Automatic Circulating Water Heaters

XP CIRCULATING WATER HEATER

The ENERGY STAR® Qualified A. O. Smith high efficiency condensing XP Water Heater utilizes a state-of-the-art heat exchanger and control technology to provide large volumes of hot water for demanding commercial and industrial potable hot water applications. The all stainless steel heat exchanger construction allows the XP Water Heater to operate in a continuous condensing mode while maximizing longevity and delivering up to 96% thermal efficiency.

The XP features a stainless steel heat exchanger that is built to ASME Section IV requirements. Fully modulating combustion with 5:1 turndown means the XP can fire as low as 20% of maximum input.

ADVANCED BURNER, LOW NOx COMBUSTION TECHNOLOGY

- Negative regulation (neg/reg) sealed combustion allows constant fan speed adjustment depending on the volume of fuel and air entering the burner.
- Fully modulating capability prevents energy-stealing short cycling and provides smooth system operation with higher overall system efficiencies.

ULTRA-LOW NOx OPERATION

- Complies with SCAQMD and other air quality districts requiring less than 20 ppm NOx

ADVANCED CONTROL SYSTEM

- Multi Color LCD Display
- Water heater pump control
- Lead/Lag sequencing control
- Economy mode with programmable setback

FACTORY SUPPLIED ALL BRONZE PUMP AND TANK SENSOR

- Factory sized for proper flow between water heater and storage tank
- Factory supplied tank sensor for field installation
- Allows 50 equivalent feet of piping between water heater and tank.

CONDENSING STAINLESS STEEL HEAT EXCHANGER

- Designed for fully condensing operation throughout the heating range.
- All heating surfaces are 316L stainless steel to provide a long and trouble-free service life.
- Saves both fuel and operating cost with every heating cycle.
- Impervious to thermal shock.

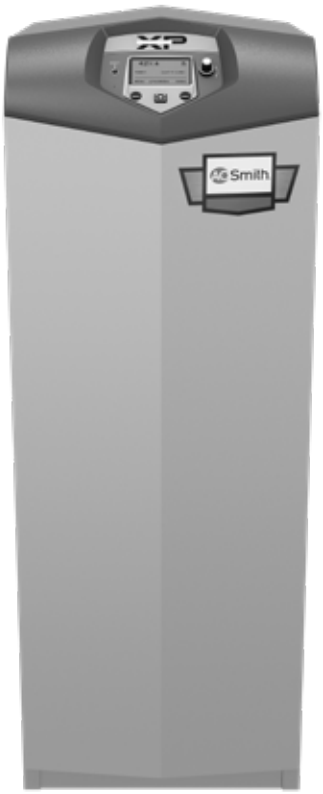
DIRECT VENT FLEXIBILITY

- Up to 100 feet intake and 100 feet exhaust
- Approved venting with PVC, CPVC, Polypropylene or AL24-4C stainless steel
- Direct vent up to 100 equivalent feet of pipe.
- Sidewall or vertical.
- Lower installation cost with approved CPVC/ PVC venting material.
- Approved for use with UL approved AL29-4C® stainless steel venting materials.

MEETS THE THERMAL EFFICIENCY REQUIREMENTS OF THE U. S. DEPARTMENT OF ENERGY AND CURRENT EDITION ASHRAE/IES 90.1

UP TO 96% THERMAL EFFICIENCY (AHRI CERTIFIED)

5-YEAR HEAT EXCHANGER LIMITED WARRANTY



HLW
(285 MODEL)

These models are approved for potable water heating applications only and cannot be used in closed loop space/hydronic heating applications.

www.hotwater.com | 800-527-1953 Toll-Free USA | A. O. Smith Corporation | 500 Tennessee Waltz Parkway | Ashland City, TN 37015

OTHER XP FEATURES:

- CSA certified to the ANSI Z21.10.3-CSA 4.3 water heater standard
- Modulating burner with 5:1 turn down
- Direct spark ignition
- Internal lead/lag sequencing
- Vertical and horizontal direct venting
- Logs faults, run time, cycles
- Natural to LP conversion kit
- Enable/Disable
- ASME temperature and pressure relief valve (285 model)
- Low voltage terminal strip
- Condensate trap
- Zero clearance to combustible materials
- Automatic reset high-limit
- Leveling legs
- Factory supplied tank sensor
- Flow switch
- 5-Year limited heat exchanger limited warranty (see warranty for details)
- 1-Year parts limited warranty (see warranty for details)

XP OPTIONS:

- Condensate neutralization kits
- Concentric vent kits
- Room air kits
- ModBus interface module
- BACnet field kit
- Vent termination kits
- Skid mounted systems

Recovery Capacities

Recovery Capacities				
Model Number	BTU/HR Natural Gas Input	Temperature Rise GPH		
		70	100	140
XWH-201	201,000	336	235	168
XWH-285	285,000	474	332	237

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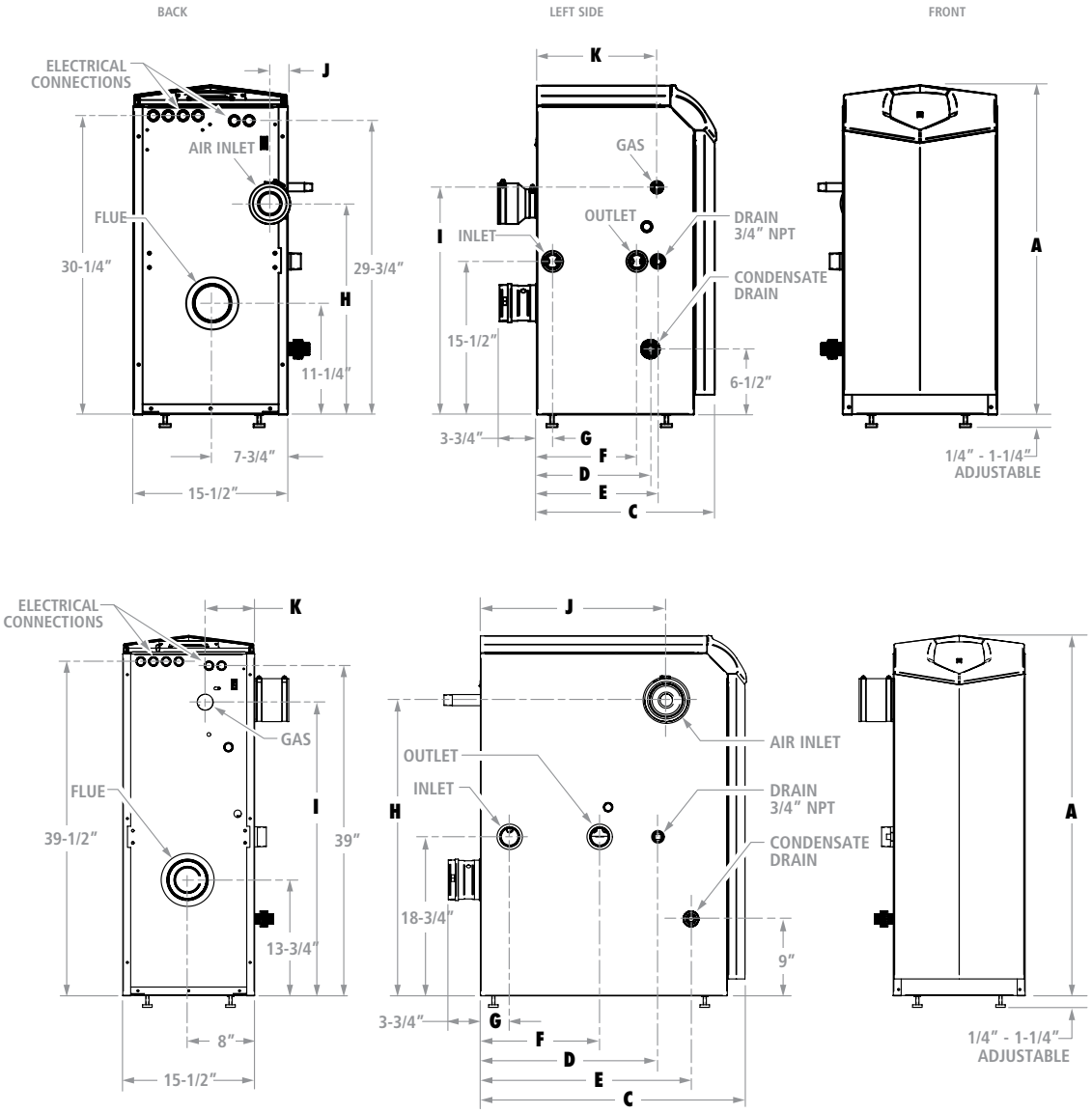


Dimensions

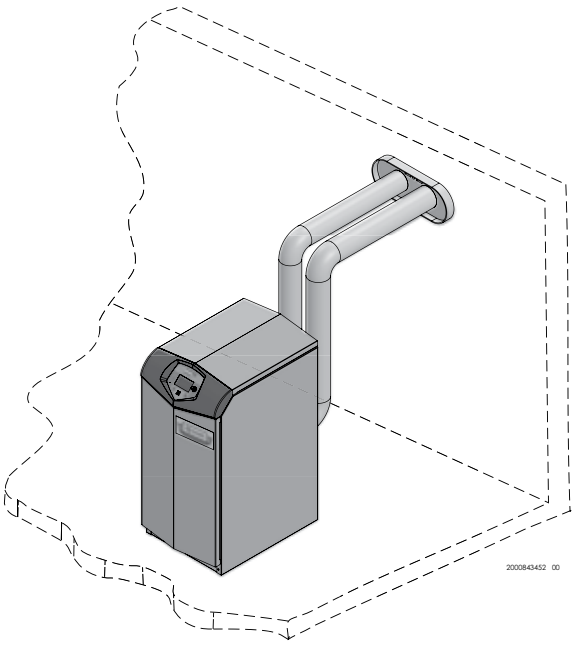
Model Number	BTU/HR Input	GPH @ 100° Rise	Dimensions in Inches				
			A	C	D	E	F
XWH-201	201,000	234	33-1/4″	22-1/4″	16-1/2″	15-3/4″	14-1/4″
XWH-285	285,000	332	42-1/2″	19-3/4″	12-3/4″	13-1/2″	6″

Model Number	Dimensions in Inches					Gas Conn.	Water Conn.	Air Inlet	Vent Size	Ship Wt. (lbs.)
	G	H	I	J	K					
XWH-201	5-1/4″	21-1/4″	23″	1-3/4″	16-1/4″	1/2″	1-1/4″	3″	3″	181
XWH-285	2″	34″	31″	11-3/4″	4-1/4″	3/4″	2″	4″	4″	236

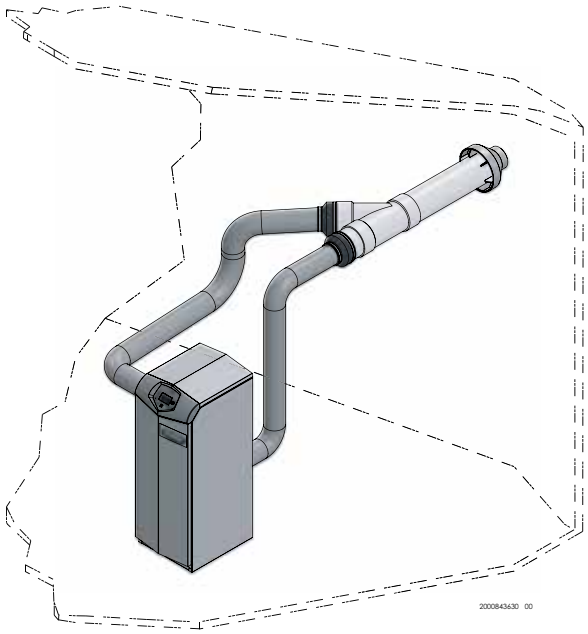
Dimensions and specifications subject to change without notice in accordance with our policy of continuous product improvement.

VERSATILE MULTI-VENTING CONFIGURATIONS

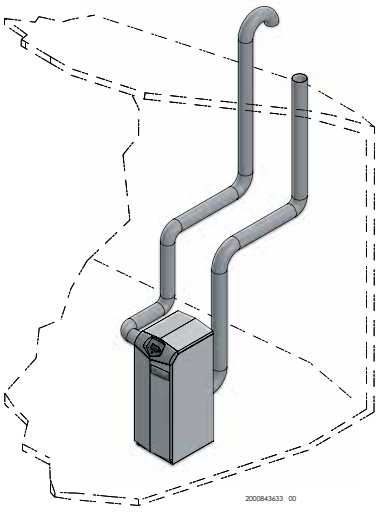
SIDEWALL AND VERTICAL OPTIONS



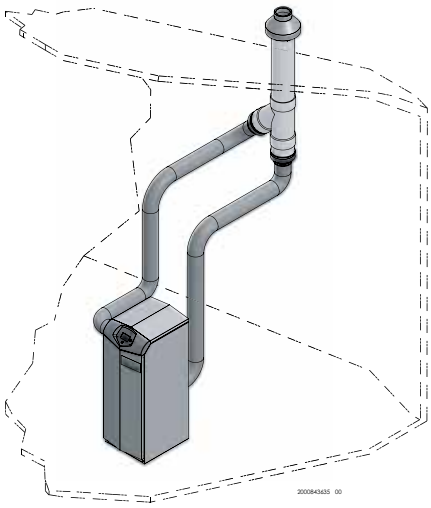
Two-Pipe Sidewall Termination



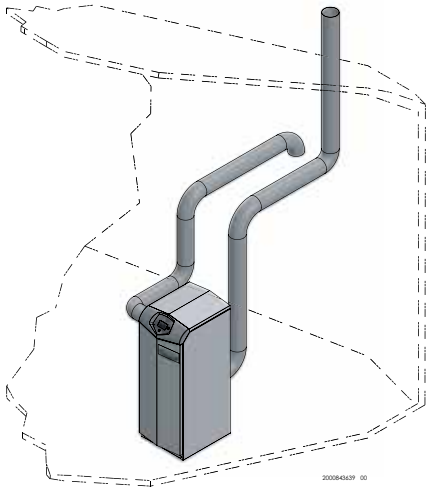
PVC/CPVC Concentric Sidewall Termination



Two-Pipe Vertical Termination



PVC/CPVC Concentric Vertical Termination



Vertical Vent, Sidewall Air

Refer to instillation manual for vent option details. These illustrations are for conceptual purposes only.

Automatic Circulating Water Heaters

AIR INTAKE/VENT PIPING SIZES

Model Number	Air Intake	Vent
201	3 inches	3 inches
285	4 inches	4 inches

SIDEWALL VENT KITS

Model Number	Kit Number	Vent Size
201	100274669	3 inch vent
285	100274670	4 inch vent

OPTIONAL ROOM AIR KIT

Model Number	Kit Number	Description
201	100274659	Room Air Kit
285-800	100274661	Room Air Kit

ELECTRICAL REQUIREMENTS

Model Number	Voltage/ Heater	Voltage/ Pump	Voltage/ Control	Total AMPS with Pump	Number of Electrical Connections
XWH-201	120	120	24	3.2	1
XWH-285	120	120	24	4.5	1

CONCENTRIC VENT KITS AND EQUIVALENT VENT LENGTHS

Model Number	Kit Number	Equivalent Vent Length
201	100274637	3 Feet
285	100274638	3 Feet

GAS PRESSURE REQUIREMENTS

Model Number	*MANIFOLD PRESSURE		MINIMUM SUPPLY PRESSURE		MAXIMUM SUPPLY PRESSURE	
	NATURAL GAS	PROPANE GAS	NATURAL GAS	PROPANE GAS	NATURAL GAS	PROPANE GAS
XWH-201	-0.39" W.C. (-0.09 kPa)	-0.39" W.C. (-0.09 kPa)	4" W. C. (1 kPa)	8" W. C. (2 kPa)	14" W. C. (3.49 kPa)	14" W. C. (3.49 kPa)
XWH-285	-0.68" W.C. (-0.17 kPa)	-0.71" W.C. (-0.18 kPa)	4" W. C. (1 kPa)	8" W. C. (2 kPa)	14" W. C. (3.49 kPa)	14" W. C. (3.49 kPa)

*The manifold pressure is the factory setting and is not adjustable. A negative pressure will be seen with just the blower running without the Gas Control Valve open.

RATINGS

Model Number	CSA INPUT MODULATION BTU/HR	Water Content Gallons	Water Connections	Gas Connections
XWH-201	40,000 - 199,900	1.7	1-1/4" NPT	1/2"
XWH-285	57,000 - 285,000	2.4	2" NPT	3/4"

Automatic Circulating Water Heaters

XWH SUGGESTED SPECIFICATION

The gas-fired automatic circulating water heater(s) shall be A. O. Smith XP model XWH_____ having an input rating of _____ BTU/hr and capable of supplying no less than _____GPH at a 100°F temperature rise when fired with (Natural/Propane) gas. 1) The water heater shall be capable of full modulation with a turndown ration of 5:1. 2) The water heater shall bear the ASME "HLW" stamp and shall be National Board registered for 160 PSI working pressure. 3) The water heater(s) shall be equipped with a factory-installed 150# PSIG ASME Pressure Relief Valve. 4) The water heater(s) shall be design-tested and certified to the ANSI Z21.10.3-CSA 4.3 Standards by CSA International. 5) The water heater shall operate up to 96% thermal efficiency at full fire as certified with AHRI. 6) The water heater shall be certified for indoor installation and approved for installation on combustible floors.

The heat exchanger: 1) Shall be constructed of 316L stainless steel 2) There shall be no bolts, gaskets or "O" rings in the header configuration. 3) The fully condensing heat exchanger shall be designed to allow all condensate to be drained from the bottom of the heat exchanger to ensure that condensation does not collect or interfere with good water heater operation due to long periods of operation in the condensing mode. 4) The low water volume heat exchanger shall be immune to thermal shock. 5) The entire heat exchanger shall carry a five (5) year limited warranty.

Water Heater Pump: 1) The automatic circulating water heater(s) shall be supplied with a factory-sized all bronze circulating pump(s) sized for 50 equivalent feet of piping. 2) The pump shall be interfaced with and managed by the water heater's control and cycled as needed for most efficient operation.

Burner: 1) The water heater shall have a modulating burner capable of modulating between 20% and 100% fire while providing smooth starts and clean combustion. 2) The burner shall be a premix design, constructed of high temperature stainless steel and utilize a woven metal fiber mesh covering, be warranted for 5 years, and fire in a radial 360-degree flame pattern. 3) Burner ignition shall be by direct spark with flame monitoring via a flame sensor.

Water Heater Controls: 1) The water heat shall feature a Multi-Colored Graphic LCD display with Navigation Dial and Soft Keys, password security, pump delay with freeze protection, pump exercise, and USB PC port connection. 2) The water heater shall feature night setback for the domestic hot water tank and shall be capable of controlling a building recirculation pump while utilizing the night setback schedule for the building recirculation pump. 3) The water heater shall have the capability to accept a 0-10 VDC input connection for BMS control of modulation or setpoint and enable/disable of the water heater, and a 0-10VDC output of water heater modulation rate. 4) The water heater shall have a built-in cascading sequencer with modulation logic options of "lead lag" or "efficiency optimized". Both modulation logic options should be capable of rotation while maintaining modulation of up to eight water heaters without utilization of an external controller. Supply voltage shall be 120 volt / 60 hertz / single phase.

Venting: 1) The water heater shall be certified for direct horizontal through-the-wall venting or direct vertical venting; in addition to sidewall or conventional vertical venting. 2) The water heater shall be capable of horizontal sidewall or direct venting up to 100 equivalent feet without the aid of any optional sidewall vent fans or blowers. 3) The water heater shall be CSA approved for venting with PVC vent pipe. In addition the water heater shall be approved for use with UL approved AL29-4C stainless steel venting materials where local codes may require.

Standards: 1)The water heater shall have an independent laboratory rating for Oxides of Nitrogen (NOx) to meet the requirements of South Coast Air Quality Management District in Southern California and the requirements of Texas Commission on Environmental Quality. 2) The water heater shall built to and meet the ASME – CSD-1 code requirements as factory standard. 3) The water heater shall be compliant with California Code, Factory Mutual, Massachusetts Code and Kentucky Codes and standards.

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

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