

BURKAY® GENESIS

85% EFFICIENT, ULTRA-LOW NO_x HOT WATER HEATER

A. O. Smith Genesis® Water Heaters offer everything you could ask for in a non-condensing water heater. 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 California 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 ±1° 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 water heater can be installed outdoors with an optional outdoor Vent Cap.

MEETS ASHRAE/IESNA 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 Authorized Start-Up Agent 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



OTHER GENESIS® FEATURES

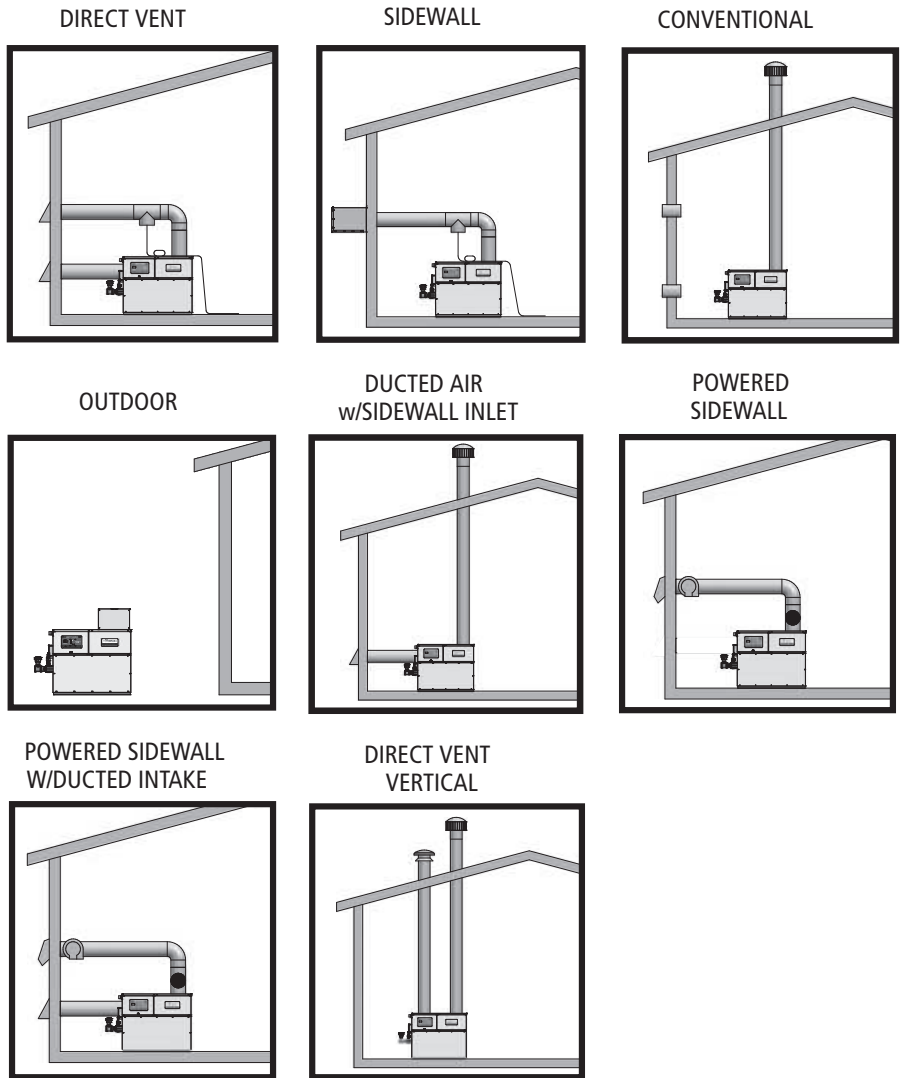
- Stage Firing – 2 Stages
- Sealed Combustion Chamber
- Stainless Steel Burners
- Low NOx Operation
- All Bronze Circulating Pump (Shipped Loose)
- On/Off Switch
- Adjustable High Limit w/ Manual Reset
- Pump Delay
- ASME Copper Finned Tube Heat Exchanger Certified "HLW" Stamped 160 PSI Working Pressure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

GENESIS® OPTIONS

- Cupro-Nickel Heat Exchanger
- High Gas Pressure Switch w/ Manual Reset
- Low Gas Pressure Switch w/ Manual Reset
- Low Water Cut-Off w/ Manual Reset & Test
- Stack Rack
- Combustible Floor Shield (400 – 750)
- International Voltage (230V 50Hz)

SEQUENCING PANEL – Can manage 1 to 4 two stage water heaters

- Includes remote Tank sensor and sensor well
- Controls each stage of multiple stage fired water heater(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

GENESIS® GAS WATER HEATER DIMENSIONS AND SPECIFICATIONS

| Model Number | Input MBH | GPH @ 40°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 | 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 | 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 | 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 | 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 | 1,020 | 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 | 1,298 | 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 | 1,484 | 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 | 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 | 2,133 | 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.

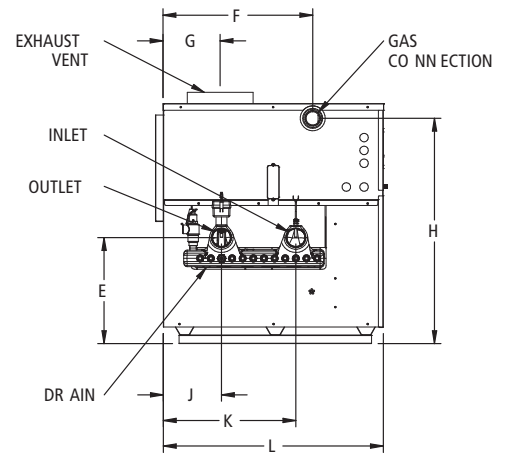
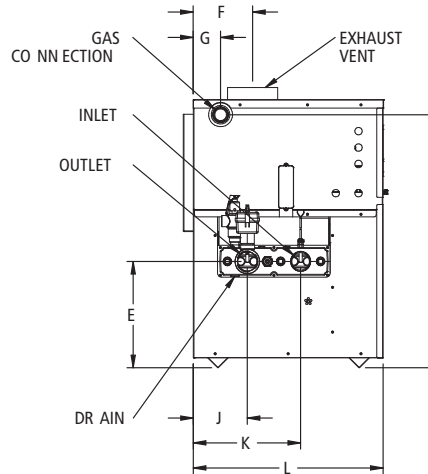
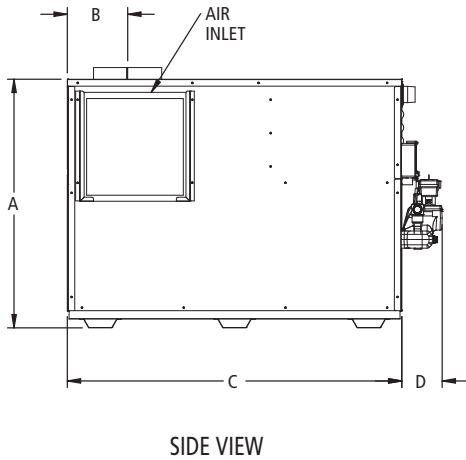
Gas connect pipe size is 1/4" for models GWH-400 to GWH-750 and is 2" for models GWH-1000 to GWH-2100.

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.





Commercial Gas Circulating Water Heaters

SPECIFICATION

The WATER HEATER shall be a A. O. Smith Genesis Model GWH_____ having an input rating of _____ Btu/hr, a recovery capacity of _____ gallons per hour at a 100° F rise and shall be operated on (Natural Gas) (L.P. Gas).

The water containing section shall be of 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 in order to provide a "free floating design" able to withstand the effects of thermal shock. The WATER HEATER shall bear the ASME "HLW" 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 WATER HEATER shall be equipped with a factory supplied circulating pump of sufficient capacity to ensure scale free heater performance. The pump shall be all bronze and provided for operation on 120 volt, 60 cycle, 1 phase power supply (unless otherwise specified).

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 water heater. The burners shall be a premix design and be constructed of high temperature stainless steel and fire on a horizontal plane.

The WATER HEATER 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 mils.

The WATER HEATER shall be certified and listed by C.S.A. International under the latest edition of the harmonized ANSI Z21.10.3 test standard for the US and Canada. The WATER HEATER shall comply with the energy efficiency requirements of the latest edition of the ASHRAE 90.1 Standard. The WATER HEATER shall operate at a minimum of 85% thermal efficiency.

The WATER HEATER shall provide pump delay with freeze protection feature. Terminal strip with connections for BMS control of the burner stages shall be provided. Supply voltage shall be 120 volt / 60 hertz / single phase.

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 amp 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 fire test prior to shipping. A quality test report shall be shipped with each unit.

The WATER HEATER shall be approved for indoor or outdoor 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.

For technical information, call 800-527-1953. A. O. Smith Corporation reserves the right to make product changes or improvements without prior notice.