A. O. Smith hot water generators are available for operation with steam or boiler water as the energy source. They are completely assembled with components sized, piped and checked at the factory before shipment. Generators are available in space saving vertical or horizontal models.

CUSTOM UNIT AVAILABILITY - Custom units built to order, with tank capacities up to 12,000 gallons, with special control trim, and with special heating units can be built to design specifications on special order basis. Standard units listed in this brochure cover most standard orders.

INSULATION AND JACKETING - The HWG systems meet or exceed the thermal efficiency and or standby loss requirements of the U.S. Department of Energy and current edition ASHRAE/IESNA 90.1.

CODE LISTING - The standard system will employ an ASME “HLW” code glass-lined storage tank fitted with an ASME “U” code 3/4” diameter copper tube heat exchanger.

INTEGRAL PUMP - The standard HWG system will employ an integral bronze circulator pump. The standard heat exchanger sizing tables are also based on using integral circulators.

HWG OPTIONS (STEAM OR WATER BOILER UNITS) - Low water cutoff, alarm horn, 11x15 vessel manway, 4x6 vessel hand hole.

STEAM UNITS - Standard steam trim consists of temperature control valve, inlet and auxiliary steam traps, inlet and auxiliary strainers, steam pressure gauge with siphon, vacuum breaker and air vent.

OPTIONAL STEAM TRIM - Includes steam pressure reducing valve, electric high limit safety system, pilot operated controls, pneumatic controls.

BOILER UNITS - Standard boiler water trim include temperature control valve and boiler water temperature gauge.

OPTIONAL BOILER TRIM - Electric high limit safety system, three-way controls with bypass and boiler water pump. ASME RATING - Standard HWG consists of ASME HLW Code storage tank rated 125 psig working pressure with U Code heat exchanger, temperature & pressure relief valve, temperature & pressure gauge in tank, drain valve and lifting lugs.

CATHODIC PROTECTION - Standard HWG systems employing glass, cement or epoxy lined tanks are fitted with magnesium anodes as cathodic protection.

LIMITED WARRANTY OUTLINES
GLASS-LINED, CEMENT, EPOXY: If the tank should leak any time during the first five years, under the terms of the warranty, A. O. Smith will repair or replace the tank; installation, labor, handling and local delivery extra.

THE COIL HAS A ONE YEAR LIMITED WARRANTY.

NOTE: THIS OUTLINE IS NOT A WARRANTY. For complete information, consult the written warranty or A. O. Smith Water Products Company.
Packaged Hot Water Generating Systems - Steam / Hot Water

TO SPECIFY HWG SERIES PACKAGE WATER HEATER:

1. Calculate storage capacity in gallons required, and determine if vertical or horizontal installation applies.
2. Decide what type of heating medium will be used; steam or boiler water.
   - If STEAM - Determine pressure in coil.
   - If BOILER WATER - Determine available boiler water temperature.
3. From the recovery table, obtain the required GPH capacity and temperature rise. Selecting heating coil size.
4. Decide whether single or double wall coil is required.

EXAMPLE INSTALLATION REQUIREMENTS:
Vertical, 140 gallons, Steam @ 5 PSIG, 80 GPH Recovery, 40 - 140°F temperature rise.

TO DETERMINE THE HWG SERIES MODEL:
Storage Tank ................................. 140 Gallons, Vertical
Coil Size ........................................ 4-18 (from RECOVERY CHART)

MODEL TO SPECIFY:
HWG - 140 V ES S 4-18

Heating Coil Size
S = Steam, W = Water
S = Single Wall, D = Double Wall
V = Vertical, H = Horizontal

ESS = Single Wall Steam
EDS = Double Wall Steam
ESW = Single Wall Water
EDW = Double Wall Water

Table HWG-1
GALS./HR RECOVERY (BASED ON CIRCULATING TANK)

<table>
<thead>
<tr>
<th>STEAM PRESS IN COIL (PSIG)</th>
<th>4-18</th>
<th>4-36</th>
<th>6-24</th>
<th>6-36</th>
<th>6-54</th>
<th>8-42</th>
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Table HWG-2
G.P.H. RECOVERY WATER-WATER (CIRCULATING TANK) W/TEMPERATURE RISE (40-140°F)

<table>
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<th>STEAM PRESS IN COIL (PSIG)</th>
<th>4-18</th>
<th>4-36</th>
<th>6-24</th>
<th>6-36</th>
<th>6-54</th>
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<tr>
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<td>79</td>
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<td>121°F BOILER WATER</td>
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<tr>
<td>MINIMUM GPM REQ'D</td>
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<tr>
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<td>20</td>
<td>29</td>
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<td>91</td>
<td>122</td>
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<td>235</td>
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NOTES:
1. Other coil sizes available.
2. Consult factory for design parameters outside this chart.

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.

www.hotwater.com
Packaged Hot Water Generating Systems - Steam / Hot Water

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SUGGESTED SPECIFICATION

The hot water heater generator package shall be A. O. Smith model no. HWG__________ (V) or (H), (ESW) or (EDW) with__________ heating coil. The jacketed, insulated storage tank shall be constructed and stamped according to ASME specifications for (125) psi working pressure. The unit shall be designed to recover__________ GPH for a temperature rise of ________ degrees F to ________ degrees F when supplied with__________ psi boiler water entering temperature regulator at__________ degrees F. The heating coil shall be constructed and stamped according to section VIII of ASME code. The tube bundles shall be constructed of 3/4" O.D. 20 GA. deoxidized drawn copper tubing. The unit shall be controlled by one of three means: On-Off MoValve____________, Three Way Modulating Valve____________, Thermostatically Operated Boiler Water Pump____________. The unit will be completely factory assembled and furnished with the following standard components.

A storage tank ______" dia. x ______" long with ______ gallon capacity. Tank shall be insulated with 3” fiberglass insulation, R-value > 12.5. Tank shall be jacketed with heavy gauge steel with a baked enamel finish. Tank shall be built to ASME section lined and furnished with an ASME temperature & pressure relief valve. Heating coil built to Section VIII of ASME code. A tempregulator to be self actuated, direct acting. A bronze integral circulator pump with copper soldered recirculation line and (2) valves. A drain valve and assembly. Jacket mounted temperature and pressure gauges, ASME temperature & pressure gauges, a CSA Certified and ASME Rated T&P relief valve and a full length channel base and lifting lugs.

OPTIONAL EQUIPMENT IS AS FOLLOWS:

STORAGE TANK
Tank shall have 150 psi or 160 psi operating pressure, an ASME section VIII construction, a 4"x6" handhole, 11”x15” manhole, a cement or epoxy lining.

WATER TO WATER SECTION
Section shall have a self actuated or pneumatic operated temperature regulator and a bypass loop in boiler water line for temperature regulator isolation.

SPECIFICATIONS - STEAM TO WATER

The hot water heater generator package shall be A. O. Smith model no. HWG__________ (V) or (H), (ESW) or (EDW) with__________ heating coil. The jacketed, insulated storage tank shall be constructed and stamped according to ASME specifications for (125) psi working pressure. The unit shall be designed to recover__________ GPH for a temperature rise of ________ degrees F to ________ degrees F when supplied with__________ psi steam to the temperature regulator. The heating coil shall be constructed and stamped according to section VIII of ASME code. The tube bundles shall be constructed of 3/4" O.D. 20 GA. deoxidized drawn copper tubing. The unit will be completely factory assembled and furnished with the following standard components.

A storage tank ______" dia. x ______" long with ______ gallon capacity. Tank shall be insulated with 3” fiberglass insulation, with an R-value > 12.5. Tank shall be jacketed with heavy gauge steel with a baked enamel finish. Tank shall be built to ASME section IV, glasslined and furnished with an ASME temperature & pressure relief valve. Heating coil built to Section VIII of ASME code. A temperature regulator to be self actuated, direct acting. Main F&T trap, main "Y" strainer and associated black steel pipe. A bronze integral circulator pump with copper soldered recirculation line and (2) bronze ball valves. A drain valve and assembly. Jacket mounted temperature and pressure gauge. A CSA Certified and ASME Rated T&P relief valve and a full length channel base and lifting lugs. Air vent and vacuum breaker.

OPTIONAL EQUIPMENT IS AS FOLLOWS:

STORAGE TANK
Tank shall have 150 psi or 160 psi operating pressure, an ASME section VIII construction, a 4"x6" handhole, 11”x15” manhole, a cement or epoxy lining.

STEAM TO WATER SECTION
Section shall have a pilot (spring, air, temperature) operated temperature regulator .