

BURKAY® GENESIS™

85% EFFICIENT, ULTRA-LOW NO_x HOT WATER SUPPLY BOILER

A. O. Smith Genesis™ Water Heaters offer everything you could ask for in a non-condensing hot water supply boiler. They provide a near condensing 85% thermal efficiency, outstanding venting flexibility, space-saving stackable design and a clean burning fan assisted combustion system with low NO_x emissions that meet the most stringent standards.

ELECTRONIC CONTROL WITH PRECISE TEMPERATURE MANAGEMENT

- Controls every electrical water heater function, including pump operation and main burner ignition, delivers precise temperature management, with $\pm 1^\circ$ accuracy.
- Display panel shows current operating status and fault readings
- Display also shows temperature setpoints, outlet temperature, current inlet/outlet differential (DT) and tank temperature.
- Included remote temperature sensor when mounted in the storage tank allows the tank temperature to be set and monitored at the water heater.

STAGE GAS FIRING SYSTEM

- Prevents short cycling and ensures smooth operation, saves fuel and extends product life.
- Delivers maximum output when demand is high, reduced firing rates during off peak times.

ULTRA-LOW NO_x OPERATION

- Meets SCAQMD Rule 1146.2 air quality standards.

COPPER FINNED-TUBE HEAT EXCHANGER

- Gasketless glasslined headers and copper-finned tubes with extruded integral fins deliver exceptional heat transfer.
- Copper is lightweight for easier handling and immune to thermal shock.

SPACE-SAVING DESIGN

- Optional stack rack allows one unit to be stacked on top of another, doubling output within the footprint of a single unit.
- If floor space is limited, the Genesis hot water supply boiler can be installed outdoors with an optional outdoor Vent Cap.

MEETS ASHRAE/IES 90.1-2004

MULTIPLE VENTING OPTIONS

- All Genesis models can vent vertically in Category I with double wall "B" vent or horizontally in Category IV with AL29-4C stainless steel vent material.

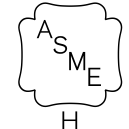
FACTORY START-UP INCLUDED

- Required for activating warranty and assuring maximum operating performance. Contact your local sales representative or factory to arrange a FREE Certified Start-Up.

5-YEAR LIMITED HEAT EXCHANGER WARRANTY

- For complete warranty information, consult written warranty or contact A. O. Smith.

GWH-400 THRU GWH-2100



GENESIS™ DIMENSIONS AND SPECIFICATIONS

MODEL NUMBER	INPUT MBH	GPH @ 40°F RISE	GPH @ 80°F RISE	GPH @ 100°F RISE	GPH @ 140°F RISE	DIMENSIONS IN INCHES											APPROX. SHIPPING WEIGHT (LBS)
						A	B	C	D	E	F	G	H	J	K	L	
GWH-400N	399	1,028	510	412	294	31-1/2	7	37-5/8	8-7/8	12-1/2	7	3-1/4	29-3/4	6-3/8	12-5/8	22-1/4	454
GWH-500N	500	1,288	638	515	368	31-1/2	7	45-3/8	8-7/8	12-1/2	7	3-1/4	29-3/4	6-3/8	12-5/8	22-1/4	467
GWH-650N	650	1,674	829	670	478	31-1/2	8-1/2	56-3/4	8-7/8	12-1/2	8-1/2	3-1/4	29-3/4	6-3/8	12-5/8	22-1/4	551
GWH-750N	750	1,932	957	773	552	31-1/2	8-1/2	64	8-7/8	12-1/2	8-1/2	3-1/4	29-3/4	6-3/8	12-5/8	22-1/4	611
GWH-1000N	990	2,550	1,276	1,020	729	36	8-3/4	48-1/2	5-7/8	15-7/8	22-1/2	8-1/2	33-3/4	8-3/4	19-7/8	33	843
GWH-1250N	1,260	3,245	1,594	1,298	927	36	9-3/4	58-3/4	5-7/8	15-7/8	22-1/2	9-3/4	33-3/4	8-3/4	19-7/8	33	939
GWH-1450N	1,440	3,709	1,849	1,484	1,060	36	10-1/2	68-7/8	5-7/8	15-7/8	22-1/2	10-1/4	33-3/4	8-3/4	19-7/8	33	1,035
GWH-1800N	1,800	4,636	2,318	1,855	1,325	36	11	82-3/8	5-7/8	15-7/8	22-1/2	10-7/8	33-3/4	8-3/4	19-7/8	33	1,168
GWH-2100N	2,070	5,332	2,679	2,133	1,523	36	11	92-5/8	5-7/8	15-7/8	22-1/2	10-7/8	33-3/4	8-3/4	19-7/8	33	1,285

Pump and flanges are shipped loose for field installation.

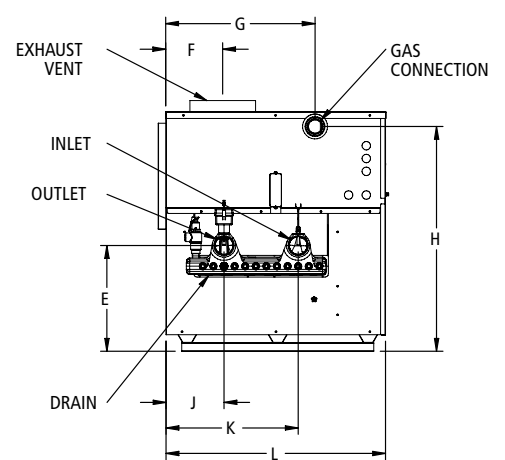
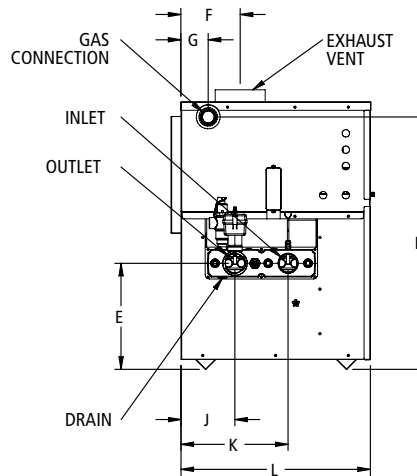
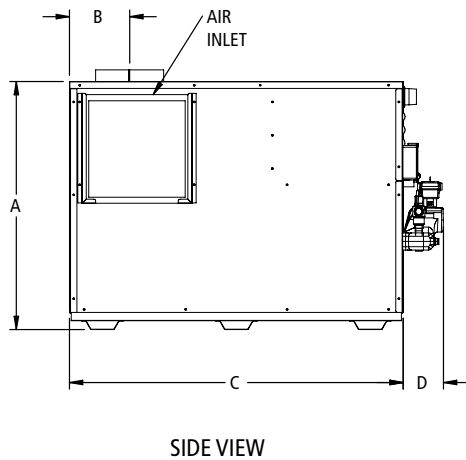
Gas connect pipe size is 1/4" for models GWH-400 to GWH-750 and is 2" for models GWH-1000 to GWH-2100.

Water connections for models GWH-400 to GWH-750 are 2" NPT on 6-1/2" centers.

Water connections for models GWH-1000 to GWH-2100 are 2-1/2" NPT on 11-1/4" centers.

Performance data is based on manufacturer test results.

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



OTHER GENESIS™ FEATURES

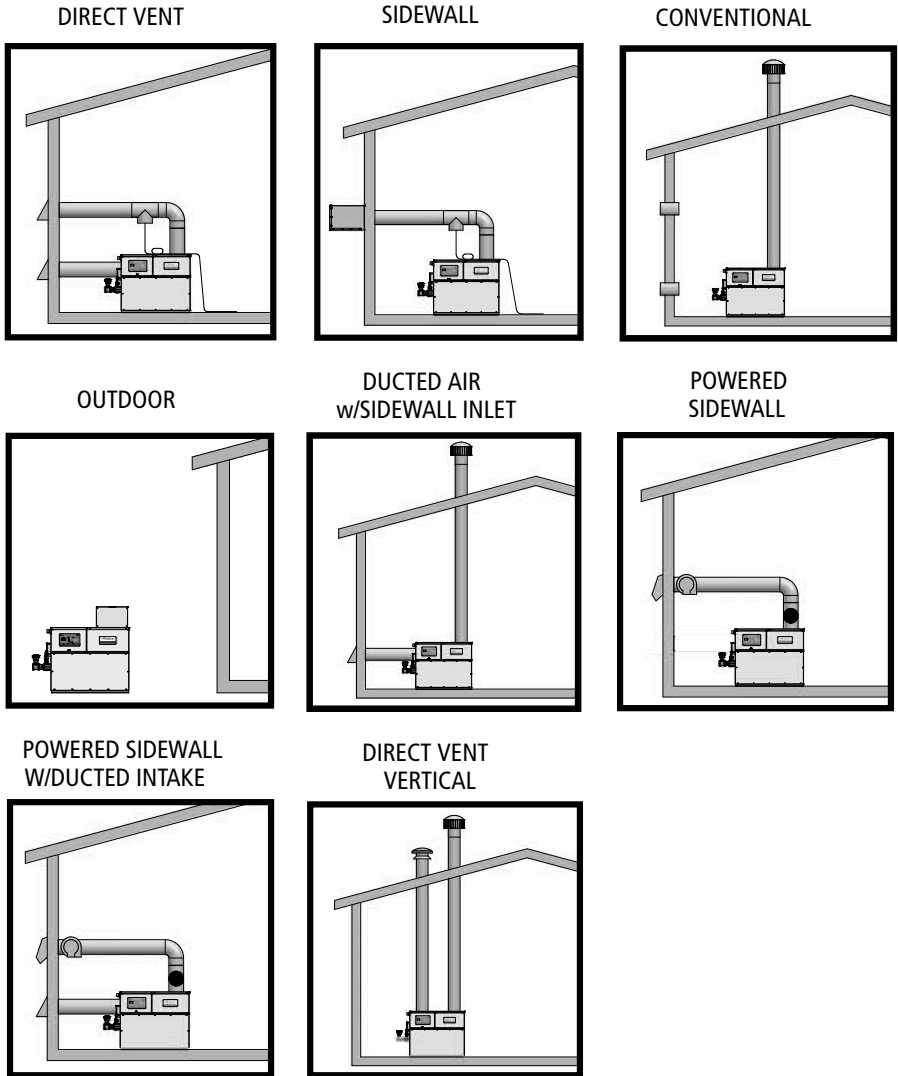
- Stage Firing – 2 Stages
- Sealed Combustion Chamber
- Stainless Steel Burners
- Low NOx Operation
- All Bronze Circulating Pump (Shipped Loose)
- On/Off Switch
- Adjustable High Limit w/ Manual Reset
- Pump Delay
- ASME Copper Finned Tube Heat Exchanger Certified "H" Stamped 160 PSI Working Pressure
- ASME Temperature & Pressure Relief Valve 125#
- Temperature and Pressure Gauge
- Factory mounted Flow Switch
- Contacts for Air Louvers
- Contacts on any Failure

GENESIS™ OPTIONS

- Cupro-Nickel Heat Exchanger
- Low Water Cut-Off w/ Manual Reset & Test
- High & Low Gas Pressure Switches w/ Manual Reset
- Stack Rack
- Combustible Floor Shield (400 – 750)

SEQUENCING PANEL – Can manage 1 to 4 two stage hot water supply boilers

- Includes remote Tank sensor and sensor well
- Controls each stage of multiple stage fired hot water supply boiler(s) to meet system demand
- Provides Cascade/Lead-Lag operation when multiple units are connected



MODEL	INLET GAS PRESSURE			
	NATURAL		LP	
	MAX. W.C.	MIN. W.C.	MAX. W.C.	MIN. W.C.
400-1200	14.0	4.5	14.0	8.0

Do not exceed the maximum Inlet Pressure. Minimum inlet pressure is for the purpose of input adjustment.

MULTIPLE VENTING OPTIONS

The Genesis models offer eight venting options to meet the most challenging installation requirements. The Genesis can vent vertically in Category I with double wall "B" vent or horizontally in Category IV with AL29-4C stainless steel vent material.

Note: For the most current Genesis venting distances/information, consult the Genesis Product Manual, available through your local A. O. Smith representative, or online at www.hotwater.com.

MODEL NUMBER	AMP DRAW DATA			
	CONTROLS	BLOWER	PUMP FLA*	APPROX. TOTAL AMP'S @ 120 VAC
GWH-400N	3.6	2.7	5.8	12.1
GWH-500N	3.6	2.7	5.8	12.1
GWH-650N	5.4	3.4	5.8	14.6
GWH-750N	5.4	3.4	5.8	14.6
GWH-1000N	7.3	3.2	7.4	17.9
GWH-1250N	7.3	3.2	7.4	17.9
GWH-1450N	7.3	6.7	7.4	21.4
GWH-1800N	7.3	6.7	7.4	21.4
GWH-2100N	7.3	6.7	7.4	21.4

MODEL NUMBER	VENT OUTLET SIZE	COMBUSTION AIR INLET	MAXIMUM EQUIVALENT FEET OF PIPE				
			SIDEWALL	POWERED SIDEWALL	POWERED SIDEWALL W/DUCTED AIR	DIRECT VENT	DUCTED AIR W/SIDEWALL INTAKE
GWH-400N	6"	6"	50'	50'	50'/50'	50'/50'	50'
GWH-500N	6"	6"	50'	50'	50'/50'	50'/50'	50'
GWH-650N	8"	8"	50'	50'	50'/50'	50'/50'	50'
GWH-750N	8"	8"	50'	50'	50'/50'	50'/50'	50'
GWH-1000N	10"	10"	50'	100'	100'/100'	50'/50'	50'
GWH-1250N	12"	12"	50'	100'	100'/100'	50'/50'	50'
GWH-1450N	12"	12"	50'	100'	100'/100'	50'/50'	50'
GWH-1800N	14"	12"	50'	100'	100'/100'	50'/50'	50'
GWH-2100N	14"	12"	50'	100'	100'/100'	50'/50'	50'

Note: 90 degree ells = 5' of pipe, 45 degree ells = 2 1/2' feet of pipe



Commercial-Grade Hot Water Supply Boilers

SPECIFICATION

The hot water supply boiler shall be an A. O. Smith model GWH _____ with an input rate of _____ BTU/h, recovery capacity of _____ gallons per hour at a 100°F rise and shall be operated on (Natural Gas)(LP Gas). The hot water supply boiler shall operate at a minimum of 85% thermal efficiency.

The hot water supply boiler shall be certified and listed by CSA International under the latest edition of the harmonized ANSI Z21.13 test standard for the U.S. and Canada and comply with the energy efficiency requirements of NRCan and the latest edition of the ASHRAE 90.1 standard.

The water containing section shall be a "fin tube" design with straight copper tubes having extruded integral fins spaced seven (7) fins per inch. The tubes shall terminate into a one piece, glass-lined, cast-iron header. There shall be no bolts, gaskets, or o-rings in the head configuration. There shall be access to the front header of the heat exchanger for the purposes of inspection, cleaning, or repair. The heat exchanger shall be mounted in a stress-free jacket assembly to provide a "free floating design" able to withstand the effects of thermal shock. The hot water supply boiler shall bear the ASME "H" stamp for 160 psi working pressure and shall be National Board listed. The complete heat exchanger assembly shall carry a five (5) year limited warranty.

The combustion chamber shall be sealed and completely enclosed with ceramic fiberboard insulation. A burner/flame observation port shall be provided at both ends of the chamber. The burners shall be of premix design and be constructed of high-temperature stainless steel and fire on a horizontal plane.

The hot water supply boiler shall be constructed with a heavy gauge galvanized steel jacket assembly, primed and pre-painted on both sides with a minimum dry film thickness of 0.70 mil.

The hot water supply boiler shall be equipped with a factory-supplied circulating pump of sufficient capacity to ensure scale-free heating performance and shall provide pump delay. Supply electrical service shall be 120V, 60Hz, 1PH.

The standard control system shall include redundant proven pilot hot surface ignition with full flame monitoring capability. Multiple main gas valves with redundant valve seats and built-in low gas pressure regulators shall be supplied as standard. Additional standard controls shall include a flow switch, low air/blocked flue pressure switch for each fan, low-voltage transformer for the control circuit, 7 A circuit breaker and an ASME temperature and pressure relief valve. The manufacturer shall verify proper operation of the burners, all controls, and the heat exchanger by connection to water and venting for a factory test prior to shipping.

The hot water supply boiler shall be approved for indoor installation. Multiple venting options shall be available. Vertical venting systems shall be classified Category I, negative draft, non-condensing, to use type B double-wall venting materials. Horizontal or direct vent installations require the use of AL29-4C vent materials.

A factory-authorized certified start-up shall be performed before placing the hot water supply boiler into operation.

For Technical Information call 888-599-2837. A. O. Smith Enterprises Ltd. reserves the right to make product changes or improvements without prior notice.