



PRECISION BOILERS

PHWS PACKAGED HOT WATER GENERATORS



DESIGN ADVANTAGES

The **PRECISION** Model PHWS is a packaged, fully automatic, factory insulated, skid mounted INDIRECT FIRED WATER HEATER with copper tube bundle. For ease of installation, the heater is shipped totally complete and ready to use with all the accessories factory sized, assembled, and pre-piped. These units utilize either STEAM or HOT WATER as the heating medium.

Incorporating both a storage section and a recovery section within the same heater, a wide range of storage capacities from 100 gallons to 10,000 gallons, and recovery systems that produce hot water from 125 to 1,600 gallons per hour (GPH), can be tailored to meet your design requirements. All standard components are factory sized and installed to assure the most efficient and economical package. Many options are available.

STANDARD FEATURES AND ACCESSORIES

Features Common To Both Generators

- ASME Code constructed - 125 PSI design pressure
- National Board registered pressure vessel
- 16 gauge painted steel jacket
- 2 inches of heavy duty fiberglass insulation
- 12" x 16" manway
- Structural channel support skid base
- Factory assembled unit is complete - all components sized, mounted, and pre-piped
- Heating Coil with 3/4" Copper U-bend seamless tubes 20BWG
- Non-ferrous tube sheet and separator
- ASME pressure and temperature relief valve (storage section)
- Precision seal lining (*polymerized epoxy*) NSF-61 Compliant
- Lifting lugs
- Drain valve

Steam to Water features

- Self operating steam control valve
- Main float and thermostatic trap
- Auxiliary drip trap
- Strainer for steam supply
- Water thermometer
- Water pressure gauge

Water to Water features

- Self operating boiler water control valve (2 way or diverting)
- Strainer for boiler water supply
- Storage section thermometer
- Storage section pressure gauge

OPTIONAL EQUIPMENT AND ACCESSORIES

Optional Accessories Common To Both Generators

- Higher design pressures
- Optional lining -(Hydraulic Calcium Oxide Cement) NSF-61 Compliant
- Plate Baffle(s)
- High temperature cutout
- Integral circulating pump (bronze)
- Automatic reset thermal expansion control
- Powered control valves (pneumatic / electric)
- Plastisert fittings for waterways
- Double wall heat exchangers
- Alternate heat exchanger materials - Cu Ni, 316SS

Steam to Water

- Steam pressure reducing valve
- Steam pressure gauge
- Vacuum breaker
- Over temp emergency shutoff for powered control valve

Water to Water

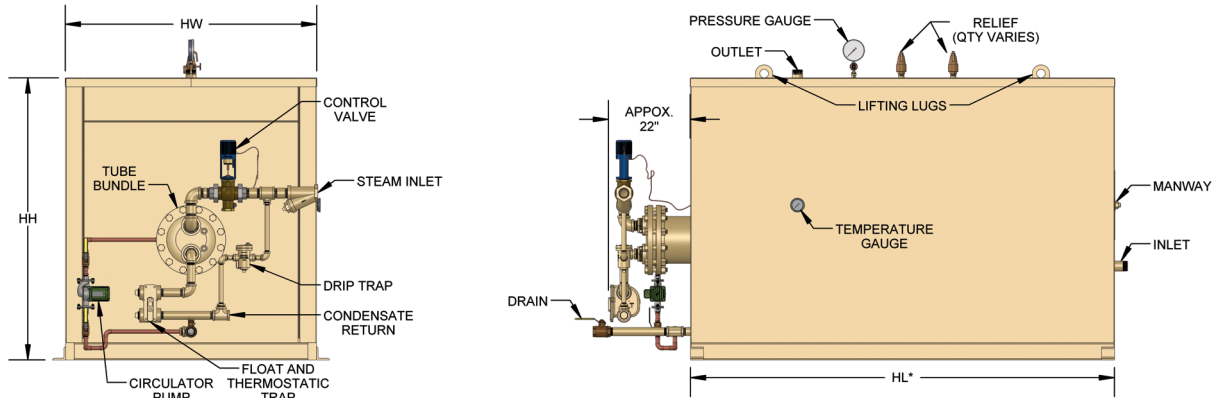
- Entering BW temperature gauge
- Leaving BW temperature gauge
- BW pressure gauge



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STEAM TO WATER HORIZONTAL DESIGN



NOTE: ALLOW 2/3 OF THE TANK LENGTH
FOR REMOVAL OF TUBE BUNDLE.
THESE DIMENSIONS ARE FOR THE TANK AND CABINET ONLY. THE SPACE
REQUIREMENTS FOR PIPING, TRIM, AND ACCESSORIES VARY BY THE SIZE
OF THE BUNDLE AS DICTATED BY THE STEAM AVAILABLE, RECOVERY, AND
TEMPERATURE RISE. PLEASE CONTACT THE FACTORY FOR EXACT CLEARANCE
REQUIREMENTS ONCE THE UNIT HAS BEEN SIZED FOR THE JOB.

Model Number Insert "V" or "H"	Storage Capacity (Gal)	Tank Diameter (Inches)	Tank Height (V) Tank Length (H) (Inches)	Vertical Exterior Dimensions (Inches)			Horizontal Exterior Dimensions (Inches)			Connection Sizes (NPT)		Approximate Ship Weight PS Lining (LBS)
				L* Length	W* Width	H* Height	HL* Length	HW* Width	HH* Height	Drain	Inlet & Outlet	
PHWS- __ 2468	125	24	68	28	28	77	72	28	33	1	1	1,300
PHWS- __ 2480	150	24	80	28	28	89	84	28	33	1	1	1,400
PHWS- __ 3054	150	30	54	34	34	63	58	34	39	1	1-1/4	1,400
PHWS- __ 3070	200	30	70	34	34	79	74	34	39	1	1-1/4	1,500
PHWS- __ 3086	250	30	86	34	34	95	90	34	39	1	1-1/4	1,600
PHWS- __ 3674	300	36	74	40	40	83	78	40	45	1-1/4	1-1/2	1,700
PHWS- __ 3686	350	36	86	40	40	G5	90	40	45	1-1/4	1-1/2	1,900
PHWS- __ 4274	400	42	74	46	46	85	78	46	53	1-1/2	1-1/2	2,200
PHWS- __ 4290	500	42	90	46	46	101	94	46	53	1-1/2	1-1/2	2,400
PHWS- __ 4884	600	48	84	52	52	96	90	52	59	1-1/2	1-1/2	3,100
PHWS- __ 4898	700	48	98	52	52	109	102	52	59	1-1/2	1-1/2	3,400
PHWS- _ 5490	800	54	90	58	58	101	94	58	65	1-1/2	2	3,600
PHWS- __ 54100	900	54	100	58	58	111	104	58	65	1-1/2	2	3,800
PHWS- V 6092	1000	60V	92V	64	64	103	114	58	65	1-1/2	2	4,000
PHWS- H 54110		54H	110H									
PHWS- V 6695	1250	66V	95V	70	70	106	116	64	71	1-1/2	2	5,400
PHWS- H 60112		60H	112H									
PHWS- V 7297	1500	72V	97V	76	76	108	136	64	71	1-1/2	2	5,800
PHWS- H 60132		60H	132H									
PHWS- V 8497	2000	84V	97V	88	88	108	130	76	83	1-1/2	3	8,600
PHWS- H 72126		72H	126H									
PHWS- V 84118	2500	84V	118V	88	88	129	158	76	83	1-1/2	3	10,000
PHWS- H 72154		72H	154H									
PHWS- V 96113	3000	96V	113V	100	100	124	186	76	83	2	3	11,000
PHWS- H 72182		72H	182H									
PHWS- V 96128	3500	96V	128V	100	100	139	164	88	95	2	3	12,200
PHWS- H 84160		84H	160H									
PHWS- V 96144	4000	96V	144V	100	100	155	184	88	95	2	3	13,100
PHWS- H 84180		84H	180H									

Many other sizes available - call factory for additional selection and dimensions needed

NOTE: In pursuing our policy of continuous development of products, PRECISION reserves the right to vary any detail in this bulletin without notice



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SPECIFICATIONS

1. General

Furnish and install as shown on the plans one (1) PRECISION model PHWS-H (horizontal) or -V, (vertical) packaged hot water generator. Generator shall provide _____ gallons per hour of potable water at 140° F when supplied with city water at _____° F and steam at _____ psig (boiler water at _____° F). Heater storage section shall have a diameter of _____ inches, a capacity of _____ gallons and shall be designed for 125 psig. Packaged generator shall be completely factory assembled with controls and trim as specified below.

2. Pressure Vessel

Vessel shall be constructed and stamped in accordance with ASME Section IV HLW and shall be registered with the National Board. Shell shall be fabricated from carbon steel, with integral 12" by 16" manway, and shall be furnished with [choose one of]:

- "Precision Seal" polymerized epoxy lining with carbon steel fittings and 5 year manufacturer's limited warranty [max temp 160° F] NSF-61.
- Hydraulic Calcium Oxide cement lining with 304 stainless steel fittings and 10 year manufacturer's limited warranty [max temp 210° F] NSF-61.

All fittings, nozzles and joggled joints shall be seal welded internally to eliminate crevices between pressure boundary parts. Storage vessel shall be fitted with a removable U-tube heating coil with non-ferrous tubesheet and separator. Tubes shall be (select one of):

- 3/4"OD single wall seamless SB75 copper tubes with 20 BWG [0.035"] wall.
- 3/4"OD single wall seamless SB111 cupro-nickel tubes with 20 BWG [0.035"] wall.
- 3/4"OD single wall SA240-304 stainless steel tubes with 20 BWG [0.035"] wall.
- 3/4"OD single wall SA240-316 stainless steel tubes with 20 BWG [0.035"] wall.
- 3/4"OD double wall, seamless SB75 copper tubes with integral leak detection passages.
- Heating capacity of coil shall be _____ GPH at _____° F to _____° F temperature rise using steam at _____ psig inlet pressure to control valve. (Water at _____° F inlet temperature and _____ psig pressure to control valve.)

Note: Items shown in parentheses () are options

3. Steam-to-Water Generator Controls

Steam-to-water generator may be provided with the following controls: Factory installed steam control valve with steam capacity of _____ lb/hr at _____ psig inlet pressure to vary the flow of steam to the heating coil in response to variations in storage tank temperature. Control valve shall be self contained, self-operating (pneumatic, diaphragm actuated, spring to close in event of air failure.) (pilot-operated)(electric actuated) with upstream strainer. Trim shall include properly sized ASME pressure-temperature relief valve, manual drain valve, water thermometer and pressure gauge, all tank mounted; float and thermostatic steam trap on coil outlet and auxiliary steam trap on upstream side of control valve, both piped to common condensate outlet; and (vacuum breaker on tank coil cap).

4. Water-to-Water Generator Controls

Water-to-water generator may be furnished with the following controls: Factory installed heating water 2-way or 3-way diverting control valve with water capacity of _____ GPM at inlet temperature of _____° F to vary the flow of heating water to the coil, in response to variations in storage tank temperature. Control valve shall be self contained, self operating (pneumatic, diaphragm actuated, spring-to-close in event of air failure)(electric actuated) with upstream strainer. Trim shall include properly sized ASME pressure-temperature relief valve, water thermometer, water pressure gauge and manual drain valve, all tank mounted; (heating water pressure gauge) (heating water inlet/outlet temperature gauges) (high temperature cutout).

5. Integral Circulation System

Provide baffled heating coil with bronze circulator, factory piped with copper tubing and bronze-bodied isolating ball valves.

6. Packaging

Complete package shall be factory assembled and mounted on structural channel support skid. All specified components are to be mounted, piped (and wired). Tank shall be insulated with 2 inches of heavy duty fiberglass to conform to ASHRAE 90.1 and housed in a rectangular, 16 gauge enamel painted steel jacket. Lift lugs shall be provided to allow rigging of package during installation.

7. Quality Control

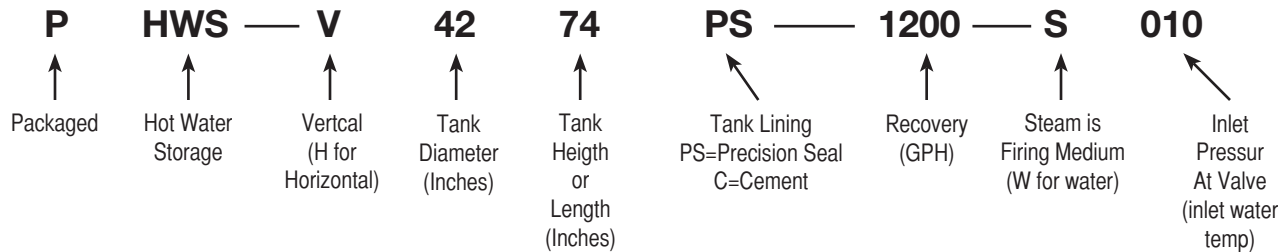
Complete packaged generator shall be manufactured by PRECISION Boilers, in strict accordance with ASME Boiler and Pressure Vessel Code.



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HOW TO SELECT A MODEL NUMBER



CONTACT US FOR THESE QUALITY PRODUCTS

- Electric Storage Heaters 125 to 5500 Gallons
- Electrode High Voltage Boilers
- Thermal Storage Systems
Space Heating & Domestic or Process Water; Electric, Gas or Steam Fired
- Boiler Feedwater Systems
- Pressure Vessels, Water Storage Tanks, Flash Tanks, Blowdown Tanks
- Unfired Hot Water and Steam Generators
- Deaerators and Surge Tanks
- Steam Superheaters-Electric
- Circulation Heaters-Electric
- Gas or Oil-Fired Vertical Firetube Boilers and Water Heaters
- Gas or Oil-Fired WaterTube Boilers (Flextube Type)
- Chemical Bypass Feeders and Automatic Chemical Feed Systems

NOTE: In pursuing our policy of continuous development of products, **Precision Boilers** reserves the right to vary any detail in this bulletin without notice.

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