

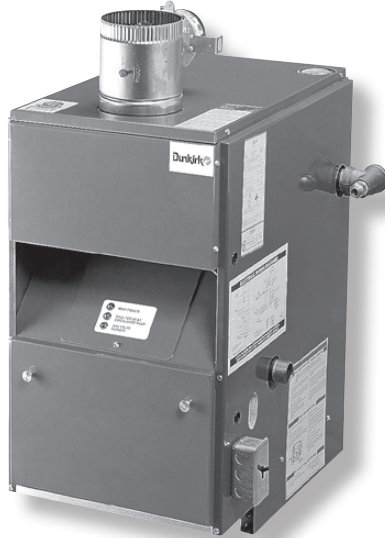


## PWX Series Plymouth Xtreme Cast Iron Gas Fired Hot Water Boiler

P/N# 240005689, Rev. 1.1 [11/07]



SPECIFICATIONS AND PERFORMANCE



**81.6% AFUE  
Efficiency**

### Available Heating Inputs of:

70 MBH (12.5 KW) through 280 MBH (82.0 KW)

▲ **Application** – Boilers are available in seven sizes with inputs of 70 to 280 MBH (12.5 to 82.0 KW) and AFUE of 81.6% (Venting Category I). Units are available with choice of electronic or standing pilot ignition systems for natural or propane gas. Boilers are used for a wide variety of applications including radiant floor heating, baseboard heating, standing cast iron radiators, and with or without zones. All units are completely factory assembled with controls and wiring and tested to ensure dependable performance. Compact size allows for easy installation in basement or alcove enclosure.

#### Benefits:

- High efficiency, performance and low operating cost.
- Easy installation and venting
- "Isolation valves" for easy maintenance.

▲ **Approvals** – The cast iron boiler assembly is manufactured and tested in accordance with American Society of Mechanical Engineers (ASME) standards, and certified by Canadian Standards Association (CSA) in the US and Canada. The Annual Fuel Utilization Efficiencies (AFUE) and heating capacity are based on US DOE test procedures and FTC labeling regulations. AFUE and I=B=R ratings are certified in accordance with standards set by The Hydronics Institute Division of the Gas Appliance Manufacturers Association (GAMA). The Material and Equipment Acceptance number for the City of New York, is MEA 39-86E Vol. IV.

▲ **Warranty** – The cast iron boiler heat exchanger has a non-prorated warranty for a full twenty years from date of installation. All other components have a limited warranty for one year unless the component manufacturer extends their warranty beyond one year.

### FEATURES AND BENEFITS

▲ **Cast Iron Boiler Assembly** – Boiler sections and push nipples are constructed of long life cast iron. When the boiler is heated, sections and push nipples expand and contract in the same proportion because they are constructed of like material, providing a positive watertight seal.

**Benefit:** Cast iron provides efficient heat transfer, reliability and strength, the cast iron push nipples insure a watertight seal.

#### ▲ **Cabinet:**

- Constructed of heavy gauge steel with a baked-on enamel finish
- Fully insulated with fiber-glass insulation
- Water supply and return connections furnished on both sides of cabinet
- Burner access panel easily removed for servicing
- Integral draft diverter is part of the cabinet, reducing height

**Benefit:** Boiler flue-ways are easily accessible for cleaning and servicing.

▲ **Electronic Aquastat Control** – Combine high limit protection with switching the relay control of the burner and circulator motor with a sensor remote mounted in an immersion well.

▲ **Electronic Ignition** – Solid-state electronic spark igniter provides positive ignition of pilot burner on each operating cycle. Pilot gas is ignited and burns during each running cycle of the boiler. Main burners and pilot gas are extinguished during the off cycle. Ignition system permits main gas valve to open only when the pilot burner is proven to be lit. Pilot operation is fully automatic on demand for heat. Should a loss of flame occur, the main valve closes, shutting down the unit.

**Benefit:** Pilot is lit automatically and stays lit only when needed, eliminating fuel waste.

# PWX SERIES CAST IRON GAS FIRED HOT WATER BOILERS

## FEATURES AND BENEFITS *Continued*

▲ **Standing Pilot Ignition** – Permanently lit standing pilot with thermocouple provides dependable and safe burner ignition.

▲ **Automatic Gas Control** – Silent operating control provides 100% safety shut off. A 24 Volt redundant combination gas control valve combines automatic safety pilot, manual shut off (On-Off), pilot filtration, automatic electric valve (dual) and gas pressure regulation into a compact combination control. Dual valve design provides double assurance of 100% shut off of gas to the pilot and main burners on each off cycle.

▲ **Titanium Composite Burners** – Each burner uses a slotted port design which results in quiet, clean combustion.

**Benefit:** High-tech titanium composition burners resist corrosion and oxidation providing superior strength and longevity and are backed by a 3-year warranty.

▲ **Flame Rollout Safety Shutoff** – A temperature sensitive fusible-link device is furnished as standard and factory installed on the boiler base just outside of the burner assembly. The device prevents unit operation in the event that the combustion products passage through the flue-way is blocked.

▲ **Blocked Vent Safety Shutoff** – A temperature sensitive thermostat device prevents unit operation in case of vent or chimney blockage. This device is factory installed at the relief opening on the draft diverter located in the cabinet opening. The switch has a manual reset button to set the boiler back in operation if the switch contacts open because of downdraft.

▲ **Circulating Pump** – The maintenance free water lubricated pump is shipped in a box with a 5' wire harness attached. Shipping the pump un-mounted allows for the pump to be installed on the supply or return. The full port isolation ball valves are also included for proper installation of the circulator. If there is a need to service the pump, the system does not need to be drained.

▲ **Relief Valve** – Furnished as standard for field installation on top of the boiler. Valve provides for pressure relief of heating system in case of abnormal operating conditions. Valve opens at 30 psig (210 kPa) and is ASME stamped.

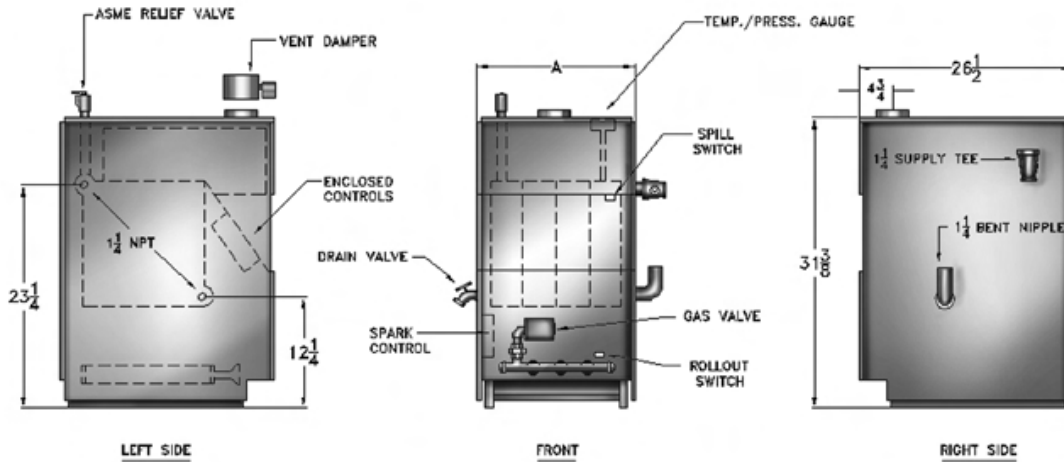
▲ **Drain Valve (Brass)** – 3/4 in. (19 mm) drain valve furnished for field installation on side of boiler. See dimensional drawing for location.

## HIGH ALTITUDE DE-RATE

▲ **CSA Certified Units** must be de-rated when installed at an elevation of more than 2,000 feet (610 m) above sea level. If the unit is installed at an altitude higher than 2,000 feet (610 m), the unit must be de-rated 4% for every 1,000 feet (305 m) above sea level (**USA**) or 10% for elevations between 2,000 feet and 4,500 feet (610 m and 1,370 m) above sea level (**Canada**).

PWX SERIES STANDARD EQUIPMENT		OPTIONAL EQUIPMENT
Assembled boiler with insulated jacket	Service switch	<b>Electronic low water cut-off now available to meet the latest codes requirements</b>
Integral draft diverter – built into jacket	Vent damper	
Combination high limit control and circulator relay	<b>Completely installed and wired gas control system with burners and manifold, consisting of:</b> ▲ Titanium composite burners ▲ Automatic redundant combination gas valve, 24 Volt, with pilot filter ▲ <b>Electronic Ignition Only:</b> • Combination pilot/burner/electrode/ flame sensor ▲ <b>Standing Pilot Only:</b> • Pilot burner and thermocouple	Propane gas-fired boilers
Flame rollout safety shut-off (fuse link) and manual, reset blocked vent safety shut-off, with spare fuse link included		Propane-fired conversion kit
Combination pressure/temperature gauge		Combustible floor plate: 14614031 for 3-6 sections 14614032 for 6 & 7 sections
1-1/4" Taco (or Grundfos) circulator pump with isolation (ball) valves ( <i>Note: pump ships loose for field mounting</i> )		Fill-Trol #110 for 3-6 sections
3/4" boiler drain valve		Fill-Trol #111 for 6-9 sections
30 lb. ASME relief valve		
24 Volt transformer		

# BOILER RATINGS & CAPACITIES



RATINGS NATURAL AND PROPANE GASES							
Basic Boiler Model No.		Number of Sections	AGA/CGA Input 1) MBH	Heating Capacity 2) MGB	Net IBR Rating 1) MBH	Dimensions (Inches)	
Electric Ignition With Vent Damper	Continuous Pilot With Vent Damper					"A" Width	Flue Diameter
PWX-3E	PWX-3V	3	70	57	31	11-1/4	5
PWX-4E	PWX-4V	4	105	85	55	14-1/2	6
PWX-5E	PWX-5V	5	140	113	82	17-3/4	6
PWX-6E	PWX-6V	6	175	142	109	21	7
PWX-7E	PWX-7V	7	210	170	135	24-1/4	7
PWX-8E	PWX-8V	8	245	198	162	27-1/2	7
PWX-9E	PWX-9V	9	280	226	162	30-3/4	7

1) MBH = 1,000 Btu/h = British Thermal Unit Per Hour. Boilers are equipped for altitudes up to 2,000 feet only. U.S.A. Only – For altitudes above 2,000 feet, ratings should be reduced at the rate of 4% for each 1,000 feet above sea level. Canada Only – Boilers may be used at high altitude by using a certified field conversion kit, resulting in a 10% derate.  
 2) Heating Capacity based on D.O.E. (Department of Energy) test procedure. Add 5/2" to height when vent damper is used.

PWX BOILER SPECIFICATIONS																
Model No.	Type of Ignition	Input Btu/h (KW)	Heating Capacity Btu/h (KW)	1) Net I=B=R Btu/h (KW)	2) AFUE %	Number of Sections	Heating Surface Sq. ft. (m <sup>2</sup> )	Capacity – Us Gallons (L)	Flue Size Outlet Diameter – in. (mm) round	Shipping Weight – Lbs. (kg) Package	Gas Piping Size IPS – in. (mm)		Supply & Return Connection NPT – in. (mm)	Drain Connection NPT – in. (mm)	Working Gas Pressure	
											Natural	Propane			Natural	Propane
PWX-3E	Electronic	70,000	57,000	50,000	81.6	3	9.38	3.00	5	290	1/2 (12.7)	1-1/4 (31.8)	3/4 (19.0)	3-1/2" wc	11" wc	
PWX-3V	Standard Pilot	(20.0)	(16.7)	(14.7)	80.4		(0.87)	(11.4)	(127)	(132)						
PWX-4E	Electronic	105,000	85,000	74,000	81.5	4	14.07	4.25	6	355						
PWX-4V	Standard Pilot	(30.8)	(24.9)	(21.7)	80.4		(13.1)	(16.1)	(152)	(161)						
PWX-5E	Electronic	140,000	113,000	98,000	81.3	5	18.76	5.50	6	426	3/4 (19.0)	1-1/4 (31.8)	3/4 (19.0)	3-1/2" wc	11" wc	
PWX-5V	Standard Pilot	(41.0)	(33.1)	(28.7)	80.3		(1.74)	(20.8)	(152)	(193)						
PWX-6E	Electronic	175,000	142,000	123,000	81.1	6	23.45	6.75	7 (178)	493						
PWX-6V	Standard Pilot	(51.3)	(41.6)	(36.0)	80.2		(2.18)	(25.6)		(224)						
PWX-7E	Electronic	210,000	170,000	148,000	81.0	7	28.14	8.00	7 (178)	569						
PWX-7V	Standard Pilot	(61.5)	(49.8)	(43.4)	80.4		(2.16)	(30.3)		(258)						
PWX-8E	Electronic	245,000	198,000	172,000	80.8	8	32.83	9.25	7 (178)	631						
PWX-8V	Standard Pilot	(71.8)	(58.0)	(50.4)	80.4		(3.05)	(35.0)		(286)						
PWX-9E	Electronic	280,000	226,000	197,000	80.7	9	37.52	10.50	7 (178)	694						
PWX-9V	Standard Pilot	(82.0)	(66.2)	(57.8)	80.3		(3.49)	(39.7)		(315)						

1) Net I=B=R ratings indicate the amount of remaining heat the boiler can provide to heat the radiation or terminal units under normal condition and thermostatic control. Ratings are based on an allowance of 1.15 in accordance with the piping and pickup factors shown in the I=B=R Standard as published by the Hydronics Institute. Section of boiler size should be based on. Net I=B=R" being equal to or greater than the calculated heat loss of the building.  
 2) Annual Flue Utilization Efficiency based on U.S. DOE test procedures and FTC labeling regulations.

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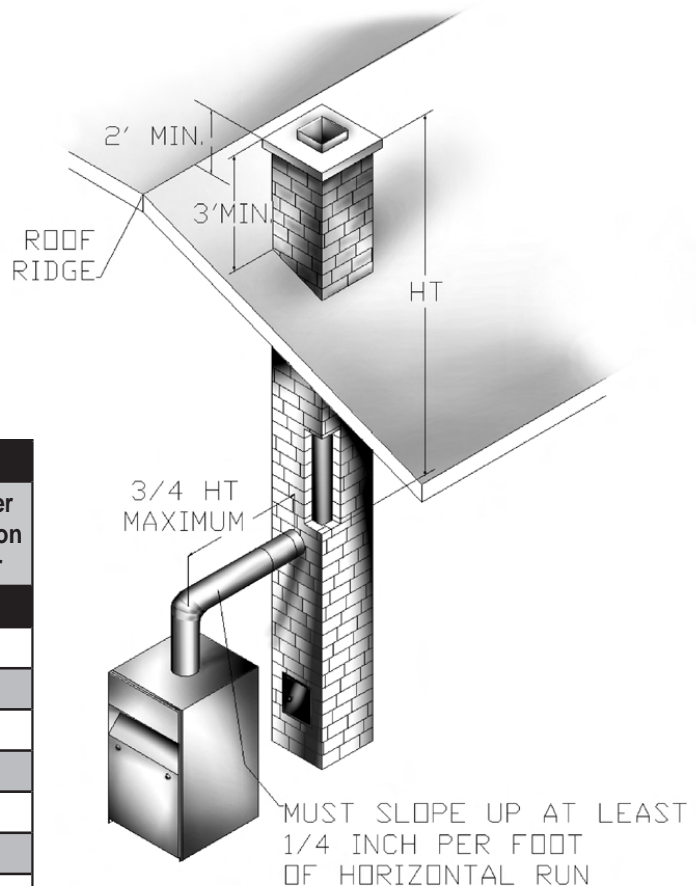
BOILER VOLUME SPECIFICATIONS		
Boiler Size (Number of Sections)	Boiler Volume (Cu. Ft.)	Minimum Room Volume Required To Be Large Room (Cu. Ft.)
3	5.4	86.6
4	7.0	111.6
5	8.5	136.6
6	10.1	161.7
7	11.7	186.7
8	13.2	211.7
9	14.8	236.7

BOILER CLEARANCES			
Unit	Alcove, or Room Not Large in Comparison With Boiler		Room Larger in Comparison With Boiler
No. of Sections	3-5	6-9	3-9
Top	6"	6"	6"
Rear	6"	6"	6"
Right Side	6"	24"	6"
Left Side	6"	24"	6"
Front	18"	18"	18"
Flue/Vent Connector	6"	6"	6"
Near Boiler Piping	1"	1"	1"

This unit must be set on a concrete or other noncombustible material base or floor. **IT MUST NOT BE INSTALLED ON CARPETING.**

Accessibility clearances must take precedence over fire protection clearances. 18" clearance should be maintained at a side where passage is required to access another side for cleaning or servicing, inspection, or replacement of any parts that normally may require such attention. 18" clearance is recommended on the control side for servicing.

Rooms that are large in comparison with the size of the boiler are defined as rooms having a volume equal to or greater than 16 times the volume of the boiler. Where the actual ceiling height of a room is greater than 8', the volume of a room shall be figured on the basis of a ceiling height of 8'. Determination of room size should be based on the total volume of all gas fired equipment installed in the room. Consult NFPA 54-2002 section 8.3.1 of the National Fuel Gas Code for further information, including approved methods for reducing clearances in large rooms.



Boilers for connection to gas vents or chimneys, vent installations shall be in accordance with Part 7, Venting of Equipment, of the National Fuel Gas Code, ANSI Z223.1-latest revision and applicable provisions of the local building codes. In Canada, follow CAN/CGA B149.1 and .2 installation codes.

Vent connectors serving appliances vented by natural draft shall not be connected into any portion of mechanical draft systems operating under positive pressure.

