

## MODULATING ULTRA FORCE™ XL

### 750,000 - 1,000,000 BTU/H HIGH EFFICIENCY, CONDENSING WATER HEATERS WITH MODULATING BURNER

Designed to provide years of dependable service, State Water Heaters' Ultra Force XL condensing water heaters feature industry-leading technology. Models are available from 750,000 to 1,000,000 Btu/h and all deliver thermal efficiencies of 97%. The primary and secondary heat exchangers provide optimal service life, while maximizing heat transfer.

Ultra Force is the industry leader in high efficiency commercial water heating. Ultra Force XL modulating models adjust firing rate to the specific demand further increasing efficiency and money savings.

#### INTELLIGENT CONTROL SYSTEM WITH TOUCH SCREEN DISPLAY AND iCOMM CONNECTIVITY ONBOARD\*

- Exclusive State-designed color touch display control system
- Display provides detailed water heater status information
- Precise temperature control adjustable from 90 to 180 degrees
- Built-in diagnostics
- Run history information
- Ultra Force XL comes standard with iCOMM Wi-Fi connectivity onboard. Remotely monitor and adjust the water heater via the State app. No charge connectivity using Wi-Fi or Ethernet connection.
- Intelligent Demand Response (IDR) feature senses large water draws and automatically adjusts the differential setpoint. This feature increases the hot water available when it is needed the most.

#### SUBMERGED COMBUSTION CHAMBER

- Positioned in center of tank, surrounded by water to virtually eliminate radiant heat loss from chamber
- Direct spark ignition
- Primary and secondary heat exchangers are constructed from stainless steel, with large surface areas to maximize heat transfer to the water
- Hot combustion gases are exhausted from the primary heat exchanger through a secondary heat exchanger, raising efficiencies further before the gases are vented. By this point, exhaust gases are cool enough to be safely vented through inexpensive PVC Schedule 40 pipe.
- ASME Construction

#### POWERED ANODES STANDARD ON ALL MODELS

- Provides long-lasting tank protection in varying water conditions
- Powered anodes are non-sacrificial
- Automatically adjusts output needed to properly protect the tank

#### PERMAGLAS® ULTRA COAT™ GLASS LINING

- Glass coating is applied using a liquid slush coating technique to ensure uniform coating
- Heat exchangers are glassed externally

#### MECHANICAL VENTING VERSATILITY

- Conventional power venting or direct venting
- Vents vertically or through a sidewall
- Front-located exhaust and condensate connections allow for easy install and access
- Vents with low cost PVC Schedule 40 intake and exhaust pipe. Approved for optional CPVC Schedule 40, Polypropylene and AL29-4C stainless steel vent materials
- Canadian installations require ULC S636 PVC/CPVC, ULC S636 Polypropylene and AL29-4C stainless steel pipe for intake and exhaust

#### HIGH EFFICIENCY MODULATING PRE-MIX POWERED BURNER

- Down-fired pre-mix burner provides optimum efficiency and quiet operation
- Top-mounted burner position prevents condensation from affecting burner operation

#### 5-YEAR LIMITED TANK / 1-YEAR LIMITED PARTS WARRANTY

- For complete warranty information, consult written warranty or go to [statewaterheaters.com](http://statewaterheaters.com)



SUS-120-750A AND SUS-120-1000A  
MODEL SHOWN: SUS-120-1000A



# SOLID. STATE.



### OTHER FEATURES: SPACE-SAVING DESIGN FOR INSTALLATION FLEXIBILITY

- Large volume, integrated solution extends the Ultra Force high efficiency, condensing water heater line to 1,000,000 BTU/H
- Easy-to-remove top cover for convenient access to serviceable parts
- 0" installation clearances on sides and rear, 1-1/2" installation clearance on top
- Handhole cleanout allows easy access to tank interior for cleaning
- 0" clearance to combustibles, approved for installation on combustible floors

### CODES AND STANDARDS

- CSA-certified and ASME-rated T&P relief valve
- Maximum hydrostatic working pressure: 160 psi
- All models are design certified by Underwriters Laboratories (UL), Inc., to ANSI Z21.10.3 - CSA 4.3 Standards
- Meets the thermal efficiency and standby loss requirements of the U.S. Department of Energy and current edition ASHRAE/IES 90.1
- Design certified by Underwriters Laboratories to NSF standard 5 for 180°F (62°C) water
- Complies with SCAQMD Rule 1146.2 and other Air Quality Management Districts with similar requirements for ultra low-NOx emissions
- ASME tank construction standard on all model sizes

### VENT REQUIREMENTS FOR SUS-120-750A - 1000A

Number of 90° Elbows Installed	6 Inch Pipe	
	Maximum Feet (Meters)	
One (1)	95 feet (28.9 meters)	
Two (2)	90 feet (27.4 meters)	
Three (3)	85 feet (25.9 meters)	
Four (4)	80 feet (24.3 meters)	
Five (5)	75 feet (22.8 meters)	
Six (6)	70 feet (21.3 meters)	

### 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
SUS-120-750A	0" W.C. (0 kPa)	0" W.C. (0 kPa)	3.5" W.C. (0.87 kPa)	8" W.C. (1.99 kPa)	14" W.C. (3.49 kPa)	14" W.C. (3.49 kPa)
SUS-120-1000A	0" W.C. (0 kPa)	0" W.C. (0 kPa)	3.5" W.C. (0.87 kPa)	8" W.C. (1.99 kPa)	14" W.C. (3.49 kPa)	14" W.C. (3.49 kPa)

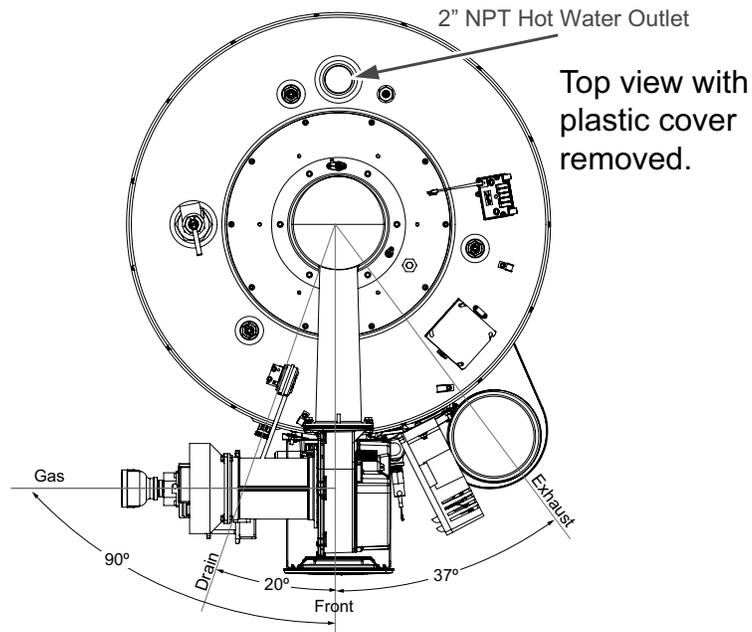
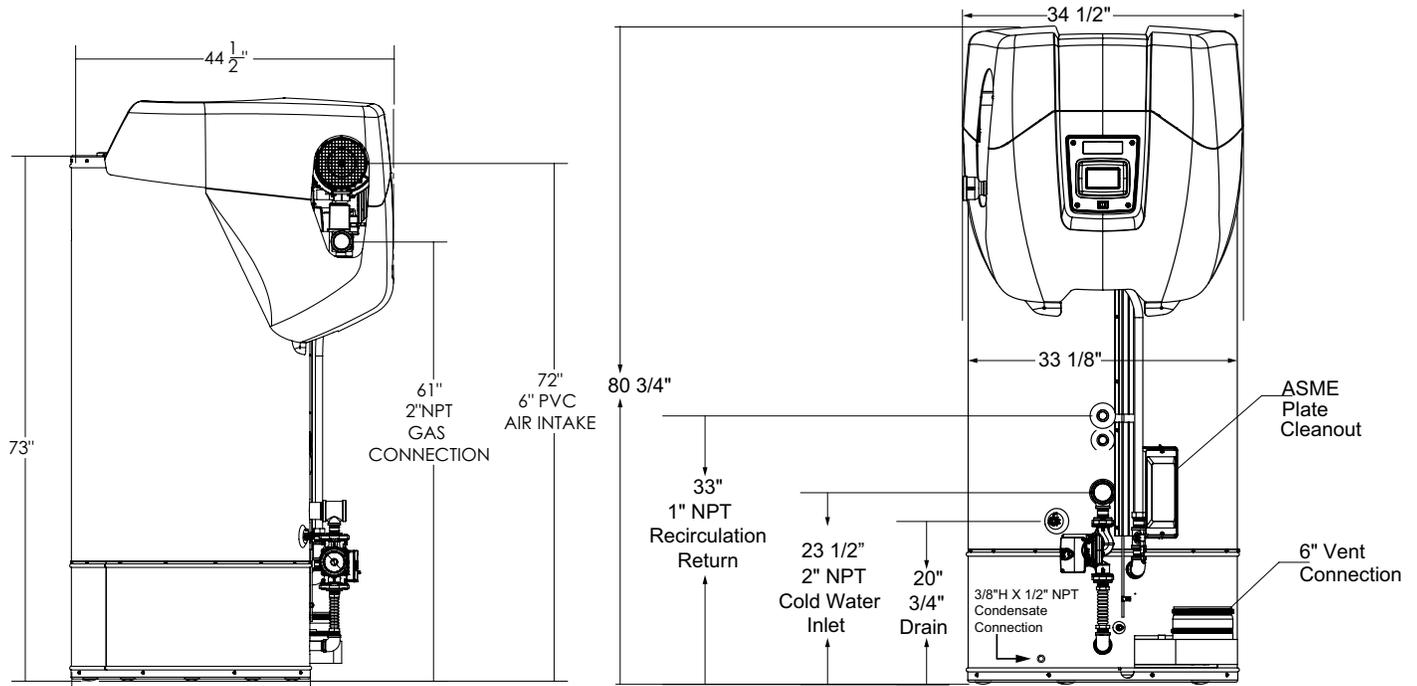
\* The manifold pressure is the factory setting and is not adjustable. A negative pressure will be seen with just the blower running without the Gas Control Valve open.

### GAS LINE CONNECTION SIZE

Model Number	Series	Natural Gas	Propane Gas
SUS-120-750A	100/101	2" NPT	2" NPT
SUS-120-1000A	100/101	2" NPT	2" NPT

Depending on the installed equivalent length, and/or the number of appliances connected, the supply gas line size may need to be increased beyond the minimum size requirement.

### SUS-120-750A - 1000A



Electrical characteristics-120V-60Hz A.C., 5.0 A

"A" in model represents ASME construction

Propane gas models available

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

### RECOVERY CAPACITY

Model Number	Type of Gas	Input		Thermal Efficiency
		BTU/HR	kW	
SUS-120-750A	Natural/Propane	750,000	220	97%
SUS-120-1000A	Natural/Propane	1,000,000	293	97%

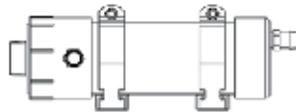
Model Number	U.S. GALLONS AND LITRES/HR AT TEMPERATURE RISE INDICATED													
	Approx. Capacity	°F	30° F	40° F	50° F	60° F	70° F	80° F	90° F	100° F	110° F	120° F	130° F	140° F
		°C	17° C	22° C	28° C	33° C	39° C	44° C	50° C	56° C	61° C	67° C	72° C	78° C
SUS-120-750A	120 U.S. Gals.	GPH	2,940	2,205	1,764	1,469	1,260	1,103	979	882	802	734	678	630
	454 Liters	LPH	11,129	8,347	6,677	5,561	4,770	4,175	3,706	3,339	3,036	2,778	2,567	2,385
SUS-120-1000A	120 U.S. Gals.	GPH	3,920	2,940	2,352	1,960	1,680	1,470	1,307	1,176	1,069	980	905	839
	454 Liters	LPH	14,839	11,129	8,903	7,419	6,359	5,565	4,948	4,452	4,047	3,710	3,426	3,176

Recovery capacities are based on AHRI rated thermal efficiencies.

### STORAGE CAPACITY

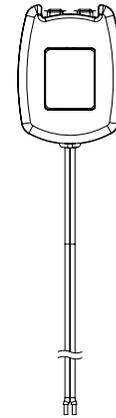
Model Number	U.S. Gallons	Liters	Approx. Shipping Weight (lbs)
SUS-120-750A	120	454	1300
SUS-120-1000A	120	454	1300

### OPTIONAL KITS



#### OPTIONAL CONDENSATE NEUTRALIZATION KITS

- SUS-750A kit p/n 100289340
- SUS-1000A kit p/n 100289581



#### OPTIONAL LEAK DETECTION KIT

- SUS-750A -1000A kit p/n 100302557

### SPECIFICATION

(Natural or Propane) gas water heater(s) shall be State Water Heaters Ultra Force XL model # \_\_\_\_\_ or equal, minimum 97% thermal efficiency, a storage capacity of 120 gallons, an input rating of \_\_\_\_\_ BTUs per hour, a recovery rating of \_\_\_\_\_ gallons per hour (gph) at 100°F rise and a maximum hydrostatic working pressure of 160 psi. Water heater(s) shall: 1. Modulating gas burner that automatically adjusts the input based on demand. 2. Powered anodes that are non sacrificial and maintenance free. 3. Have seamless glass-lined steel tank construction, with glass lining applied to all water-side surfaces after the tank has been assembled and welded; 4. Meets the thermal efficiency and/or standby loss requirements of the U. S. Department of Energy and current edition of ASHRAE/IES 90.1; 5. Have foam insulation and a CSA-certified and ASME-rated T&P relief valve; 6. Have a down-fired power burner designed for precise mixing of air and gas for optimum efficiency, requiring no special calibration on start-up; 7. Be approved for 0" clearance to combustibles.

The control shall be an integrated solid-state temperature and ignition control device with integral diagnostics, graphic user interface, fault history display, and shall have digital temperature readout. No charge connectivity shall be provided allowing for remote viewing and fault notification via app. 1. All models are design certified by Underwriters Laboratories (UL), Inc., according to ANSI Z21.10.3 - CSA 4.3 standards governing storage type water heaters; 2. Meet the thermal efficiency and standby loss requirements of the U. S. Department of Energy and current edition ASHRAE/IES 90.1. Complies with SCAQMD Rule 1146.2 and other air quality management districts with similar requirements for low NOx emissions.

750,000 - 1,000,000 BTU Input: For Standard Power Venting: Water heater(s) shall be suitable for standard power venting using a 6" diameter PVC pipe for a total distance of 100 ft. equivalent feet of vent piping. For Power Direct Venting: Water heater(s) shall be suitable for power direct venting using a 6" diameter PVC pipe for a total distance of 100 ft. equivalent feet of vent piping and 100 ft. equivalent feet of intake air piping.

Operation of the water heater(s) in a closed system where thermal expansion has not been compensated for (with a properly sized thermal expansion tank) will void the warranty.

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