

Master-Fit® Ultra-Low NOx Commercial Gas Tank-Type Water Heaters

FEATURES

82% thermal efficiency means lower operating costs.

FAN ASSISTED COMBUSTION - The blower is built into the Low NOx burner assembly for Ultra-Low NOx readings that comply with SCQAMD rule 1146.2 of 14 ng/j or 20 ppm.

METAL VENTING - Rated Category I Appliance. Uses standard double wall type "B" vent. Can be commonly vented with other Category I appliances. Vent connects directly to the vent connector outlet. No Draft hood or barometric damper required. Perfect choice for retrofit and upgrade installations.

WATER CONNECTIONS - For ease of installation, all BTLs feature water connections on the top, front, and rear. "The Eliminator" inlet water connection eliminates harmful scale buildup, extending the life of the product. The front inlet connection must be used for the Eliminator benefits.

GLASSLINED TANK - Permaglas® Ultracoat is the proprietary ceramic coating developed by A. O. Smith's ceramic engineers specifically for the heater. It is applied after the complete tank has been assembled to give a seamless barrier against hot water corrosion.

INSTALLED COST SAVINGS - When multiple BTL units are exclusively used in a vent manifold, use the National Fuel Gas Code Table 13 Fan Sizing Charts to determine vent diameter and specifications. The BTL uses a smaller vent diameter than a natural draft water heater which saves on installation cost.

FULLY AUTOMATIC DIGITAL CONTROLS WITH SAFETY SHUTOFF - Accurate, dependable control system. Features a two speed blower control for smooth main burner light-off. Manual reset gas shutoff device for added safety. Maximum inlet gas pressure is 14" W.C. Minimum gas pressure is 3.5" W.C. Natural Gas.

FOAM INSULATION - Saves fuel, helps reduce standby heat loss.

JACKET - Heavy gauge steel finished with a baked enamel finish over a bonderized undercoat.

EASY CLEANING - Handhole cleanout allows access for easy cleaning.

FULLY TESTED FOR SAFETY AND PERFORMANCE - Design certified by the Underwriters Laboratory for 180°F hot water service. Meets rigid requirements of the National Sanitation Foundation when equipped with optional leg kit. Certified for use on combustible flooring.

INTERMITTENT IGNITION DEVICE - Eliminates standing pilot. Provides flame failure response in less than one second. Spark ignitor and power ON/OFF switch.

EASY-TO-INSTALL - Completely factory-assembled. Only gas, water, vent and electric connections need be made. Provided with drain valve.

ANODES - CoreGuard™ long-life, stainless steel core anode rods.

PLUG KITS - Pipe nipples and caps are included to plug unused water connections.

APPROVAL RATINGS AND CERTIFICATION - All models meet ANSI Z21.10.3 - CSA 4.3 standards and the thermal efficiency and standby loss requirements of the U.S. Department of Energy and current edition of ASHRAE/IESNA 90.1.

OTHER FEATURES

- Integral automatic gas shutoff system prevents excessive water temperature
- CSA Certified and ASME Rated T&P Relief valve are factory-installed
- Maximum working pressure is 160 psi standard
- Adjustable thermostat with a 120-180°F range.

THREE YEAR LIMITED TANK / ONE YEAR LIMITED PARTS WARRANTY

- For complete warranty information, consult written warranty.

MODELS BTL 199-400(A)



GAS-FIRED



LISTED



Low Lead Content



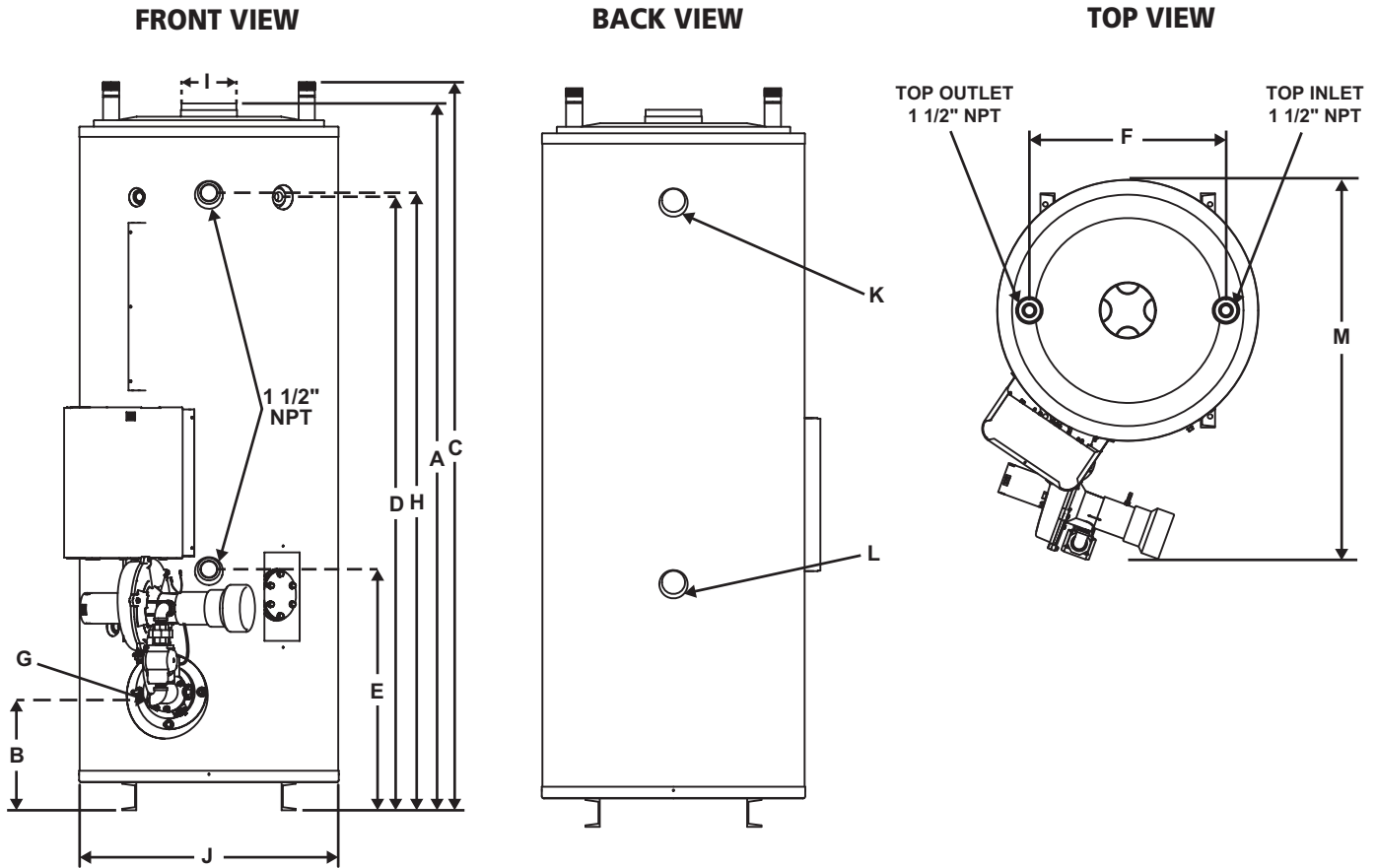
HLW



WATER QUALITY



ROUGH-IN DIMENSIONS BTL Models 199-400(A)



ROUGH-IN DIMENSIONS

	BTL-199		BTL-275(A)		BTL-400(A)	
	inches	cm	inches	cm	inches	cm
A	76	193.0	76	193.0	76	193.0
B	11 3/4	29.8	11 3/4	29.8	11 3/4	29.8
C	78 1/4	198.8	78 1/4	198.8	78 1/4	198.8
D	65 3/4	167.0	65 3/4	167.0	65 3/4	167.0
E	25 3/4	65.4	25 3/4	65.4	25 3/4	65.4
F	21	53.3	21	53.3	21	53.3
G	3/4 NPT		3/4 NPT		3/4 NPT	
H	66 1/4	168.3	66 1/4	168.3	66 1/4	168.3
I	6	15.2	6	15.2	6	15.2
J	27 3/4	70.5	27 3/4	70.5	27 3/4	70.5
K	1 1/2 NPT		1 1/2 NPT		1 1/2 NPT	
L	1 1/2 NPT		1 1/2 NPT		1 1/2 NPT	
M	41	104	41	104	41	104

"A" after model number designates ASME construction

Dimensions and specifications subject to change without notice in accordance with our policy of continuous product improvement.

*Models rated at 82% thermal efficiency

Models available for sale in California only



Commercial Gas Water Heaters

RECOVERY CAPACITIES, BASED ON 82% EFFICIENCY

	INPUT BTUH	INPUT kW	U.S. GAL.	LITERS	EFF. %	U. S. GALLONS / HR. AND LITERS / HR. AT TEMPERATURE RISE INDICATED																
						Deg. F	36	40	50	54	60	70	72	80	90	100	108	110	120	126	130	140
						Deg. C	20	22	28	30	33	39	40	44	50	56	60	61	67	70	72	78
BTL 199	199000		93		82	GPH	545	491	393	364	327	280	273	245	218	196	182	178	164	156	151	140
		58		352		LPH	2064	1858	1486	1376	1239	1062	1032	929	826	743	688	676	619	590	572	531
BTL 275(A)	275000		85		82	GPH	754	678	543	502	452	388	377	339	301	271	251	247	226	215	209	194
		81		322		LPH	2853	2567	2054	1902	1712	1467	1426	1284	1141	1027	951	934	856	815	790	734
BTL 400(A)	390000		85		82	GPH	1069	962	769	712	641	550	534	481	427	385	356	350	321	305	296	275
		114		322		LPH	4046	3641	2913	2697	2427	2081	2023	1820	1618	1456	1349	1324	1214	1156	1120	1040

GAS AND ELECTRICAL CHARACTERISTICS

Model	Gas Type	Gas Supply Pressure		Volts / Hz	Amperes
		Minimum	Maximum		
All Models	Natural	3.5" W.C. (0.87 kPa)	14" W.C. (3.48 kPa)	120 / 60	< 5



Commercial Gas Water Heaters

Model	Clearance to Combustibles		Clearance to Non-Combustibles	
	Sides & Rear	Top Cover	Sides & Rear	Top Cover
BTL 199	0"	12"	0"	12"
BTL 275(A)	0"	12"	0"	12"
BTL 400(A)	0"	12"	0"	12"

Water Connections in Inches						
Models	Inlet			Outlet		
	Top	Front	Back	Top	Front	Back
BTL 199	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2
BTL 275(A)	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2
BTL 400(A)	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2

	BTL-199		BTL-275(A)		BTL-400(A)	
Approx. Shipping Weight STD	790 lbs.	358 kg.	850 lbs.	386 kg.	850 lbs.	386 kg.
Approx. Shipping Weight ASME	-	-	900 lbs.	408 kg.	900 lbs.	408 kg.

NSF LEG KIT

- Meets NSF Standard 5 with optional leg kit - Part # 9008214005

SUGGESTED SPECIFICATION

Water Heater(s) shall be Model _____ as manufactured by A. O. SMITH, or equal. Water heater(s) shall be of glasslined design, and gas fired, equipped to burn natural gas and design certified by the Underwriter Laboratory under Volume III tests for commercial heaters for delivery of 180°F water, and meet or exceed the thermal efficiency and standby loss requirements of the U.S. Department of Energy and Current Edition of ASHRAE/IESNA 90.1. Heaters shall have an input rating of _____ and a recovery rating of _____ GPH at a temperature rise of 100°F with a storage capacity of _____ gallons. Heaters shall be equipped with 1 1/2" water inlet and outlet openings, a 2 3/4" x 3 3/4" boiler-type handhole cleanout and shall have a maximum working pressure of 160 psi. Water heater(s) shall be equipped with an integrated control system consisting of a 180°F adjustable thermostat with upper and lower sensing bulbs, which average the water temperatures at the top and bottom of the tank for maximum water temperature control. Heater(s) shall be provided with a manual reset gas shutoff device, anodes for cathodic protection and IID system. CSA Certified and ASME Rated T&P Relief Valve shall be furnished and installed by the factory. The heater shall be insulated with foam insulation or equal. The outer jacket shall have a baked enamel finish over a bonderized undercoating. All internal surfaces of the heater(s) exposed to water shall be glass-lined with an alkaline borosilicate composition that has been fused-to-steel by firing at a temperature range of 1400° to 1600°F. Heater tank shall have a 3 year limited warranty against corrosion or sediment buildup as outlined in the written warranty. Fully illustrated instruction manual to be included.