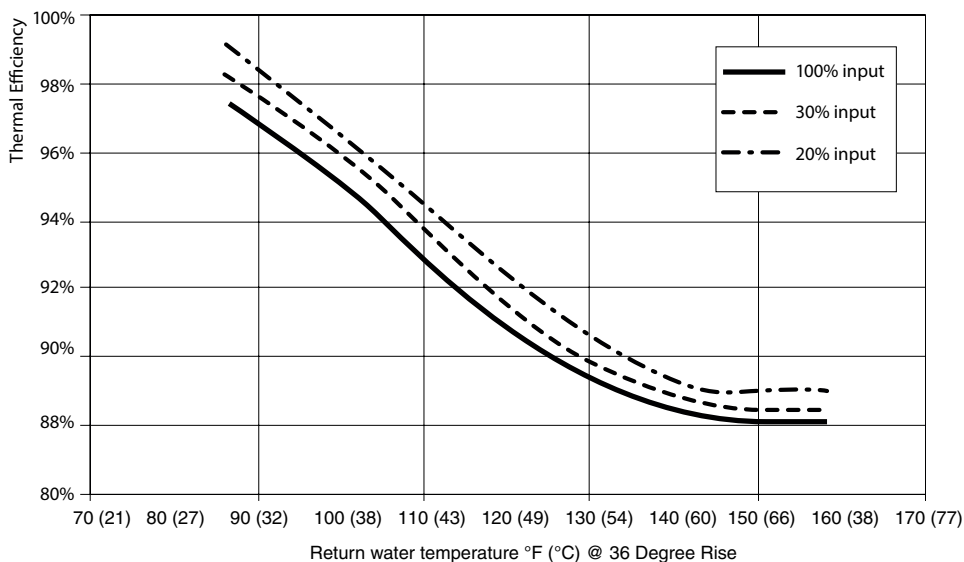
SSB1000TL Boiler Connections



Boiler Connections Data

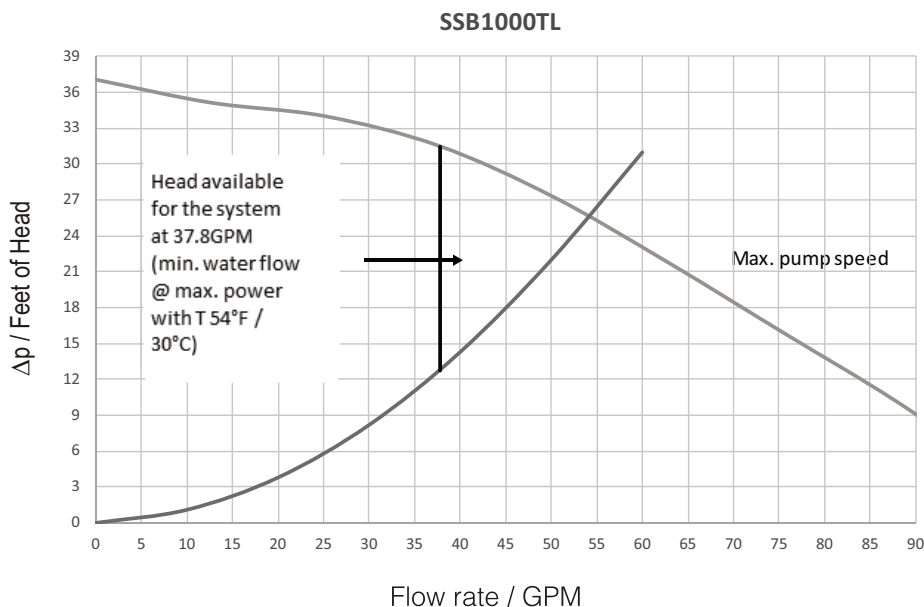
Item	Description	Unit	SSB1000TL
A	Gas Inlet	Inch (mm)	3" Flanged
B	Flue Exhaust (Flanged)	Inch (mm)	10 (254)
C	Air Intake	Inch (mm)	10 (254)
D	System Supply (Flanged)	Inch (mm)	5 (127)
E	System Return (Flanged)	Inch (mm)	5 (127)
F	Condensate Outlet	Inch (mm)	1-1/2 (50)
G	Relief Valve Outlet	Inch (mm)	2 (60)

Thermal Efficiency Curves SSB1000TL



SSB1000TL Water Pressure Drop

Δp / Feet of Head

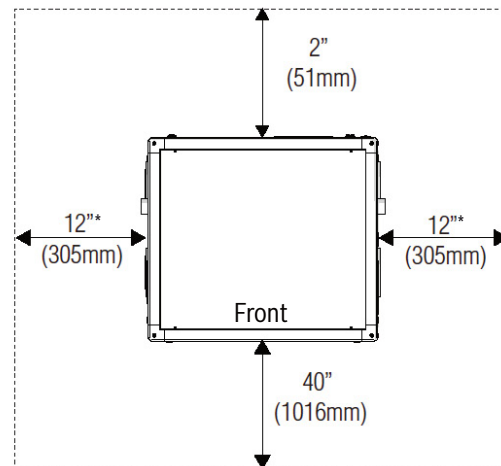
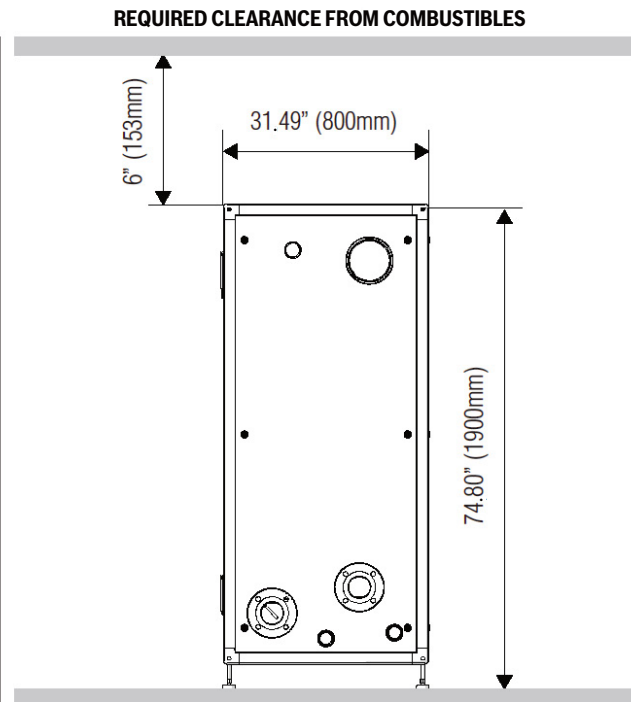
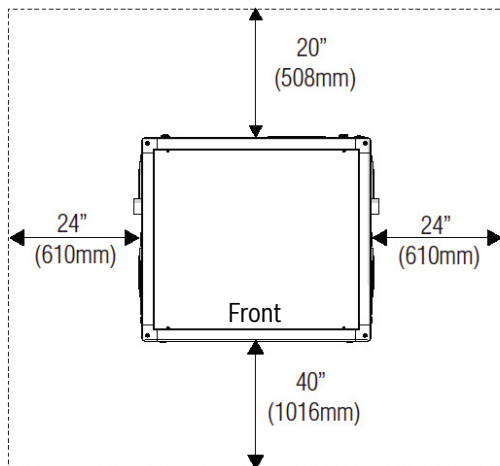
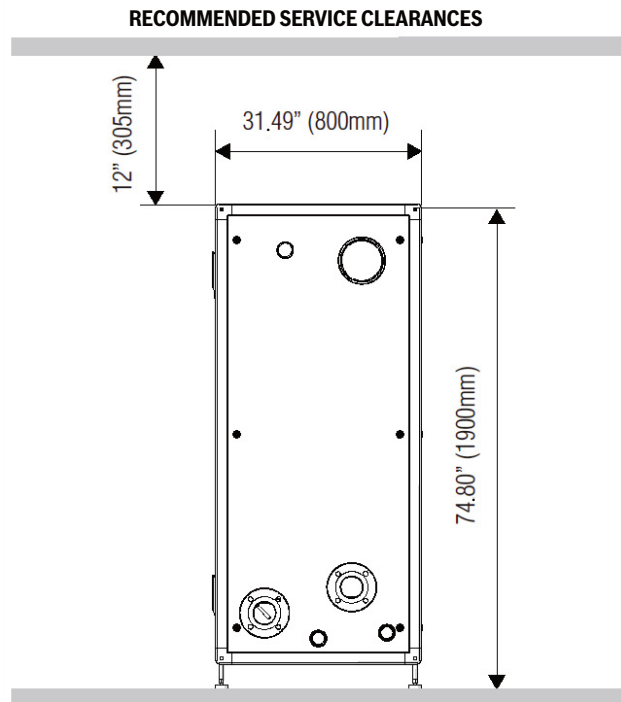


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Recommended Boiler Clearances



* Excluding side with connections.

DISCLAIMER

Specifications subject to change without notice. All dimensions shown on these engineering submittal sheets are for reference only and should not be used for field installation purposes. Please refer to current product installation manuals for detailed installation instructions and dimensions.