Legend 2000 A.O. SMITH BURKAY

LW-500 through LW-1000

90% EFFICIENT, LOW-NOx HOT WATER SUPPLY BOILER

The Legend 2000® series delivers an exceptional 90% thermal efficiency by combining advanced pre-mix burner design and an extruded, self-baffling copper heat exchanger for outstanding efficiency and unsurpassed performance. The heat-exchanger design exposes more surface area to the combustion system to maximize heat transfer. Each model features a small footprint with zero side clearance for outstanding adaptability that is perfect for retrofits. The exclusive Dia-Scan® solid-state self-diagnostic system helps make operation and troubleshooting quick and easy.

ADVANCED COMBUSTION TECHNOLOGY

- Advanced burner design precisely pre-mixes gas and air increasing combustion efficiency and reducing emissions
- Delivers optimum burner performance for 90% thermal efficiency

LOW-NOx OPERATION

- Meets or exceeds Texas and California SCAQMD Rule 1146.2 air quality standards

NEW STAINLESS STEEL BURNER

- Features metal fiber alloy sheath for consistent heat distribution and reliable performance under all conditions

ALL-BRONZE FACTORY MOUNTED PUMP

- Integrally mounted and wired
- Factory sized for proper flow between boiler and storage tank
- Allows 50 equivalent feet of piping between boiler and tank

EXCLUSIVE NO-BAFFLE HEAT EXCHANGER DESIGN

- Extruded copper manufacturing process exposes more surface area to the combustion system for increased heat-transfer efficiency
- Unique self-baffling design (patent pending) is a significant improvement over traditional heat-transfer systems

100% ALL NON-FERROUS WATERWAYS

- All waterways 100% copper, brass or bronze for years of reliable performance
- Impervious to thermal shock

STANDARD-VENT OR DIRECT-VENT FLEXIBILITY

- Standard-vent configuration, vertical or horizontal sidewall
- Two-pipe direct-venting vertical and/or horizontal sidewall, with all combustion makeup air drawn from outside the building

COMPACT, LOW-PROFILE DESIGN

- Zero clearance on sides, ideal for multiple boiler installations
- Fits through 30" doors and into elevators for hard-to-get retrofit applications

DESIGN CERTIFIED

H

CERTIFIED

FM APPROVED

ASME

A.O.Smith Water Heaters

A.O.Smith

Legend 2000 A.O. SMITH HOBURKAY

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CATEGORY IV LISTED
- A condensing gas appliance that operates with a positive vent pressure

PROFESSIONAL START-UP SERVICE FURNISHED
- Assures optimum performance for each installation

MEETS ASHRAE/IESNA 90.1-1999
- Five-year heat exchange warranty

OTHER LEGEND 2000® FEATURES:

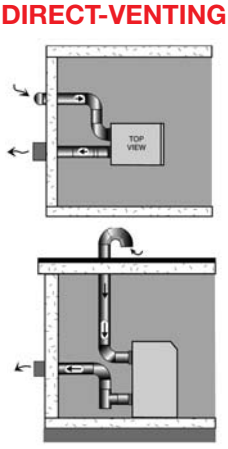
- ASME 160# W.P.
- ASME PRESSURE RELIEF VALVE 125#
- FACTORY MOUNT FLOW SWITCH
- BRASS DRAIN VALVE
- LOW GAS PRESSURE SWITCH
- INLET/OUTLET DIGITAL THERMOMETERS
- MANUAL RESET HI-LIMIT

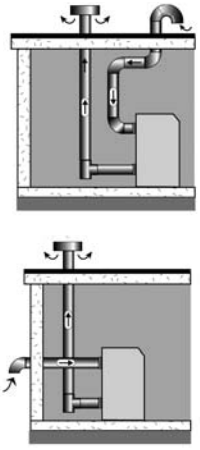
LEGEND 2000® FM APPROVED OPTIONS:

- ❑ CSD-1 CODE
- ❑ I.R.I. CODE
- ❑ SEQUENCING PANEL
- ❑ ALARM BELL
- ❑ SIDEWALL VENT KITS
- ❑ VERTICAL AND HORIZONTAL DIRECT VENT KITS
- ❑ SKID-MOUNTED SYSTEMS
- ❑ DRY CONTACTS FOR ANY BOILER FAILURE
- ❑ LOW WATER CUTOFF
- ❑ LP GAS

VERSATILE MULTI-VENTING CONFIGURATIONS

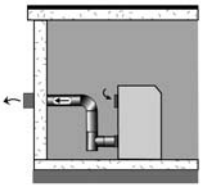
DIRECT-VENTING



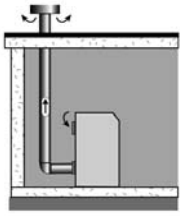


90 Equivalent Feet Exhaust
90 Equivalent Feet Intake
90 Degree Elbows = 10 Feet
45 Degree Elbows = 5 Feet
Boot Tee = 5 Feet

SIDEWALL VENTING



CONVENTIONAL VENTING



180 Equivalent Feet Max
90 Degree Elbows = 10 Feet
45 Degree Elbows = 5 Feet
Boot Tee = 5 Feet

INPUT AND RECOVERY

MODEL NUMBER	BTU INPUT PER HOUR	GPH OR LPH	RECOVERY – GALLONS OR LITRES PER HOUR AT DEGREE RISE		
			40°F 22°C	100°F 56°C	140°F 78°C
LW-500	500,000 Natural	GPH	1364	545	390
		LPH	5162	2065	1475
	450,000 Propane	GPH	1227	491	351
		LPH	4646	1858	1327
LW-750	750,000 Natural	GPH	2045	818	584
		LPH	7743	3097	2212
	675,000 Propane	GPH	1841	736	526
		LPH	6968	2787	1991
LW-1000	1,000,000 Natural	GPH	2727	1091	779
		LPH	10,324	4129	2950
	860,000 Propane	GPH	2345	938	670
		LPH	8878	3551	2537

Maximum gas supply pressure (natural and propane gas): 13.8" w.c.
Minimum gas supply pressure, natural gas: 7" w.c.
Minimum gas supply pressure, propane gas: 11" w.c.
The LEGEND 2000® must be connected to a single-phase independent line source that is: 120 Volts, 60 Hertz, 30 Amps.
NOTE: For proper boiler performance, it is important that the LEGEND 2000® is on its own separate breaker.
Do not put other applications on the same breaker as the boiler.

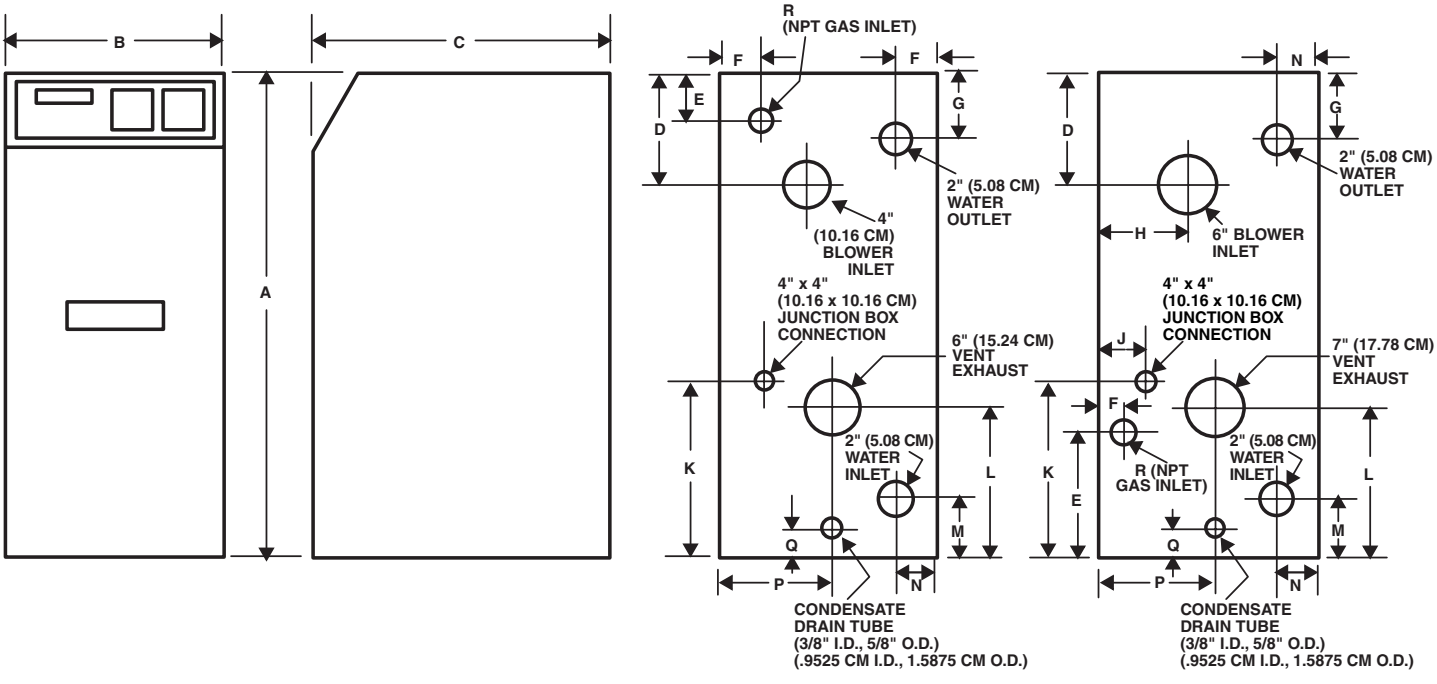
DIMENSIONS AND SHIPPING WEIGHTS

MODEL NUMBER	INCHES OR CM	DIMENSIONS															SHIPPING WEIGHT
		A	B	C	D	E	F	G	H	J	K	L	M	N	P	Q	R	
LW-500	Inches	53	23	32	13-1/2	4-3/8	3-1/4	6-3/8	7-1/2	3-1/2	19	14-1/2	5	5-1/4	11-1/2	2	1	425 Lbs.
	CM	134.6	58.4	81.3	34.3	11.1	8.3	16.2	19	8.9	48.3	36.8	12.7	13.3	29.2	5.1	2.5	193.2 Kg
LW-750	Inches	53	23	32	13-1/2	4-3/8	3-1/4	6-3/8	7-1/2	3-1/2	19	11-1/4	5	5-1/4	11-1/2	2	1	528 Lbs.
	CM	134.6	58.4	81.3	34.3	11.1	8.3	16.2	19	8.9	48.3	28.6	12.7	13.3	29.2	5.1	2.5	240 Kg
LW-1000	Inches	60-1/2	27-1/8	38-3/16	13-3/4	15-1/2	3-1/4	8-1/8	8-1/4	3-1/2	36	12	6-3/4	4-1/8	13-3/8	2-1/4	1-1/4	934 Lbs.
	CM	153.7	68.9	97	34.9	39.4	8.3	20.6	21	8.9	91.4	30.5	17.1	10.5	34	5.7	3.2	424.5 Kg

Vent Size on LW-500 and LW-750: 6"/15.2 CM
Vent Size on LW-1000: 7"/17.8 CM

BOILER INPUT, OUTPUT AND PRESSURE DROP

MODEL NUMBER	TYPE OF GAS	BTUH INPUT	BTUH OUTPUT	FLOW RATE @ 20°F/ 11°C TEMPERATURE RISE			
				GPM	PD-FT/ HD	LPM	PD-M/ HD
LW-500	Natural	500,000	450,000	45	10	170.3	3.0
	LP	450,000	405,000				
LW-750	Natural	750,000	675,000	68	10.1	257.4	3.1
	LP	675,000	607,500				
LW-1000	Natural	1,000,000	900,000	91	8.9	344.4	2.7
	LP	860,000	774,000				



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90% EFFICIENT, LOW-NOx HOT WATER SUPPLY BOILER

SUGGESTED SPECIFICATION

The gas-fired hot water supply boiler(s) shall be A. O. Smith Legend 2000® model LW _____ having an input rating of _____ BTU/hr and capable of supplying no less than _____ GPH at a 100°F temperature rise when fired with Natural/Propane gas. The boiler shall: 1) Bear the ASME "H" stamp and shall be National Board registered for 160 PSI working pressure. 2) Be test certified at 90% thermal efficiency by CSA International. 3) Meet SCAQMD Rule 1146.2 for low-NOx emissions and air quality standards.

The heat exchanger shall: 1) Incorporate 5/8" I.D. finned copper tubing with 9 fins per inch and an integrated self-baffling tube design. No “V” baffles are acceptable. 2) Be circular, encompassing the entire burner and forming the combustion chamber. No gaskets are acceptable in the combustion chamber, burner assembly, or the ASME wet section. Combustion chamber tube shall be glass-coated steel to prevent damage by condensation.

The hot water supply boiler(s) shall be supplied with a factory supplied, sized and wired boiler-circulating pump.

The gas burner shall be constructed of Inconel™ 625 stainless steel, warranted for 5 years, and fire in a radial 360-degree flame pattern. Fuel and gas mixture shall take place in the stainless steel pre-mix tube for safety. Pressurized cabinets are unacceptable. Gas orifices shall be replaceable without removal of the burner.

Boiler shall have an inner steel frame, and jacket panels shall have a baked-on enamel finish. The unit must be capable of operating with jacket panels removed for inspection and maintenance. Control panel shall permit easy access and have a protective cover, removable with no tools. All units shall utilize an approved AL29-4C stainless steel vent system to handle condensation. The Dia-Scan® solid-state control system shall monitor and control 15 operating and safety functions. Indicating lights will monitor and include air, transformer, ignition, gas pressure, water flow, gas valves, pre-purge, post-purge and safety lockouts.

CSA International certified for installation on combustible floor. Standard operating controls and equipment shall include: hot surface electronic ignition, operating aquastat, manual reset hi-limit, automatic main and redundant gas valve, master switch with pilot light, digital inlet/outlet temperature gauges, ASME safety relief valve, flow switch, heat-resistant glass viewing port, and Dia-Scan® control system.

The boiler shall be equipped for 120V, single-phase, 60 Hz current. Complete operating and start-up instructions are to be furnished with unit. Units shall meet or exceed ASHRAE/IESNA 90.1-1999.

Controls shall be 24 VAC, including slow-opening main gas valve for soft ignition, redundant safety shutoff gas valve, main and pilot pressure regulators, recycling intermittent pilot system with one-second shutdown in the event of pilot flame failure, automatic recycling high limit, manual reset ECO limit, main and pilot manual cocks and manual firing valve, and an ASME-rated pressure relief valve. The boiler shall be approved by Factory Mutual (FM).

The boiler shall comply with ASHRAE/IESNA 90.1-1999 standards. The boiler manufacturer must supply complete factory start-up by a factory approved start-up agent.

A.O.Smith
Water Heaters
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For Technical Information and Automated Fax Service, call 800-527-1953.
A. O. Smith reserves the right to make product changes or improvements without prior notice.

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