# Submittal Sheet


#### OptiTherm® Water Heater

**125,000 to 299,000 BTU/hr**

#### Job Name Location Arch./Engr. Wholesaler Mech. Contractor Model No. Gas Type BTU/hr Input Recovery Rate in GPH °F Rise

**Notes Construction ASME Standard**

#### OptiTherm® for Optimal Thermal Efficiency:

* Up to 99% thermal efficiency by modulating fuel input to supply variable domestic hot water demand
* Maximum inputs from 125,000 to 299,000 BTU/hr
	+ *Fully modulating from as low as 60,000 BTU/hr*
* 99/100 gallon capacities
* Up to 99% thermal efficiency
* Automatic cathodic corrosion protection system
	+ *No sacrificial anode rods*
* PVC/CPVC/ABS venting - 240' maximum power vent length
* LCD user interface with optional BMS interface
* Ecomate® insulation
* Glass-fused-to-steel water tank and heat exchanger
* SCAQMD certified Ultra-Low NOx
* Natural gas or propane fuel
* Stealth Quiet™ operation
* Fits through a 36-inch door
* Concentric vent kit available
* Five-year limited tank/heat exchanger warranty

#### Turboflue® High Performance Heat Exchanger:

* Patented helical-fin multi-stage design
* Superior heat conduction and fuel efficiency

#### Made in the USA



Air Intake Gas Conn.

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**OptiTherm® Water Heater**

Air Intake (3” PVC) Gas Conn.

T&P Valve

Hot

A

Return

G

F

C

Hand Hole

H

Drain

E

Cold

D

 B

Hot

Return (Plugged)

Cold

**125,000 to 299,999 BTU/hr**

Top View

10.82

3.31 Gas Conn.

3.58 Air Intake

Exhaust Vent (3” PVC)

1.42

30º

90º

68º

68º

Front View Side View

Hot/Cold

Hot/Cold Gas Conn.

90°

30°

68°

90°

OT125/OT150/OT199

Hot

Combustion Air Intake

 4” PVC

Hot

Exhaust Vent Conn./ Condensate Assembly 4” PVC

Cold

Gas Conn. T & P Valve

A

G

C B

F

Top View

D E

 B

Front View

Side View

##### Storage, Inputs, Recovery & Efficiency

OT200/OT250/OT299

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Model** | **Storage GAL (L)** | **Max. Rated Input BTU/HR****(KW)** | **Min. Rated Input BTU/HR (KW)** | **Recovery @ 100°F Rise GAL/HR (L/HR)** | **1st Hr. Del. @ 100°F Rise GAL (L)** | **Thermal Efficiency @ Max Input (%)** | **Thermal Efficiency @ Min Input (%)** |
| OT125N | 99 (375) | 125,000 (36.6) | 60,000 (17.6) | 144 (545) | 213 (806) | 96 | 99 |
| OT150N | 99 (375) | 150,000 (44.0) | 60,000 (17.6) | 173 (655) | 242 (916) | 96 | 99 |
| OT199N | 99 (375) | 199,000 (58.3) | 60,000 (17.6) | 229 (867) | 299 (1,132) | 96 | 99 |
| OT200N-(A) | 100 (378) | 199,999 (58.6) | 76,000 (22.3) | 228 (863) | 298 (1,128) | 95 | 98 |
| OT250N-(A) | 100 (378) | 250,000 (73.3) | 76,000 (22.3) | 282 (1,067) | 352 (1,332) | 94 | 98 |
| OT299N-(A) | 100 (378) | 299,999 (87.9) | 76,000 (22.3) | 334 (1,264) | 404 (1,529) | 93 | 98 |

***NOTE: All OptiTherms available as high altitude models.***

##### Dimensions and Connections

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Model** | **Dimensions in Inches (cm)** | **Cold NPT** | **Hot NPT** | **Recirc. Return NPT** | **Gas NPT** | **Air Intake PVC** | **Exhaust Vent PVC** | **Shipping Weight LBS (kg)** |
| **A** | **B** | **C** | **D** | **E** | **F** | **G** | **H** |
| OT125N | 78.50(199) | 28.00(71) | 63.50(161) | 11.25(29) | 9.19(23) | 62.43(159) | 74.25(189) | 36.43(93) | 1.5" | 1.5" | 1" | 3/4" | 3" | 3" | 670(304) |
| OT150N | 78.50(199) | 28.00(71) | 63.50(161) | 11.25(29) | 9.19(23) | 62.43(159) | 74.25(189) | 36.43(93) | 1.5" | 1.5" | 1" | 3/4" | 3" | 3" | 670(304) |
| OT199N | 78.50(199) | 28.00(71) | 63.50(161) | 11.25(29) | 9.19(23) | 62.43(159) | 74.25(189) | 36.43(93) | 1.5" | 1.5" | 1" | 3/4" | 3" | 3" | 670(304) |
| OT200N-(A) | 67.25(171) | 32.00(81) | 51.53(131) | 11.43(29) | 9.43(24) | 50.18(127) | 62.75(159) | NA | 2" | 2" | NA | 1" | 4" | 3" | 1,110(503) |
| OT250N-(A) | 67.25(171) | 32.00(81) | 51.53(131) | 11.43(29) | 9.43(24) | 50.18(127) | 62.75(159) | NA | 2" | 2" | NA | 1" | 4" | 3" | 1,110(503) |
| OT299N-(A) | 67.25(171) | 32.00(81) | 51.53(131) | 11.43(29) | 9.43(24) | 50.18(127) | 62.75(159) | NA | 2" | 2" | NA | 1" | 4" | 3" | 1,110(503) |

***NOTE: Change the suffix from “N” to “LP” to designate liquid propane. NOTE: “A” denotes ASME construction.***

**T&P valve and brass drain valve factory installed. Standard Voltage (all):** 120V, 60 Hz, 1P

**Maximum Working Pressure:** 150 psi (1034 kPa) These models meet or exceed current ASHRAE standards.

   

NSF/ANSI 5

**Warning:** Installation should be in accordance with all national and/or local codes. In the absence of local codes, refer to NFPA 54 or CSA B149.1.

**Caution:** The recommended maximum hot water temperature setting for normal residential use is 120°F. Bock recommends a tempering valve or anti-scald valve be installed and used according to the manufacturer’s directions to prevent scalding.

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**Venting (Materials)**

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###### *The following materials are approved for use as the vent and combustion air intake piping:*

* PVC (DWV, ASTM-D2665 or CSA B181.2)
* PVS (Schedule 40, ASTM-D1785 or CSA B137.3)
* PVC (SDR Series, ASTM-D2241 or CSA B137.3)
* CPVC (Scedule 40, ASTM-F441 or CSA B137.3)
* CPVC (SDR Series, ASTM-F442)
* ABS (Schedule 40, DWV, ASTM-D2661 or CSA B181.1)

**NOTE: Use of cellular core PVC (ASTM F891), cellular core CPVC, or Radel (polyphenyl-sulfone) in non-metallic venting systems is prohibited.**

**Covering non-metallic vent pipe and fittings with thermal insulation is prohibited. In Canada, check local codes to ensure that SDR series is approved for use,**

**SDR is not approved for all installations in Canada.**

###### *The following materials are approved for use for the fittings in the vent and combustion air intake systems:*

* PVS (Schedule 40 DWV, ASTM D2665)
* CPVC (Scedule 40, ASTM F438)
* ABS (Schedule 40, DWV, ASTM D2661)

## Venting (SystemLengths)

**Minimum and Maximum Vent Lengths - 3" / 4" Pipe**

|  |  |  |  |
| --- | --- | --- | --- |
| **Model** | **Pipe Arrangement** | **Minimum Equivalent Pipe Length (per pipe run)** | **Maximum Equivalent Pipe Length (per pipe run)** |
| **Air Intake (ft)** | **Vent (ft)** | **Air Intake (ft)** | **Vent (ft)** |
| OT125/OT150/ OT199 | Direct Vent (2 Pipe) | 18/50 | 18/50 | 50/120 | 50/120 |
| Power Vent (1 Pipe) | 0/0 | 18/100 | 0/0 | 100/240 |
| OT200/OT250/ OT299 | Direct Vent (2 Pipe) | 15/50 | 15/50 | 50/120 | 50/120 |
| Power Vent (1 Pipe) | 0/0 | 15/50 | 0/0 | 100/240 |

## Venting (Equivalent Length)

The equivalent straight pipe length of a 90°, 1/4 standard bend elbow and 45°, 1/8 standard bend elbow is 5 feet and 2.5 feet, respectively.

**DO NOT** use short bend elbows.

## Gas Pressures (OT125-299)

### *For natural gas:*

MINIMUM GAS SUPPLY PRESSURE (at gas control) = 3.5” W.C. (dynamic)

MAXIMUM GAS SUPPLY PRESSURE (at gas control) = 10.5” W.C. (dynamic) or 14” W.C. (static)

### *For LP gas:*

MINIMUM GAS SUPPLY PRESSURE (at gas control) = 8” W.C. (dynamic)

MAXIMUM GAS SUPPLY PRESSURE (at gas control) = 13” W.C. (dynamic) or 14” W.C. (static)

**Note:** Dynamic pressure is measured while gas is flowing and static pressure is measured while gas is not flowing.

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## UL Classified

UL classified in accordance with NSF/ANSI 372 - *Drinking Water System Components (Lead content)* to comply with ≤0.25% lead as required by the Reduction of Lead in Drinking Water Act.

UL classified in accordance with NSF/ANSI 5 – *Water Heaters, Hot Water Supply Boilers, and Heat Recovery Equipment.*

## Clearances (OT125-199)

Minimum clearances from combustible construction: 6.5" Left Side, 0" Right Side, 0" Back, 0" Top, 24" Front. 0" from vent connector. Approved for alcove installation and combustible flooring.

Minimum access clearances for servicing: 12" Left Side, 24" Right Side, 0” Back, 24" Top, 24" Front.

Minimum Clearance From Combustibles Required Minimum Access Clearances

## Clearances (OT200-299)

Minimum clearances from combustible construction: 0" Sides, 0" Back, 0" Top, 24" Front. 0" from vent connector. Approved for alcove installation and combustible flooring.

Minimum access clearances for servicing: 12" Left Side, 24" Right Side, 24" Back, 24" Top, 24" Front.

Minimum Clearance From Combustibles Required Minimum Access Clearances