FEATURES

84% THERMAL EFFICIENCY – The absolute highest thermal efficiency possible by a non-condensing boiler is achieved by the Genesis Boiler.

Low NOx – Precise amounts of gas and air are premixed through special Pre-Jet Orifices and forced through stainless steel burners that provide complete and clean combustion.

GW/GWO 1000 through 1850 comply with SCAQMD Rule 1146.2 and other Air Quality Management with similar requirements. GW/GWO 2100 and 2500 comply with SCAQMD Rule 1146.1 when field certified by SCAQMD.

EXCLUSIVE EMC-5000 CONTROL W/STAGED FIRING – The EMC-5000 is a complete microprocessor based boiler control. Every electrical boiler function; from starting the pump, to stage firing the main burner, to cycling the pump off at the end of a heating cycle; is controlled and monitored by the onboard computer. A comprehensive display panel includes LEDs that indicate current operating and fault status. A digital LED displays temperature set points, outlet temperature, current inlet/outlet differential (∆T), tank temperature, and additional numerical fault codes. Precise temperature management is plus or minus 1°. In addition, the EMC-5000 provides true self-diagnostic capabilities, eliminates guesswork, and reveals exactly where the problem is. Troubleshooting has never been easier.

iCOMM™ compatible and can be monitored from remote locations. Call 1.888.WATER02 for more information.

STAGED FIRING – All second family Genesis boilers are staged fired. The boiler automatically adjusts its firing rate and btu output to maintain precise system temperature control. Each stage is user programmable; allows the boiler to be tailored to the installation and adjusted for optimum boiler performance and overall system efficiency. Models GW-1000 thru GW-1500 have three stages; Models GW-1850 thru GW-2500 have four stages.

HEAT EXCHANGER WITH HEAVY-DUTY CAST HEADERS – Cast iron glass lined headers are standard, bronze headers are optional.

HIGH EFFICIENCY HIGH HEAT TRANSFER – A. O. Smith’s distinctive double row integral finned copper heat exchanger provides maximum heat transfer and utilizes a self-baffling staggered tube design, that assures 84% thermal efficiency.

INTEGRAL REAR HEADER BOILER MOUNTED PUMP – Factory sized, pre-wired bronze fitted pump is standard. Factory standard pump time delay allows the removal of useable residual heat from the combustion chamber during the stand-by cycle. Practically eliminates stand-by heat loss.

FACTORY TESTED – Each Genesis boiler is water and fire tested before leaving the factory.

UNMATCHED VENTING FLEXIBILITY – Multiple venting options; choose from several conventional or direct venting options. Multiple openings options; choose from exhaust outlet-leaving the top of boiler or exhaust outlet-leaving the rear of boiler.

STACKABLE SPACE SAVING DESIGN – Up to 5 million btu’s in space of a 2.5 million btu boiler.

OTHER FEATURES – Mounted Flow Switch • Remote Tanks Temperature Sensor • ASME Rated T&P Relief Valve 125# • Alternate Thermostat Terminals (24V) • Manual Reset High Limit • Blocked Flue Switch • Fan Proving Switch • Adjustable Pump Delay.

OPTIONS – Code Options: CSD-1, California Code • Alarm Bell • Outdoor Models • Stack Rack • Low Water Cut Off • Extended Power Venting Kits • Dry Contacts For Any Boiler Failure • Direct and Sidewall Vent Terminal Kits • Cupro-Nickel Tubes • Hard Water Pump (inline) • EMS converter (Allows Energy Management Controls systems to manage the stage firing.)

FIVE-YEAR HEAT EXCHANGER LIMITED WARRANTY
• FACTORY START-UP INCLUDED – Required for activating warranty and assuring maximum operating performance. Contact your local representative or Authorized Start-Up Agent to arrange a FREE certified start-up.
• For complete information, consult written warranty or contact A. O. Smith
**Domestic Hot Water Boilers**

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

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**Model** | **Water Connections** | **Gas Connections** | **Vent** | **Inlet Air** | **A Width W/O/Pump** | **B Height** | **C** | **D** | **E** | **F** | **G** | **Width W/Pump**
---|---|---|---|---|---|---|---|---|---|---|---|---
GW-1000 | 2 1/2 | 2 | 10 | 8 | 47 | 40 1/2 | 14 | 12 1/2 | 36 1/4 | 31 3/4 | 20 3/4 | 64
GW-1300 | 2 1/2 | 2 | 12 | 10 | 57 1/2 | 40 1/2 | 24 3/4 | 12 1/2 | 36 1/4 | 31 3/4 | 18 7/4 | 74 1/2
GW-1500 | 2 1/2 | 2 | 12 | 10 | 64 1/2 | 40 1/2 | 30 | 12 1/2 | 36 1/4 | 31 3/4 | 19 3/4 | 81 1/2
GW-1850 | 2 1/2 | 2 1/2 | 14 | 10 | 78 3/4 | 43 1/4 | 27 3/4 | 11 1/2 | 35 1/4 | 32 1/2 | 34 1/4 | 95 3/4
GW-2100 | 2 1/2 | 2 1/2 | 14 | 12 | 85 1/2 | 43 1/4 | 31 | 11 1/2 | 35 1/4 | 32 1/2 | 35 3/4 | 102 1/2
GW-2500 | 2 1/2 | 2 1/2 | 16 | 12 | 99 1/2 | 43 1/4 | 38 | 10 1/2 | 35 1/4 | 32 1/2 | 42 3/4 | 116 1/2

Maximum gas supply pressure is 13.8” W.C. for both Natural and Propane Gas. The minimum supply gas pressure is 7” W.C. for Natural Gas. The minimum supply gas pressure for Propane is 11.0” W.C.

Requires: 120V, 60 Hz, 30 Amps. Dedicated breaker.

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**HOT WATER SUPPLY BOILER RECOVERY CAPACITIES**

**Temperature Rise-Degrees F. Gallons Per Hour**

<table>
<thead>
<tr>
<th>Model</th>
<th>Input Rating BTU/Hr.</th>
<th>Natural &amp; Propane (LP) Gas</th>
<th>40</th>
<th>50</th>
<th>60</th>
<th>70</th>
<th>60</th>
<th>100</th>
<th>110</th>
<th>120</th>
<th>130</th>
</tr>
</thead>
</table>
| GW-1000 | 990,000 | GPH | 2520 | 2016 | 1680 | 1440 | 1260 | 1120 | 1008 | 918 | 840 | 775
| GW-1300 | 1,300,000 | GPH | 3309 | 2847 | 2208 | 1891 | 1655 | 1471 | 1324 | 1203 | 1103 | 1018
| GW-1500 | 1,500,000 | GPH | 3818 | 3055 | 2456 | 2182 | 1909 | 1697 | 1527 | 1388 | 1273 | 1175
| GW-1850 | 1,850,000 | GPH | 4709 | 3767 | 3139 | 2691 | 2355 | 2093 | 1884 | 1712 | 1570 | 1449
| GW-2100 | 2,100,000 | GPH | 5345 | 4276 | 3564 | 3055 | 2673 | 2376 | 2138 | 1944 | 1782 | 1645
| GW-2500 | 2,490,000 | GPH | 6338 | 5071 | 4225 | 3622 | 3169 | 2817 | 2535 | 2305 | 2113 | 1950

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**Model** | **Input Rating BTU/Hr.** | **Natural & Propane (LP) Gas** | **Output Rating BTU/Hr.** | **Natural & Propane (LP) Gas** | **20 Deg. F Rise** | **30 Deg. F Rise** | **40 Deg. F Rise** | **Maximum Flow Rate** | **Minimum Flow Rate**
---|---|---|---|---|---|---|---|---|---|
| GW-1000 | 990,000 | 831,600 | GPM | 83 | 5.1 | 55 | 27 | 42 | 1.5 | 154 | 12.2 | 11 | 42 | 1.5 | 40
| GW-1300 | 1,300,000 | 1,092,000 | GPM | 109 | 72 | 73 | 4.2 | 55 | 3.2 | 154 | 14.5 | 14 | 55 | 3.2 | 40
| GW-1500 | 1,500,000 | 1,260,000 | GPM | 126 | 10.1 | 84 | 8.3 | 64 | 4.3 | 154 | 16.3 | 17 | 64 | 4.3 | 40
| GW-1850 | 1,850,000 | 1,554,000 | GPM | 154 | 19 | 104 | 10.1 | 78 | 6.4 | 154 | 16.5 | 20 | 78 | 6.4 | 40
| GW-2100 | 2,100,000 | 1,764,000 | GPM | N/A | N/A | 116 | 14.5 | 89 | 8.3 | 154 | 21.3 | 23 | 89 | 8.3 | 40
| GW-2500 | 2,490,000 | 2,091,600 | GPM | N/A | N/A | 139 | 16.5 | 105 | 11.6 | 154 | 23.2 | 26 | 106 | 11.6 | 40

Note: Flow rates and pressure drops shown above are through the boiler only and include no field piping. The field piping must also be considered when sizing system pumps.

Note: The standard factory supplied internal rear header mounted pump is sized for the boiler and up to additional 50 equivalent feet of field piping.

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Revised February 2013

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AOSDG25210
### OUTDOOR MODELS

<table>
<thead>
<tr>
<th>Model</th>
<th>DIM. “A”</th>
<th>DIM. “B”</th>
</tr>
</thead>
<tbody>
<tr>
<td>GWO-1000</td>
<td>66.00</td>
<td>58.67</td>
</tr>
<tr>
<td>GWO-1300</td>
<td>76.50</td>
<td>58.67</td>
</tr>
<tr>
<td>GWO-1500</td>
<td>83.50</td>
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<tr>
<td>GWO-1850</td>
<td>97.50</td>
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<tr>
<td>GWO-2100</td>
<td>104.50</td>
<td>61.37</td>
</tr>
<tr>
<td>GWO-2500</td>
<td>118.50</td>
<td>61.37</td>
</tr>
</tbody>
</table>

See installation manual for additional venting information further details.

Notes:
- Maximum three elbows
- ** Maximum two elbows - each - Intake/Exhaust
- 90/45 degree elbows are equivalent to 10/5 feet of vent pipe respectively.
- All venting configurations terminating horizontally are Category III and require AL29-4C venting material.
- All venting configurations terminating vertically are Category I and can use type B venting material (Except where local codes require AL29-4C sealed venting material.)
SUGGESTED SPECIFICATION

The hot water supply boiler(s) shall be an A. O. Smith Genesis Model GW _________ having an input rating of ________ BTU/hr, and an output rating of ________ Btu/hr when fired with (Natural/Propane) _________ gas. The boiler shall bear the ASME “H” stamp and shall be National Board registered (CRN in Canada) for 160 PSI working pressure. The boiler(s) shall be equipped with a factory installed 125 PSIG CSA Certified and ASME T&P Relief Valve. The boiler(s) shall be design tested and certified to the ANSI Z21.13 - CSA 4.9 standards and approved by CSA with a listed thermal efficiency of 84%. The boiler’s copper fin tube heat exchanger shall be a horizontal, double row, two pass, 15-tube design. The lower first pass with 8 solid copper tubes shall have integral extruded copper fins spaced at “5” fins per inch, the upper second pass with 7 solid copper tubes shall have “7” extruded copper fins per inch. The tubes shall be rolled into heavy (all Bronze “Standard” /or Cast IronCoraShield lined “optional”) __________________ headers. The ASME approved bolted split headers must have a removable faceplate that allows full access and inspection of the tubes and internal header surfaces. Non-removable one-piece headers, with small inspection plugs, shall not be acceptable. The heat exchanger shall bear a 5-year manufacturer’s limited warranty against failure. The heat exchanger shall be immune to thermal shock. The Boiler(s) shall be provided with the factory-sized, integrally rear header mounted, pre-wired, bronze fitted, factory-installed pump. The pump shall be controlled by the boiler’s EMC-5000 control and include an adjustable time delay, that allows the removal of useable residual heat from the combustion chamber and cools the boiler to an equal system temperature during the stand-by cycle. The combustion chamber shall be fully lined with lightweight, high temperature ceramic fiber insulation, rated to 2,300°F (1260°C). The jacket panels shall be powder coated with a baked-on finish, which is suitable for outdoor service. The jacket shall be of tight construction, and weather and water-resistant. The boiler shall employ a fan induced premixed multi-burner system firing into a pressurized combustion chamber. The “4509”stainless steel/titanium alloy burners shall be fired using Pre-Jet gas orifices that provide precise gas to air mixture for clean combustion and low NOx operation. The pre-Jet gas orifices shall be self-adjusting for altitude, from sea level to 6,000 feet (1,830m). The boiler(s) shall be capable of meeting or exceeding the current national, state, and local air quality regulations for low NOx. All electrical boiler functions shall be controlled, operated, and monitored by a EMC-5000 microprocessor-based control. The EMC-5000 control shall provide (three “GW-1000 thru GW-1500”/four “GW-1850 thru GW-2500) _____ stage operation. Each stage shall be adjustable by the operator to allow the boiler to be adjusted to suit the application and maximize system/boiler efficiency and operation. The microprocessor shall control the boiler temperature and be accurate to within plus or minus 1°F. The hot surface ignition system shall employ a separate flame sensor for each stage to provide maximum safety. The microprocessor-based boiler control shall be tested to ANSI standards and approved by UL. The boiler shall be supplied with a remote tank thermistor for sensing and controlling the storage tank temperature up to 1,000 feet (300m) away by the EMC-5000 boiler control. Alternate 24V contacts shall also be provided to allow the boiler to be controlled by energy management systems and/or multi-boiler controllers. The microprocessor-based control shall be self-diagnostic and provide 25 LED’s that indicate current operating and fault status. In addition to the LED’s, a digital LED enunciator shall provide numerical read outs of inlet/outlet, inlet/outlet differential, set point and set point differential temperatures; along with additional numerical failure codes. Factory-mounted and wired flow, blower prove, and blocked flue switches shall be provided. The gas train shall meet the requirements of ANSI Z21.13 - CSA 4.9 and include gas pressure regulator, manual gas cock, redundant safety gas valve, operating control valve, and plugged pressure test tapings. The boiler(s) shall be CSA approved for direct horizontal through the wall venting, or direct vertical venting, in addition to conventional sidewall or conventional vertical venting. The boiler(s) must be field convertible from top mounted venting to rear mounted venting. For maximum floor space optimization, the boiler(s) will have the option of being stacked directly one above the other using a factory designed Stack-Rack as provided by the manufacturer. Boilers with top only vent outlets that cannot be stacked directly one above the other are not acceptable.

Water heater should incorporate the iCOMM™ system for remote monitoring, leak detection and fraud alert.