

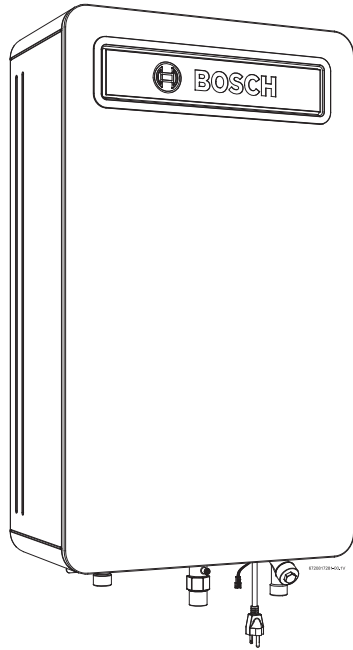
Bosch Greentherm T9800 SEO 160/199 Gas Tankless Water Heater

Engineering
Submittal
Sheet



BOSCH

Product Overview & Certifications



Engineering Specifications

The system shall consist of ___ gas tankless water heater(s) model Greentherm T9800 SEO 160/199 as manufactured by Bosch Thermotechnology.

Water Heater shall be CSA/ANSI Z21.10.3 listed, and capable to operate with natural gas. The Greentherm T9800 SEO 160 Water Heater shall have an input of 160,000 BTU/Hr with natural gas. The Greentherm T9800 SEO 199 Water Heater shall have an input of 199,000 BTU/Hr with natural gas. Water Heater shall have Low NOx emissions and be 2016 SCAQMD NOx certified to rule 1146.2.

CONSTRUCTION

Water Heater shall be gas fired, condensing tankless design with a segmented power burner and modulating gas valve.

Primary heat exchanger/combustion chamber shall incorporate a multi pass copper tube and fin design. Secondary condensing heat exchanger shall incorporate a multi-pass stainless steel design. Heat exchangers shall be rated for maximum working pressure of 150 psig.

The Water Heater shall be equipped with an active bypass valve to achieve water temperature stability of less than +/- 2 °F under constant flow.

On the cold water inlet connection the Water Heater shall be equipped with an externally accessible in-line water filter.

The Water Heater shall allow three methods of control:

1. Using the internal control panel with a segmented one-color display.
2. Using a Bosch app available for iOS and Android when an optional wireless module is installed.
3. Using an external wired remote with a high resolution LCD display and touch keys.

These methods of control shall allow extensive self-diagnostic capabilities that incorporate a minimum of 38 separate fault codes.

The Water Heater shall come equipped with power cord and shall operate on 120V/1/60Hz electrical service.

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Engineering Specifications

INSTALLATION

All aspects of installation of Water Heater system shall be in strict accordance with manufacturer's instructions.

The Water Heater shall be installed in outdoor applications in accordance with manufacturer's instructions.

Water Heater will include a barometric pressure sensor that will be used to determine the altitude of installation and automatically implement combustion adjustments.

Water Heater will have bottom mounted water connections.

Water Heater shall include an ASME approved temperature/pressure relief valve with a setting of 150 psig. Water Heater shall require a minimum gas pressure of 3.5" W.C. of natural gas.

MODE OF OPERATION

The outlet water temperature shall be field adjustable between 100°F and 140°F.

Water Heater shall be capable of maintaining the outlet temperature within an accuracy of $\pm 2^\circ\text{F}$. This shall be accomplished by modulation of firing rate and the use of the active bypass valve.

WARRANTY

The water heater shall carry a limited warranty subject to the manufacturer's warranty terms.

The warranty terms are available on Bosch website:

<https://www.bosch-climate.us/products-bosch-thermotechnology/gas-tankless-water-heaters/>

Performance Data

	Unit	T9800 SEO 160	T9800 SEO 199
Maximum flow rate at a 35 °F (19.4 °C) rise	GPM (l/min)	9.0 (34.0)	11.2 (42.4)
Maximum flow rate at a 45 °F (25 °C) rise	GPM (l/min)	7.0 (26.7)	8.7 (32.9)
Maximum flow rate at a 55 °F (30.6 °C) rise	GPM (l/min)	5.8 (21.9)	7.2 (27.5)
Maximum flow rate at a 75 °F (41.7 °C) rise	GPM (l/min)	4.2 (15.9)	5.2 (19.7)
Maximum flow rate at a 90 °F (50 °C) rise	GPM (l/min)	3.5 (13.2)	4.4 (16.6)
Maximum gas input ¹	BTU/hr (kW)	160 000 (46.64)	199,000 (58.3)
Minimum input ²	BTU/hr (kW)	9,000 (2.6)	9,000 (2.6)
Maximum output	BTU/hr (kW)	157 608 (46.2)	197,010 (57.7)
Thermal efficiency (Efficiency in %)	%	> 99%	> 99%

¹) Input rating is based on sea level operation and need not be changed for operation up to 2000 ft (610 m) elevation. For operation at elevations above 2000 ft (610 m), input rating is automatically reduced at the rate of 4 percent (US) or 10 percent (Canada) for each 1000 ft (305 m) above sea level.

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Operational Data			
	Unit	T9800 SEO 160	T9800 SEO 199
Temperature Control¹			
Selection range	°F (°C)	100 - 140 (38 - 60)	100 - 140 (38 - 60)
Default temperature	°F (°C)	120 (49)	120 (49)
Temperature stability ²	°F (°C)	± 2 (± 1)	± 2 (± 1)
Gas Requirement			
Gas connection	inches	¾	¾
Gas pressure range NG	Inch W.C.	3.5" - 10.5"	3.5" - 10.5"
Water			
Top hot water connection NPT	inches	¾"	¾"
Top cold water connection NPT	inches	¾"	¾"
Minimum water flow ³	GPM (l/min)	0.45 (1.7)	0.45 (1.7)
Maximum water pressure	PSI (bar)	150 (10.3)	150 (10.3)
Minimum water pressure	PSI (bar)	18 (1.2)	18 (1.2)
Minimum well pressure	PSI	30 (2.1)	30 (2.1)
Water valve material	—	Polymer (PPS) (Polypropylene Sulfide)	Polymer (PPS) (Polypropylene Sulfide)
Combustion			
CO level	ppm	≤ 250 (measured)	≤ 250 (measured)
CO2 level (set from factory)	%	see installation manual	see installation manual
Weight			
Net weight	pounds (kg)	73.2 (33.2)	77.5 (35.2)
Gross weight	pounds (kg)	85.54 (38.8)	89.95 (40.8)
Electrical			
Voltage	V AC	120	120
Frequency	Hz	60	60
Amperage (Idle)	mA	40	40
Amperage (operation)	A	≤ 2.4	≤ 2.4
Water protection ⁴	IP	X5D	X5D

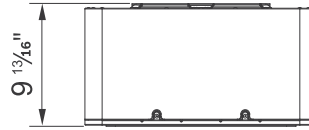
¹) With constant flow.

²) Requirements: Steady flows, single unit installations, up to 140 °F (60 °C).

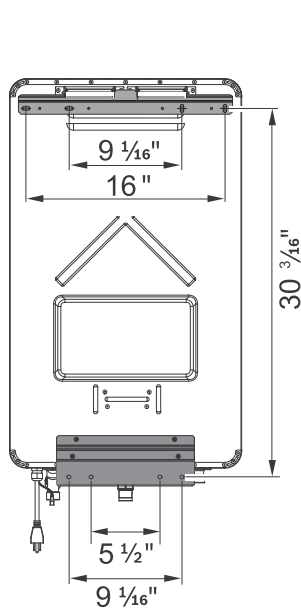
³) Refers to activation point. Deactivation point value is 0.35GPM (1.3 l/min).

⁴) Protection against water splashing.

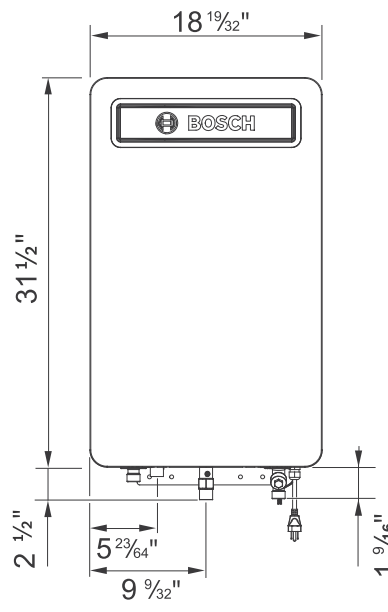
Dimensions and Connections



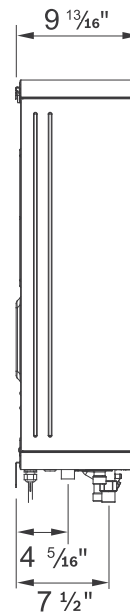
TOP VIEW



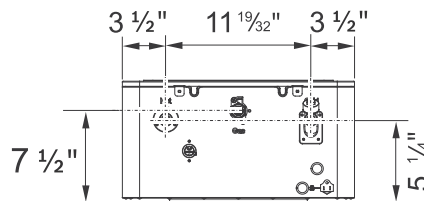
BACK VIEW



FRONT VIEW



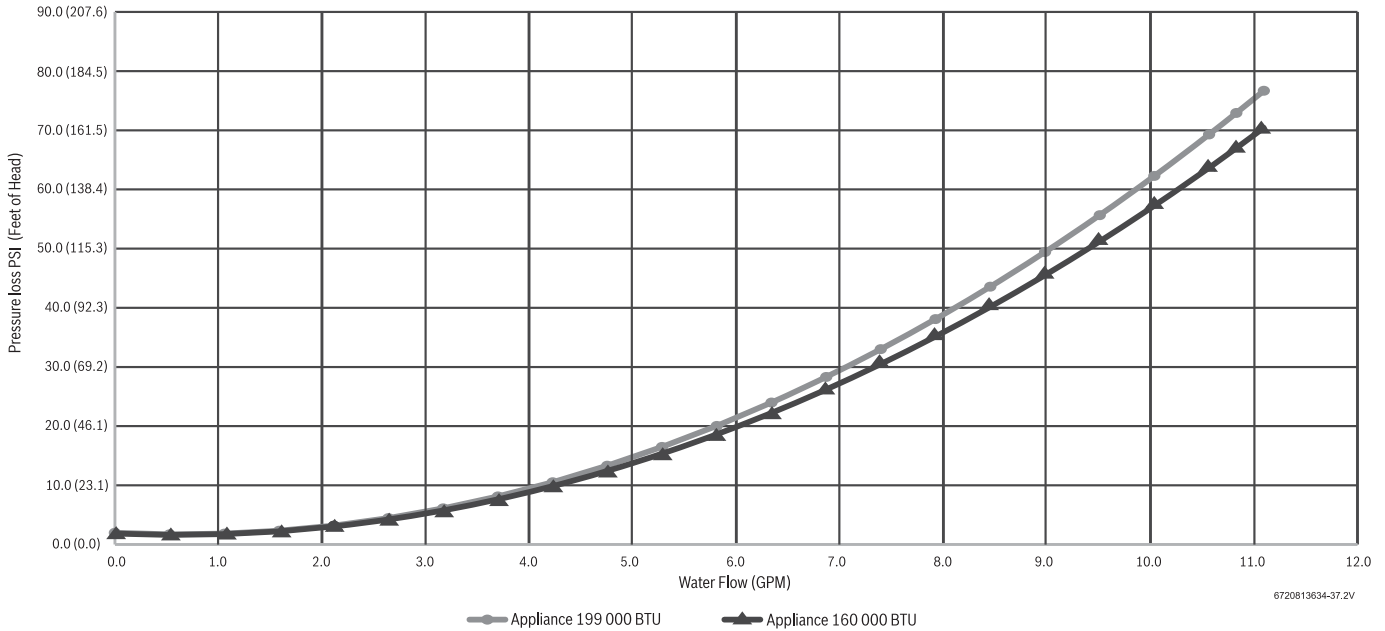
SIDE VIEW



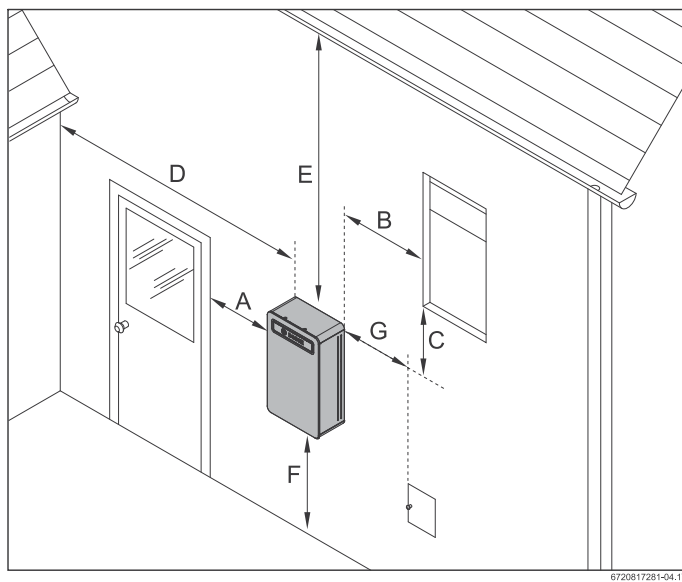
BOTTOM VIEW

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Water Heater Pressure Drop Curve



Clearances

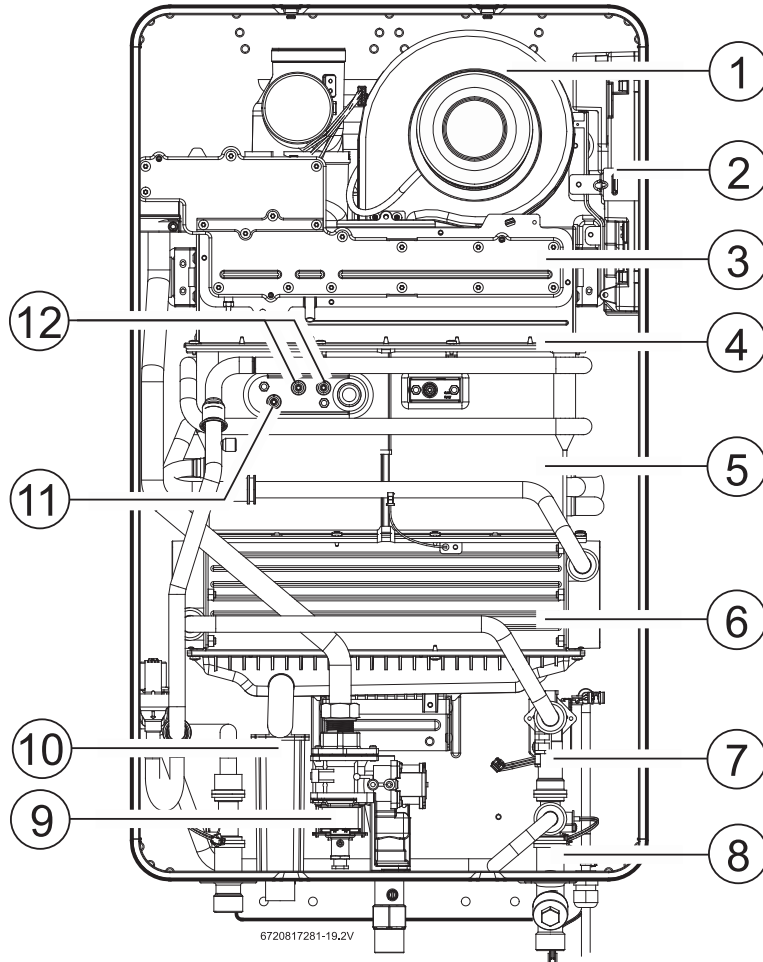


Ref.	Description	Minimum clearances
A	Directly below or adjacent to an opening; operable windows, doors and any fresh air openings	1 ft
B		
C		
D	From any adjacent wall	1 ft
E	Below a gutter, sanitary pipework, eaves or overhang	3 ft
F	Above ground	1 ft
G	From a gas meter or gas regulator	3 ft

* For servicing access, a 2ft clearance is recommended to the front cover.



Tankless Components



T9800 SEO 160/199 Components

- | | |
|---------------------|--------------------------|
| [1] Air fan | [7] Water valve |
| [2] Control unit | [8] By-pass |
| [3] Gas manifold | [9] Gas valve |
| [4] Burner | [10] Condensate trap |
| [5] Heat exchanger | [11] Ionization sensor |
| [6] Condensing unit | [12] Ignition electrodes |

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.