



# TANKLESS

PRODUCT GUIDE

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## COMMERCIAL CONDENSING

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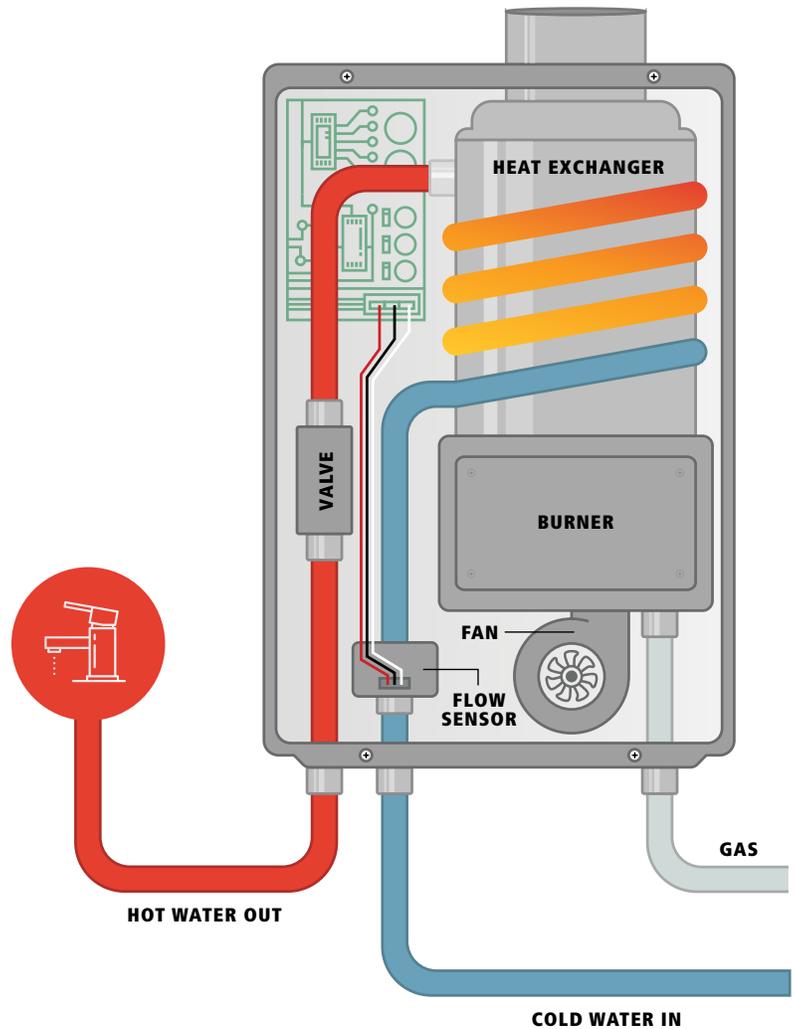
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# TANKLESS ADVANTAGE

## How It Works – The Process:

- A hot water tap is opened.
- The opened tap allows water to flow through the water heater. An internal water flow sensor detects this flow.
- Upon flow detection, the flow sensor sends the activation signal to the computer board.
- The computer automatically ignites the burner.
- As water flows through the heat exchanger, it absorbs heat from the burner.
- By the time the water exits the heater, it has reached the designated set temperature.
- When the hot water tap is closed, the water heater automatically turns off.



## Endless Hot Water

Heating water only as it's being used means you will never run out of hot water again. After the few seconds it takes for the water to reach the designated set temperature, our water heaters will continually provide a steady flow of hot water for as long as your application needs it (when sized appropriately for your home's needs).

## Energy Conservation

Provides you with continuous hot water in one of the most energy-efficient ways possible. Conventional tank-type water heaters will heat and store a set volume of water, regardless of whether someone is using that hot water or not. Because our tankless water heaters only activate when hot water is being used, no standby energy losses are incurred, providing efficient heating while conserving energy.

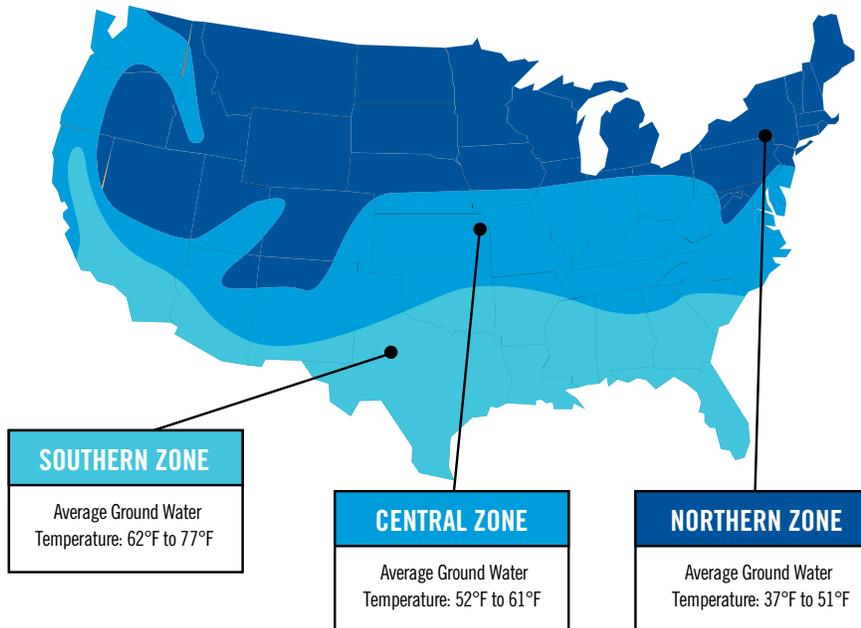
## Compact Size

On top of all this, an State tankless water heater takes up much less space than your conventional tank-type water heater or boiler. State's wall-mount design offers flexible installations freeing up valuable storage space.

# SIMPLE TANKLESS SIZING



## Average Ground Water Temperature



Remember, these are general recommendations. Your State Water Heater Specialist can review your family's needs in even greater detail to make sure the model you choose will always provide enough hot water to meet the demand.

## Tankless Models Ground Water Temperature Factor

The temperature of incoming ground water (cold water inlet temperature) varies greatly throughout the U.S. and also fluctuates with the changing of the seasons. The temperature of water as it enters the water heater will determine the amount of "temperature rise" required to achieve the desired hot water outlet temperature (120°F is recommended). The best way to measure incoming ground water temperature is to use a thermometer to measure cold water temperature during the coldest season of the year. To simplify the process, use this map to determine whether your installation location is in the Southern Zone, Central Zone or Northern Zone.

## Peak Hot Water Demand

The next step is to determine how many gallons per minute of hot water will be required during the busiest usage period (peak demand). Consider all appliances and fixtures that use hot water, including lavatory faucets, kitchen faucets, washing machines, dishwashers, showers and bathtubs. Be sure to determine how many appliances and fixtures will be used at the same time (peak demand).

# SAFETY

At State, we place the safety and reliability of our products above all else. By incorporating technologically advanced safety features into every model, we provide the assurance and peace of mind that can only come from an State quality product.

## Air-Fuel Ratio (AFR) Sensor

State's unique AFR sensor monitors and maintains proper combustion at all times. Together with the onboard computer, this system will adjust the fan motor speed to ensure that air and fuel have a proper mixture ratio, minimizing emissions and maximizing efficiency.

## Additional Safety Features

### Freeze Protection:

Every heater in State's tankless lineup has an internal freeze protection system, which is rated to protect the heaters when installed in sub-freezing conditions. This system works to keep water temperatures within the heat exchanger from falling below a certain level, preventing freeze damage.

### Hi-Limit Switch:

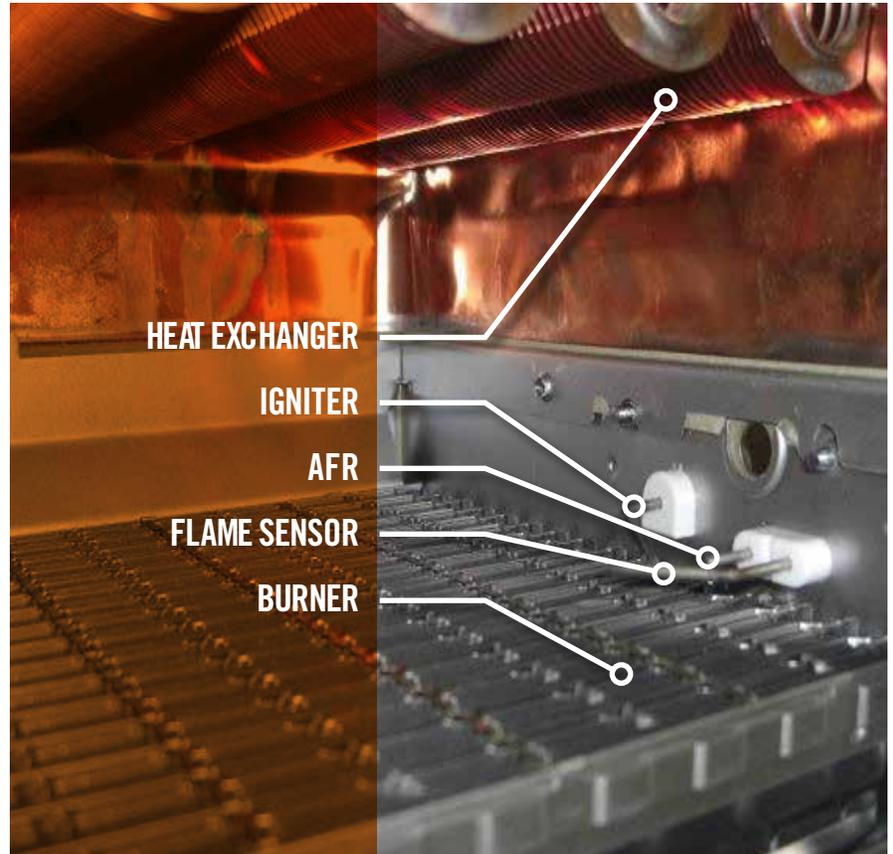
Ensures that water temperatures do not exceed safe levels. Before the water temperature can even reach these unsafe levels, the hi-limit switch activates by disengaging the gas valves, effectively shutting down the water heater.

### PVC Venting:

Indoor condensing models have a thermistor and hi-limit switch that monitor the exhaust temperature. If the exhaust temperature nears an unsafe limit, these features regulate combustion and can shut the heater down to protect the integrity of the PVC vent material.

### Overheat Cutoff Fuse:

Ensures that there are no breaches in the heat exchanger drum. In cases where enough physical damage might have been done to the water heater to lead to a breach in the heat exchanger drum, the overheat cutoff fuse reacts by shutting down the water heater if the surface of the heat exchanger retains too much heat.



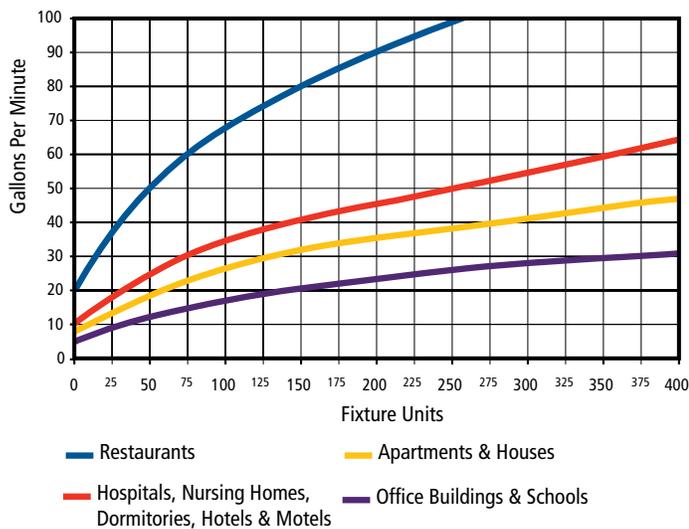
# FLOW RATE GUIDE

## Temperature Rise vs. Gallons per Minute

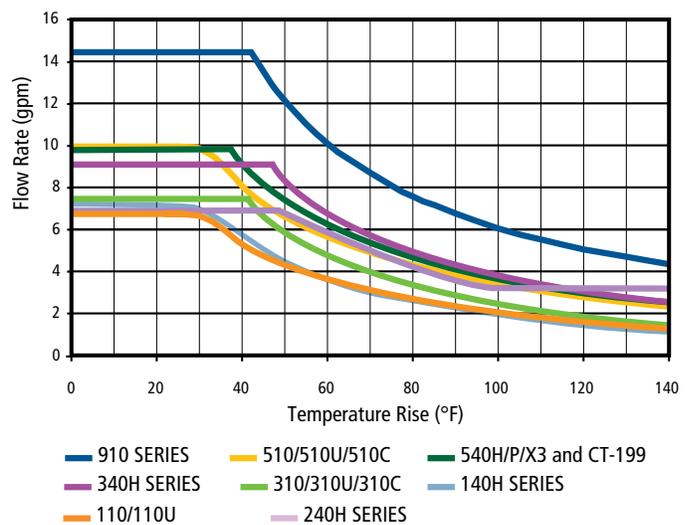
Temp Rise	110U	310U/C	510U/C	140H	240H	340H	540H/P/X3	CT-199	910
30°	6.6	8.0	10.0	6.6	6.6	8.0	10.0	10.0	14.5
35°	6.6	8.0	9.3	6.4	6.6	8.0	10.0	10.0	14.5
40°	5.7	7.8	8.1	5.6	6.6	8.0	9.5	9.5	14.5
45°	5.1	6.9	7.2	5.0	6.6	7.6	8.4	8.4	13.5
50°	4.6	6.2	6.5	4.5	6.1	6.8	7.6	7.6	12.2
55°	4.2	5.7	5.9	4.1	5.5	6.2	6.9	6.9	11.1
60°	3.8	5.2	5.4	3.7	5.1	5.7	6.3	6.3	10.1
65°	3.5	4.8	5.0	3.4	4.7	5.3	5.8	5.8	9.4
70°	3.3	4.4	4.7	3.2	4.3	4.9	5.4	5.4	8.7
75°	3.1	4.1	4.3	3.0	4.1	4.6	5.0	5.0	8.1
80°	2.9	3.9	4.1	2.8	3.8	4.3	4.7	4.7	7.6
85°	2.7	3.7	3.8	2.6	3.6	4.0	4.4	4.4	7.2
90°	2.5	3.5	3.6	2.5	3.4	3.8	4.2	4.2	6.8
95°	2.4	3.3	3.4	2.3	3.2	3.6	4.0	4.0	6.4
100°	2.3	3.1	3.3	2.2	3.0	3.4	3.8	3.8	6.1

Flow rate is determined by temperature rise. To determine your temperature rise, subtract the incoming water temperature from the set output temperature. All units are factory set to 120°F or 122°F but can be changed.

### Example of Hunter Curves for Sizing Large Applications



### Comparison of Flow Rates vs. Temperature Rise



# BASIC SIZING GUIDELINES

The flow rate capacity of tankless water heaters depends on the temperature difference between the desired output and incoming water temperature. The flow rate comparison chart and table shown here summarize the flow rate charts found in the specifications of each model.

State water heaters are sized according to the peak flow rate requirements, worst-case temperature-rise scenarios, and types of applications. Once these factors have been determined, refer to either the flow rate comparison here or the flow rate charts found in each model's specifications. Select the appropriate water heater as well as the amount of water heaters required.

Application designers/engineers can decide whether to size for full flow, expected flow, or utilize probability models such as the modified "Hunter Curve." For large scale applications such as hotels, apartment complexes and large restaurants, Hunter Curves are commonly used to estimate the peak flow rate demand when given the total amount of fixture units within an application. It is up to the application designer/engineer to determine the amount of fixture units within any given application.

## Match the Unit to Your Needs

Warmer Climates 70°F Incoming Groundwater Temperature	Cooler Climates 50°F Incoming Groundwater Temperature
Capacity - Number of Shower Heads (Assuming the set point temperature is 120°F)	

### Condensing Units

<b>540H/P/X3</b>	4.5 Showers	
<b>340H</b>	4 Showers	
<b>240H</b>	3.5 Showers	
<b>140H</b>	2.5 Showers	

3 Showers	
2.5 Showers	
2.5 Showers	
1.5 Showers	

### Non-Condensing Units

<b>510U/C</b>	3.5 Showers	
<b>310U/C</b>	3.5 Showers	
<b>110U</b>	2.5 Showers	

2.5 Showers	
2.5 Showers	
1.5 Showers	

### Commercial Units

<b>910</b>	7 Showers	
<b>CT-199</b>	4.5 Showers	

5 Showers	
3 Showers	

# OVERCOMING HARD WATER SCALE

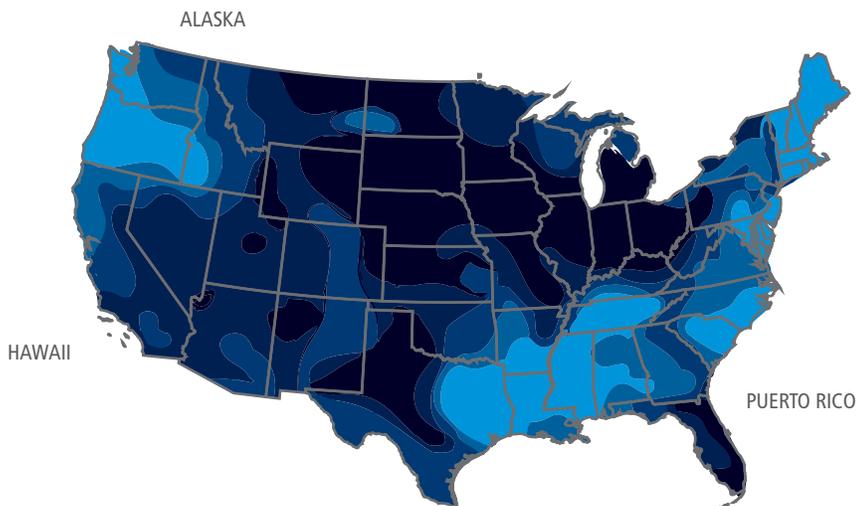
Hard water is everywhere. In fact, more than 85% of American homes have hard water which adversely affects plumbing systems, including water piping, water fixtures and the water heating system.

## What is hard water and hard water scale?

Water is classified as “hard” when it has a high mineral content, specifically magnesium and calcium ( $\text{Ca}^{2+}$  and  $\text{Mg}^{2+}$  ions). Hard water is not considered a health risk and these minerals generally remain dissolved in the water. However, problems arise when the minerals precipitate out of the water and leave behind a solid mineral buildup. This buildup, called scale, reduces water flow through pipes and fixtures, reduces the energy efficiency of water heating equipment and causes damage to the heat exchangers within tankless water heaters. Scale formation is based on water hardness levels and the temperature, not on the material the scale is adhering to. For example, hard water scale would form equally on a copper surface as it would on a stainless steel surface, given the same hardness level and temperature of water.

## What does hard water scale do to my water heater?

Scale is the number one threat to tankless water heaters where it reduces energy efficiency and damages the heater. When hard water scale forms a layer coating on the inside wall of a tankless heat exchanger fin pipe, it acts as a thermal insulator. This insulation effectively prevents a significant amount of heat from the burners to properly transfer into the water within the piping. Because the heat is not transferring into the water, the heat exchanger material retains this excess heat, eventually overheating and becoming damaged. Once scale forms, scale removal maintenance can be performed, but the heater will never return to peak efficiency. Without scale removal, the heat exchanger piping will eventually leak.



Classification	GPG (Grains Per Gallon)
● Slightly Hard	Less than 3
● Moderately hard	3 to 7
● Hard	7 to 10
● Very Hard	10 to 14
● Extremely Hard	Over 14

The U.S. Department of Interior and the Water Quality Association

## How is the hardness of water measured?

Water hardness is measured in either parts per million (ppm) or grains per gallon (gpg). Anything greater than 3 gpg is generally considered hard (United States Geological Survey).

# OVERCOMING HARD WATER SCALE

## How do I prevent hard water scale?

### X3 Scale Prevention Technology

State has combined its expertise in water heating and treatment to create X3® Scale Prevention Technology. By preventing scale from ever forming, this feature extends the life of the unit three times longer than traditional tankless. This makes it the first tankless product that maintains “like-new” performance without requiring any scale-related maintenance.

State stands behind this revolutionary product with the industry’s first ever “Peace of Mind” limited warranty. Unlike competitive warranties, this 15-year limited warranty covers scale-related failures should they occur.

### Tankless with X3 Technology

Still running after 19.7 simulated years and 460,000 gallons



### Unprotected tankless:

Failed at 5.8 simulated years and 136,000 gallons



### Product Preservers®

For applications when X3® Technology is not available, State Product Preservers anti-scale filters protect your tankless water heater from damage due to scale formation. This system does not add chemicals to the water or require electricity. As water flows through the filter, hard water minerals form inactive scale crystals which flow through the water heater without sticking to the heat exchanger.

Product Preservers are not needed for units with X3 Technology. Product Preservers filters are a minimal maintenance solution, which require replacement every two years.

### Sizing Chart

Flow Rate Based Ground Water Temperature (assume 120°F Set point)

		Tankless Model	110U	310U/C	510U/C	140H	240H	340H	540H/P	910	CT-199
Ground Water Temperature (°F)	Warmer Climate	85°F	6.6	8	9.3	6.4	6.6	8.0	10.0	14.5	10.0
		80°F	5.7	7.8	8.2	5.6	6.6	8.0	9.5	14.5	9.5
		75°F	5.1	6.9	7.3	5.0	6.6	7.6	8.4	13.5	8.4
		70°F	4.6	6.2	6.5	4.5	6.1	6.8	7.6	12.2	7.6
		65°F	4.2	5.7	5.9	4.1	5.5	6.2	6.9	11.0	6.9
		60°F	3.8	5.2	5.4	3.7	5.1	5.7	6.3	10.1	6.3
	Colder Climate	55°F	3.5	4.8	5.0	3.4	4.7	5.3	5.8	9.4	5.8
		50°F	3.3	4.5	4.7	3.2	4.3	4.9	5.4	8.7	5.4
		45°F	3.1	4.2	4.4	3.0	4.1	4.6	5.0	8.1	5.0
		40°F	2.9	3.9	4.1	2.8	3.8	4.3	4.7	7.6	4.7
		35°F	2.7	3.7	3.8	2.6	3.6	4.0	4.5	7.2	4.5

100291509 Product Preservers® Anti-Scale System

Requires multiple units



# DURABILITY

State tankless products are built with commercial-grade materials to ensure durability and reliability.

## Commercial-Grade Copper Alloy

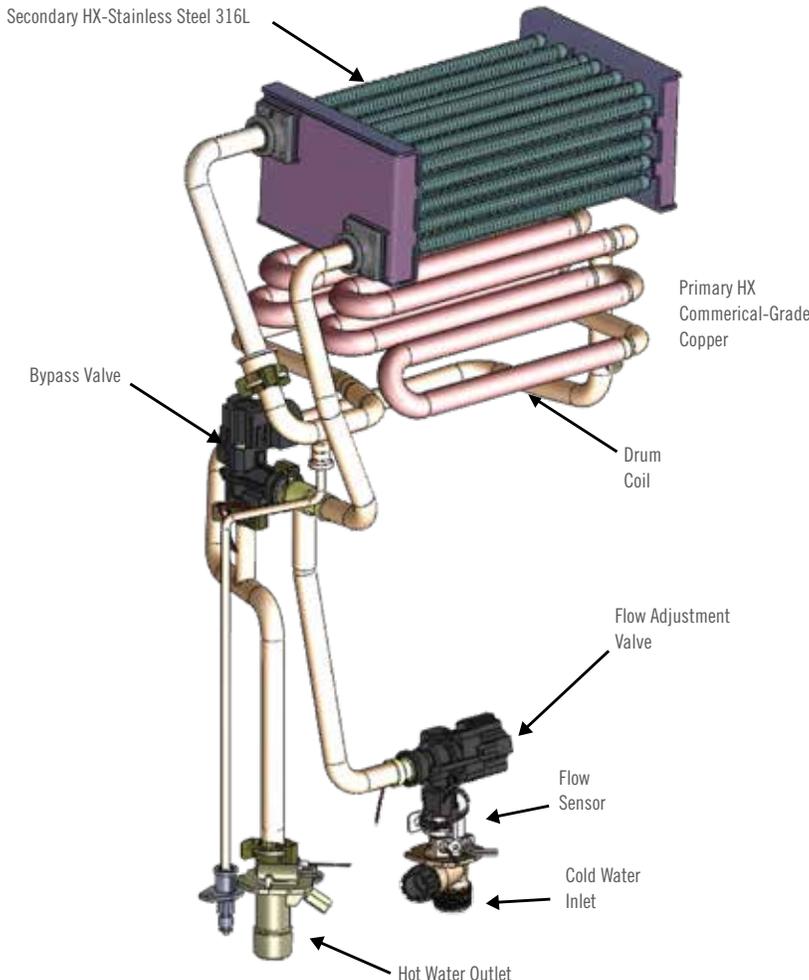
Our commercial-grade copper is a heat-resistant copper alloy, with additive elements that give it eight times the tensile strength of regular copper. Even at high temperatures, our commercial-grade copper maintains a fine grain and high strength. Commercial-grade copper provides resistance to the damaging effects of erosion that can cause heat exchangers to leak.

## 316L Stainless Steel

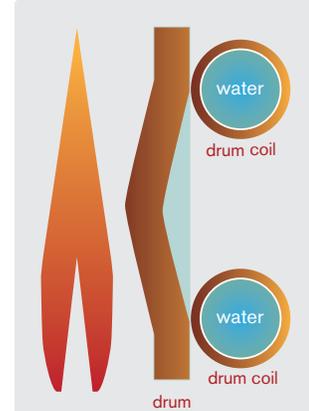
State condensing models utilize 316L stainless steel in the secondary heat exchanger. Stainless steel performs well in extreme environments including heat, acidic condensation and chloride.

## Drum Thickness

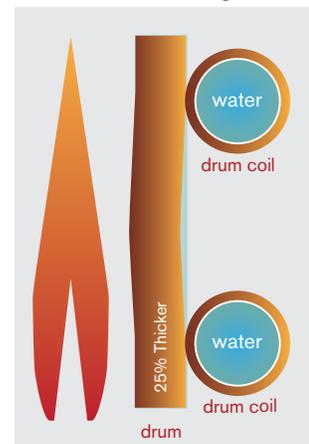
During every ignition cycle, thermal expansion causes all heat exchangers to undergo heat stress. After the thousands of ON/OFF cycles typically seen in a commercial application, this heat stress can prove damaging. This is why the heat exchangers in our commercial and light commercial products utilize drums that are 25% thicker, ensuring the longevity of our products. A thicker drum creates less strain on the heat exchanger.



A thinner drum strains more under heat stress



A thicker drum creates less strain on the heat exchanger



# VALVES AND WATER FLOW

Making true commercial-grade water heaters involves more than just redesigning our heat exchangers—every internal component has to measure up to State’s commercial standards. Just like our advanced heat exchangers, the longevity and functionality of components such as our water valves and flow sensors are also of great importance.

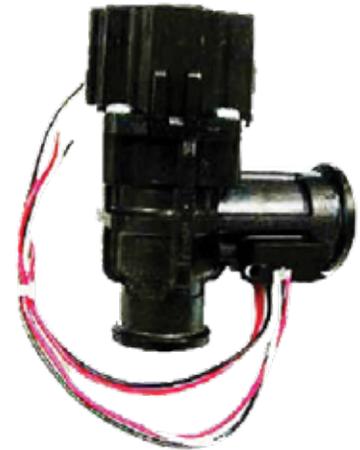
Our commercial-grade water heaters (510 and 540), as well as our commercial water heaters (CT-199 and 910) feature a bypass and flow adjustment valve, which not only provide the optimal control and precision essential for commercial usage, but also offer the durability needed to handle tough, high-volume conditions.



Stepper Motor Water Valves - 910 Models



Bypass Valve - 510U/C,  
CT-199 and 540H Models



Flow Adjustment - 510U/C,  
CT-199 and 540H Models

## Water Flow

Condensation can build up over time in any heat exchanger, causing damage and premature leaks. State’s commercial models (910 series) include condensation reduction features that safeguard against these types of damaging effects.

## Better Water Pathway Design

By redesigning and redirecting the flow of water, the temperature of the heat exchanger drum and finned coils stay elevated above dew point, making it much more difficult for condensation to build.

## Fin Pitch

By widening the pitch of the heat exchanger fins, not only do we improve durability by reducing occurrences of blockage, we also maintain higher temperatures on the upper finned coils. Keeping these coils at elevated temperatures reduces the likelihood of condensation buildup.



FIN

# RESIDENTIAL CONDENSING WITH X3<sup>®</sup> SCALE PREVENTION TECHNOLOGY



## Features

No annual descaling required

No scale buildup means the heater maintains like-new performance longer

3" venting up to 70 equivalent feet

Recirc Capable

- Tankless water heaters with X3 Technology are approved to work with an external recirculation pump and cross-over valve. See training manual for full details.

Warranty

- No hardwater exclusions in the industry's first "peace of mind" limited warranty
- 15-year limited warranty on heat exchanger in residential applications
- 5-year limited warranty on all parts in residential applications
- 1-year limited warranty on heat exchanger and parts in commercial applications
- Refer to [statewaterheaters.com](http://statewaterheaters.com) for further warranty details

## Specifications

Model Number*	Type	Gas Consumption Input **		Inlet Gas Pressure**		UEF
		Minimum (BTU/H)	Maximum (BTU/H)	Minimum (in. W.C.)	Maximum (in. W.C.)	
GTS-540X3-NIH	Natural	15,000	199,000	4.0	10.5	0.93
GTS-540X3-NEH	Natural	15,000	199,000	4.0	10.5	0.95
GTS-340X3-NIH	Natural	15,000	180,000	4.0	10.5	0.95
GTS-340X3-NEH	Natural	15,000	180,000	4.0	10.5	0.94
GTS-240X3-NIH	Natural	15,000	160,000	4.0	10.5	0.94
GTS-240X3-NEH	Natural	15,000	160,000	4.0	10.5	0.95

Model Number*	Maximum GPM	Hot/Cold Connections	Gas Connection	Approx Shipping Weight (lbs)
GTS-540X3-NIH	10	3/4" NPT	3/4" NPT	73
GTS-540X3-NEH	10	3/4" NPT	3/4" NPT	73
GTS-340X3-NIH	8	3/4" NPT	3/4" NPT	72
GTS-340X3-NEH	8	3/4" NPT	3/4" NPT	71
GTS-240X3-NIH	6.6	3/4" NPT	3/4" NPT	72
GTS-240X3-NEH	6.6	3/4" NPT	3/4" NPT	71

\*For propane models, change "N" to "P"

\*\*For propane models, minimum fire is 13,000 BTU/H, minimum inlet gas pressure is 8.0 in. W.C. and maximum inlet gas pressure is 14.0 in. W.C.

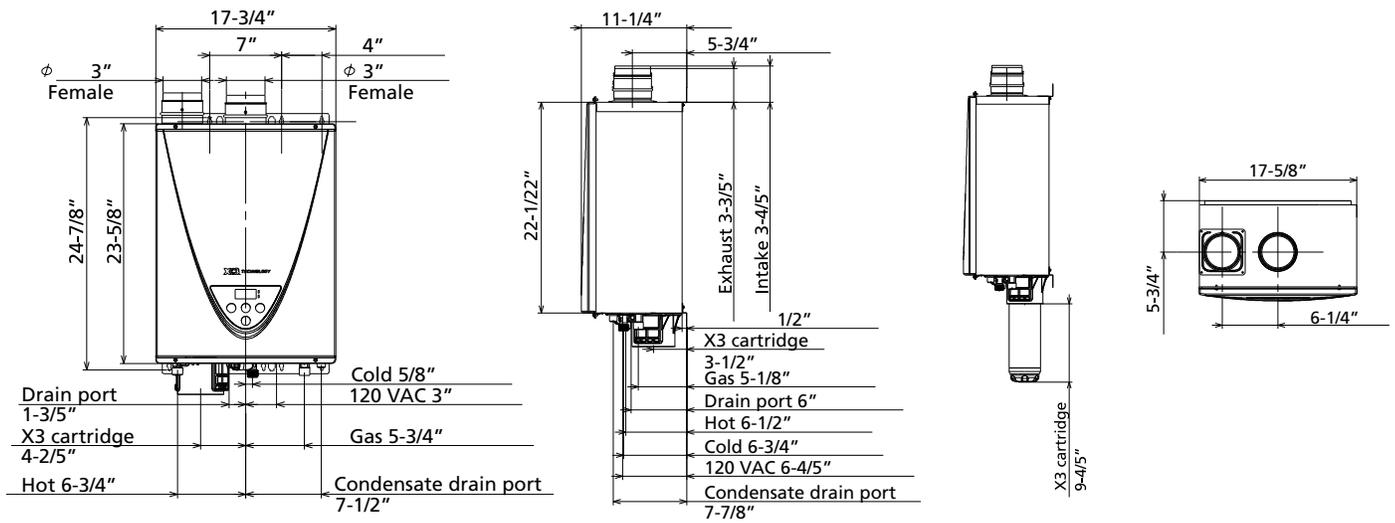
540HX3 Temperature Settings	120°F (Default Setting)		
	100-140°F (5°F Increments)		
Electric	120 V	60 Hz	1.63 Amps



ANSI Z21.10.3 • CSA 4.3

# Dimensions

Model Number	Clearances (inches)			
	Top	Bottom	Side	Front
GTS-540X3-NIH	12	12	3	4
GTS-540X3-NEH	36	12	3	24
GTS-340X3-NIH	12	12	3	4
GTS-340X3-NEH	36	12	3	24
GTS-240X3-NIH	12	12	3	4
GTS-240X3-NEH	36	12	3	24



# Accessories



Recess Box  
Retrofit:  
(100298009)



Pipe Cover  
(100112718)

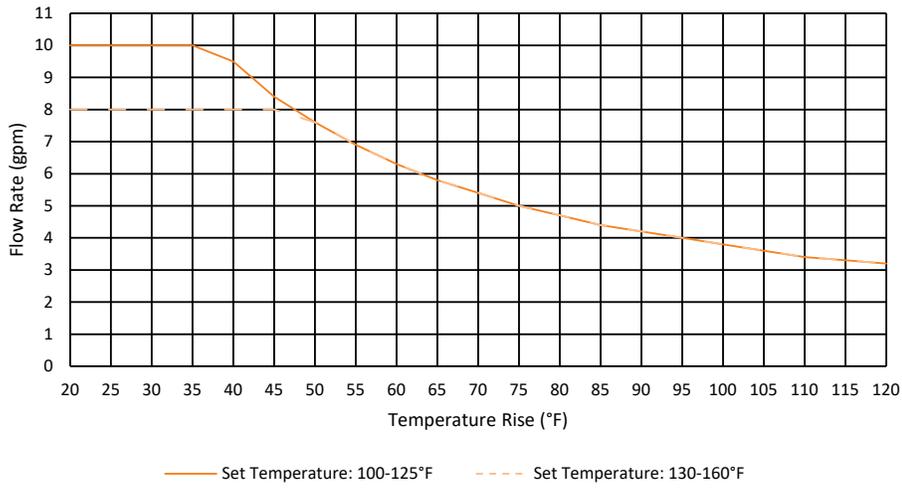


Remote Temperature  
Controller  
(100276687)

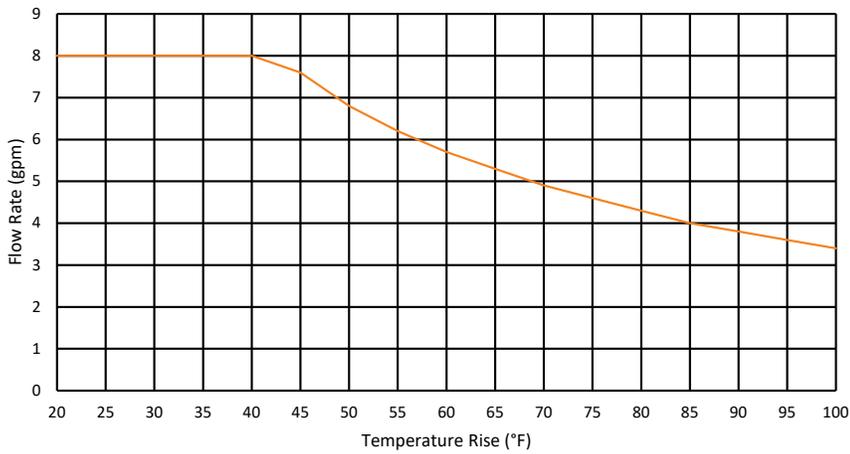
New Construction: (100306285)

# RESIDENTIAL CONDENSING WITH X3<sup>®</sup> SCALE PREVENTION TECHNOLOGY

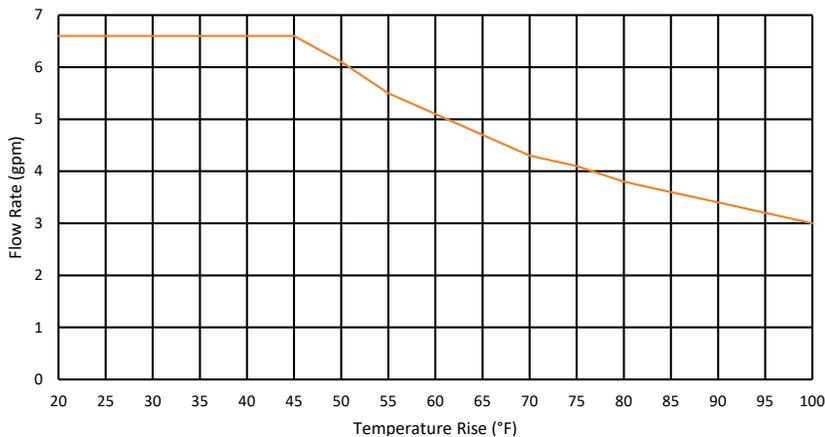
## 540HX3 Output Temp vs. GPM



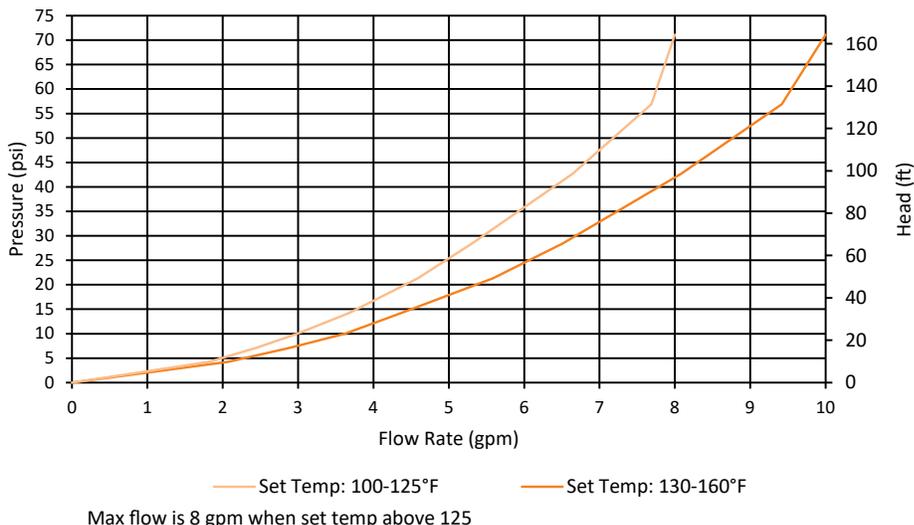
## 340HX3 Output Temp vs. GPM



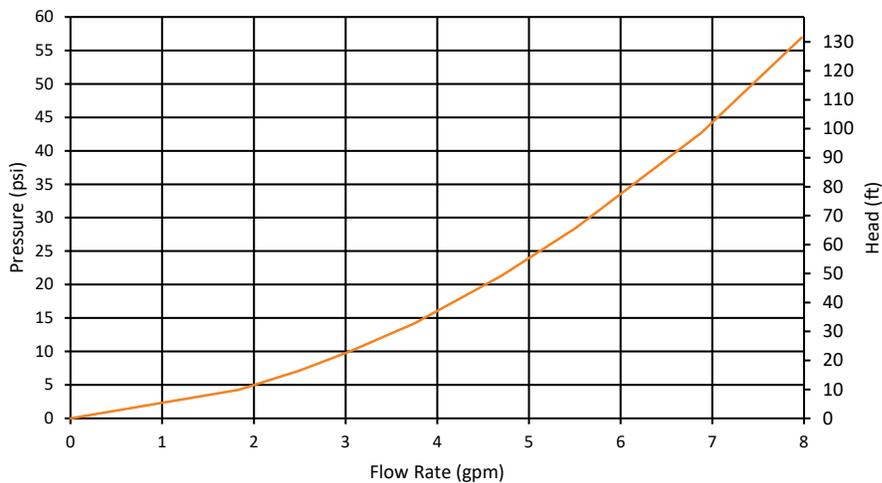
## 240HX3 Output Temp vs. GPM



### 540HX3 Pressure Loss



### 340HX3 Pressure Loss



### 240HX3 Pressure Loss



# RESIDENTIAL CONDENSING WITH INTEGRATED RECIRCULATION PUMP



## Features

Integrated recirculation pump for instant hot water

EASY-LINK™ with up to 3 other 540H heaters

3" venting up to 70 equivalent feet

## Warranty

- 15-year limited warranty on heat exchanger in residential applications
- 5-year limited warranty on heat exchanger in commercial applications
- 5-year warranty on all parts
- Refer to [statewaterheaters.com](http://statewaterheaters.com) for further warranty details

## Specifications

Model Number*	Type	Gas Consumption Input**		Inlet Gas Pressure**		UEF
		Minimum (BTU/H)	Maximum (BTU/H)	Minimum (in. W.C.)	Maximum (in. W.C.)	
GTS-540P-NI	Natural	15,000	199,000	4.0	10.5	0.93
GTS-540P-NE	Natural	15,000	199,000	4.0	10.5	0.95

Model Number	Maximum GPM	Hot/Cold Connections	Gas Connection	Approx Shipping Weight (lbs)*
GTS-540P-NI	10	3/4" NPT	3/4" NPT	70
GTS-540P-NE	10	3/4" NPT	3/4" NPT	69

\*For propane models, change "N" to "P"

\*\*For propane models, minimum fire is 13,000 BTU/H, minimum inlet gas pressure is 8.0 in. W.C. and maximum inlet gas pressure is 14.0 in. W.C.

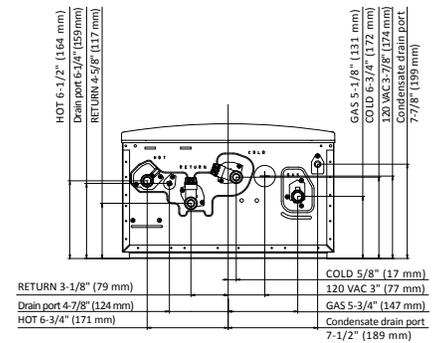
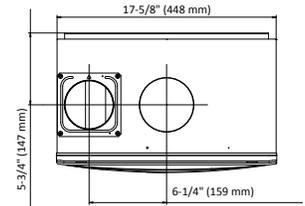
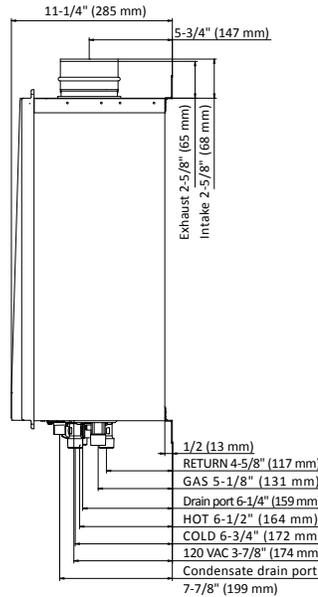
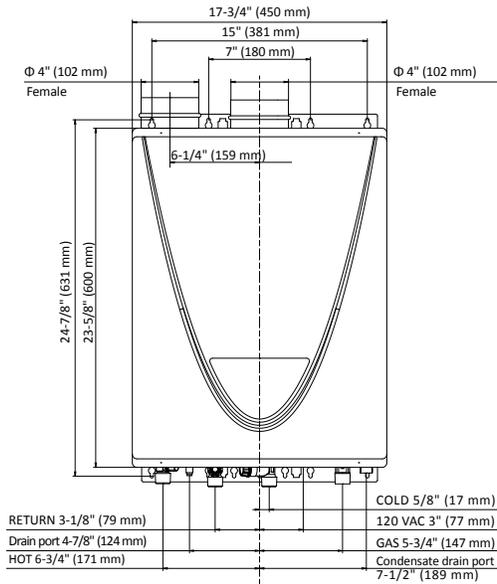
540P Temperature Settings	120°F (Default Setting)		
	100-140°F (5°F Increments)		
Electric	120 V	60 Hz	1.63 Amps



ANSI Z21.10.3 • CSA 4.3

# Dimensions

Model Number	Clearances (inches)			
	Top	Bottom	Side	Front
GTS-540P-NI	12	12	3	4
GTS-540P-NE	36	12	3	24



# Accessories



Recess Box Retrofit: (100298009)

New Construction: (100306285)



Pipe Cover (100112718)

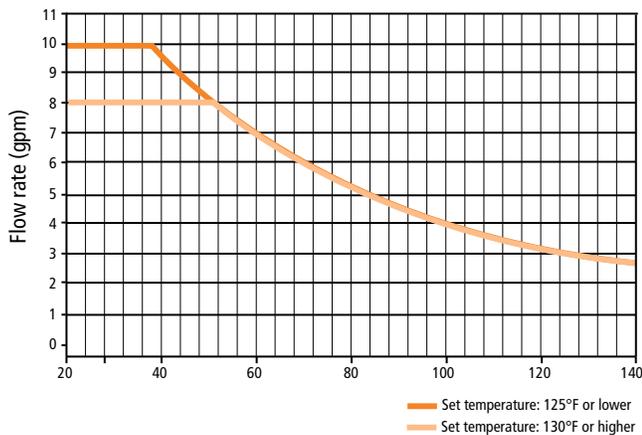


Remote Temperature Controller (100276687)

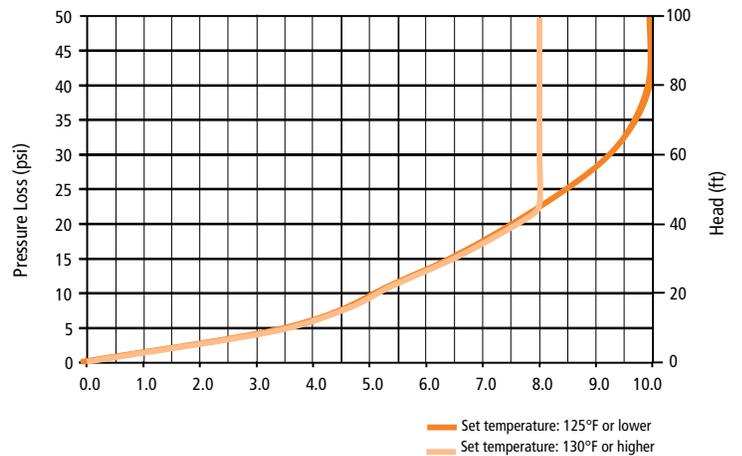


Isolation Valves (100112255)

## 540P Output Temp vs. GPM



## 540P Pressure Loss



# RESIDENTIAL CONDENSING



## Features

Continuous maximum flow rates up to 10.0 GPM

Ultra-Low NOx gas tankless water heaters

540 models can be used in residential and commercial applications

EASY-LINK™ up to four 540H heaters or up to twenty 540H heaters with multi-unit controller

## Warranty

- 15-year limited warranty on heat exchanger in residential applications
- 5-year limited warranty on heat exchanger in commercial applications
- 5-year warranty on all parts
- Refer to [statewaterheaters.com](http://statewaterheaters.com) for further warranty details

## Specifications

Model Number*	Type	Gas Consumption Input**		Inlet Gas Pressure**		UEF
		Minimum (BTU/H)	Maximum (BTU/H)	Minimum (in. W.C.)	Maximum (in. W.C.)	
GTS-540-NIH	Natural	15,000	199,000	4.0	10.5	0.93
GTS-540-NEH	Natural	15,000	199,000	4.0	10.5	0.95
GTS-340-NIH	Natural	15,000	180,000	4.0	10.5	0.95
GTS-340-NEH	Natural	15,000	180,000	4.0	10.5	0.94
GTS-240-NIH	Natural	15,000	160,000	4.0	10.5	0.94
GTS-240-NEH	Natural	15,000	160,000	4.0	10.5	0.95

Model Number*	Maximum GPM	Hot/Cold Connections	Gas Connection	Approx Shipping Weight (lbs)
GTS-540-NIH	10	3/4" NPT	3/4" NPT	71
GTS-540-NEH	10	3/4" NPT	3/4" NPT	69
GTS-340-NIH	8	3/4" NPT	3/4" NPT	71
GTS-340-NEH	8	3/4" NPT	3/4" NPT	69
GTS-240-NIH	6.6	3/4" NPT	3/4" NPT	71
GTS-240-NEH	6.6	3/4" NPT	3/4" NPT	69

\*For propane models, change "N" to "P"

\*\*For propane models, minimum fire rate is 13,000 BTU/H, minimum inlet gas pressure is 8.0 in. W.C. and maximum inlet gas pressure is 14.0 in. W.C.

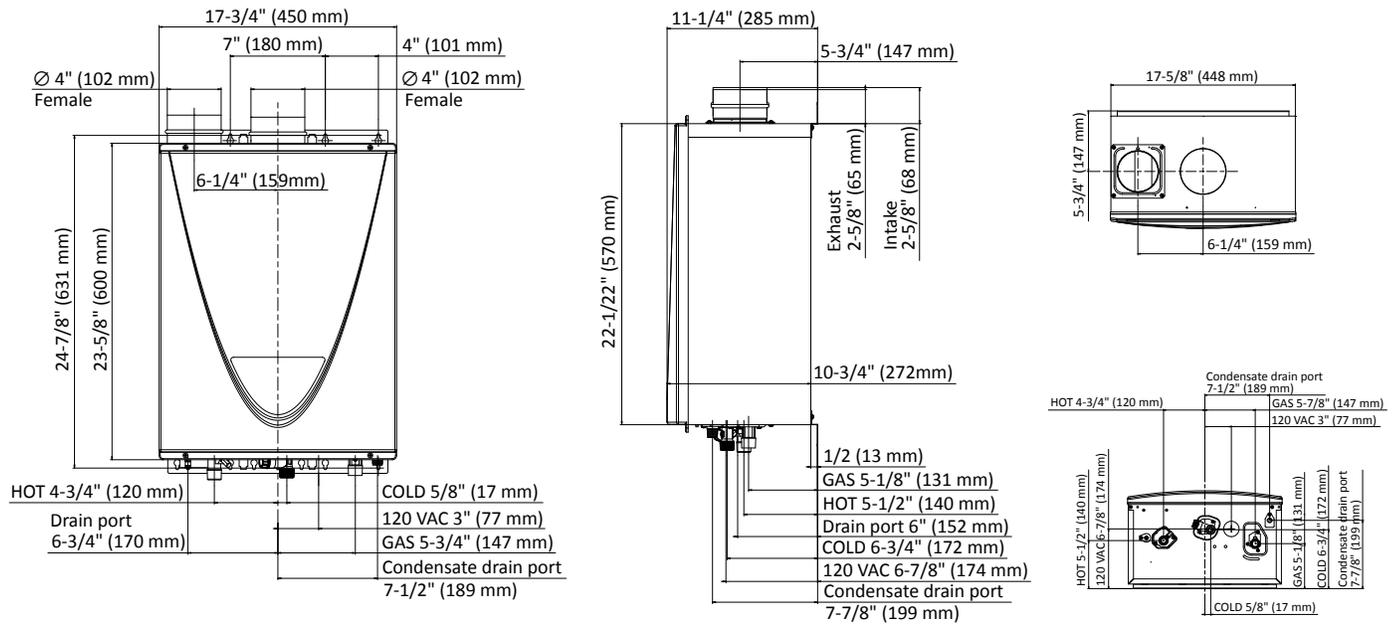
Temperature Settings	120°F (Default Setting)		
	240H/340H: 100-140°F (5°F Increments)		
	540H: 100-160°F (5°F Increments)		
Electric	120 V	60 Hz	1.5 Amps



ANSI Z21.10.3 • CSA 4.3

# Dimensions

Model Number	Clearances (inches)			
	Top	Bottom	Side	Front
GTS-540-NIH	12	12	3	4
GTS-540-NEH	36	12	3	24
GTS-340-NIH	12	12	3	4
GTS-340-NEH	36	12	3	24
GTS-240-NIH	12	12	3	4
GTS-240-NEH	36	12	3	24



# Accessories



Recess Box  
Retrofit:  
(100298009)

New Construction: (100306285)



Pipe Cover  
(100112718)



Remote Temperature  
Controller  
(100209924)



Multi-Unit Controller\*  
(100112691)  
\*Only available  
for 540H



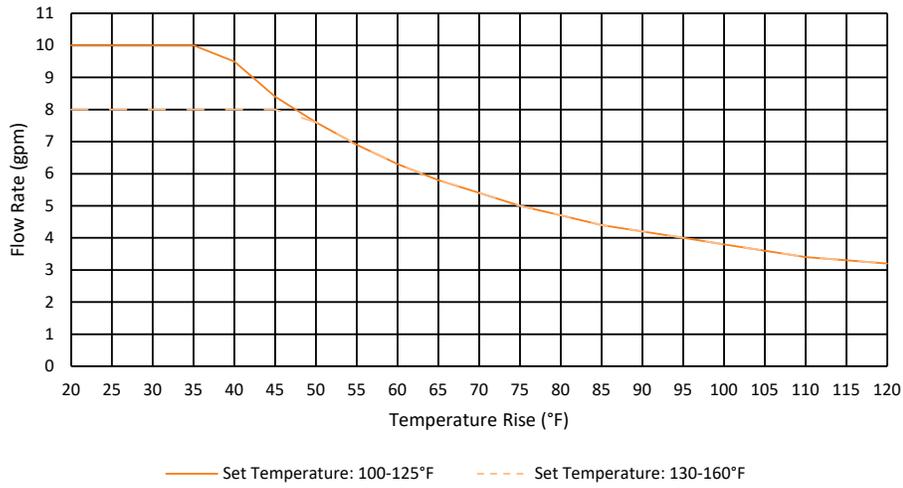
3" Concentric  
Termination  
(100112163)



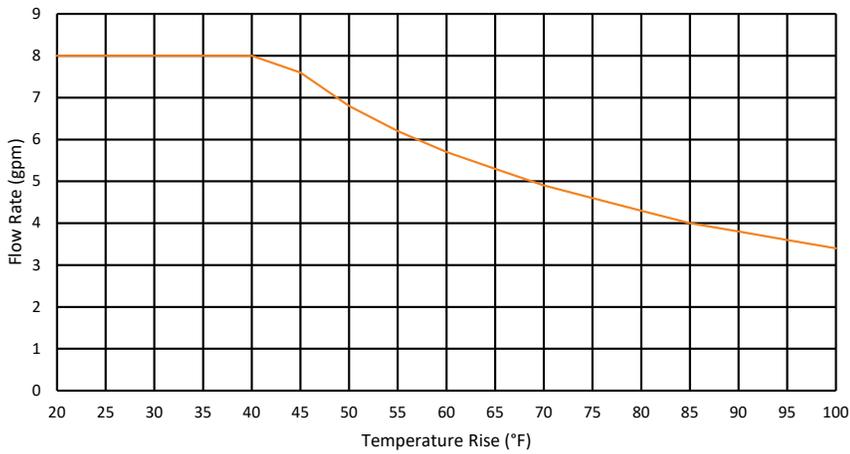
Isolation Valves  
(100112255)

# RESIDENTIAL CONDENSING

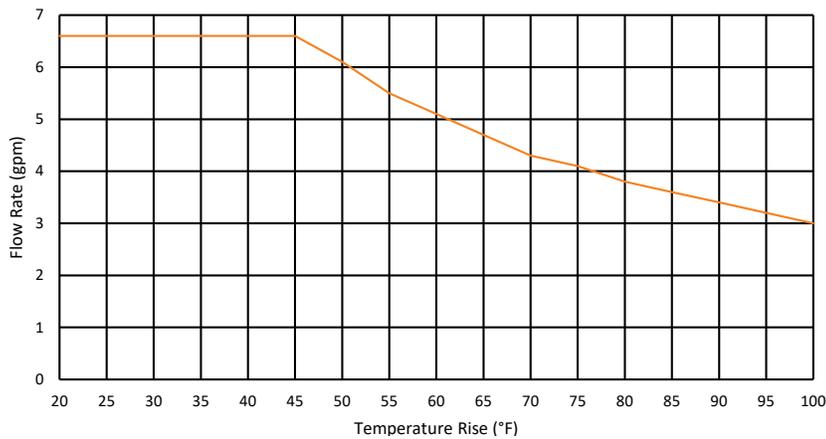
## 540H Output Temp vs. GPM



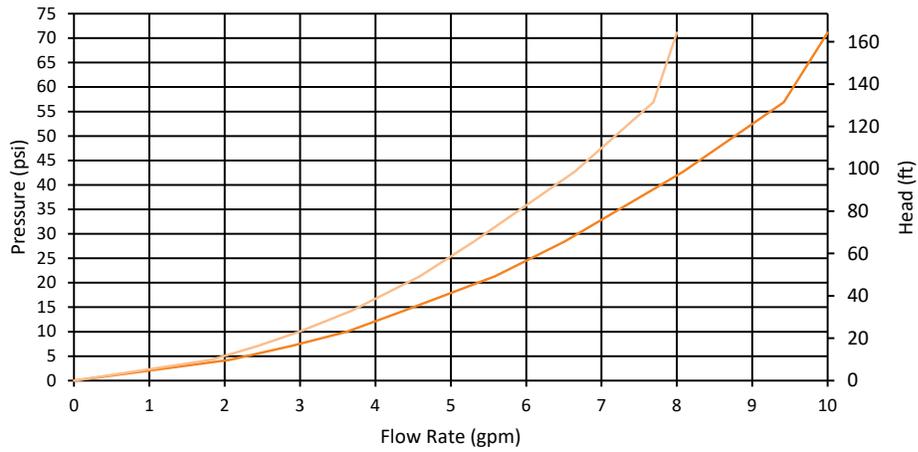
## 340H Output Temp vs. GPM



## 240H Output Temp vs. GPM



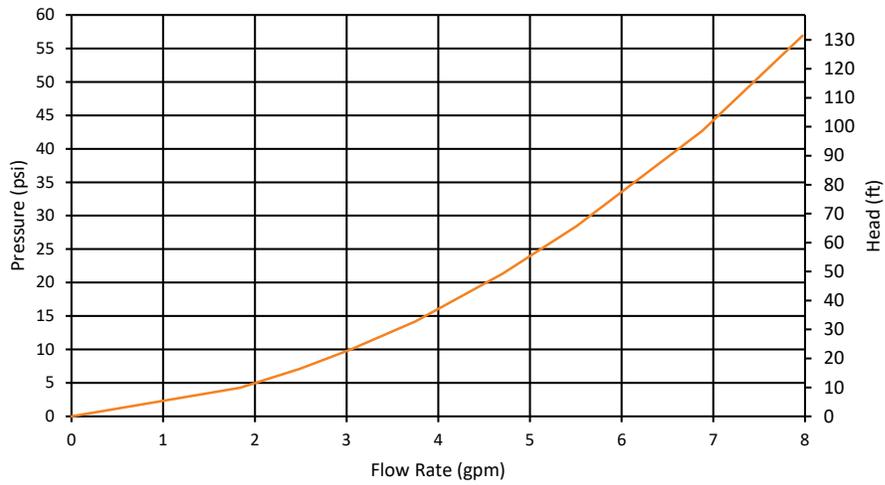
## 540H Pressure Loss



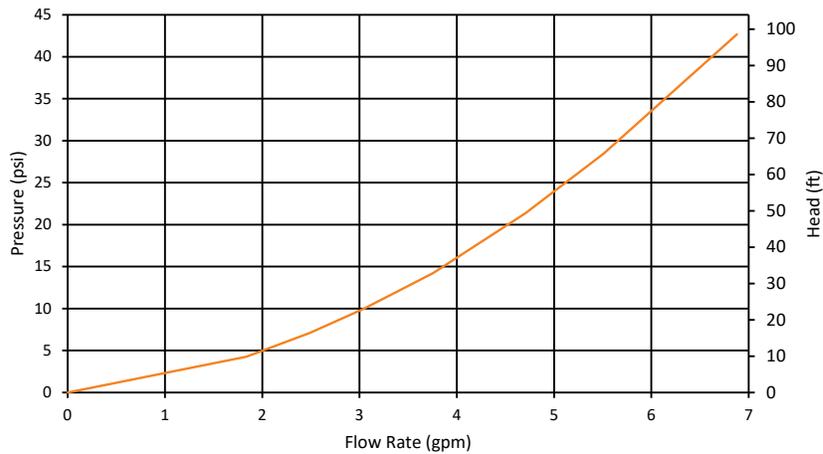
— Set Temp: 100-125°F      — Set Temp: 130-160°F

Max flow is 8 gpm when set temp above 125

## 340H Pressure Loss



## 240H Pressure Loss



# RESIDENTIAL CONDENSING



## Features

- Operates with 1/2" gas line
- Designed to fit between standard framing construction
- 3" venting up to 70 equivalent feet

## Warranty

- 15-year limited warranty on heat exchanger in residential applications
- 5-year limited warranty on heat exchanger in commercial applications
- 5-year warranty on all parts
- Refer to [statewaterheaters.com](http://statewaterheaters.com) for further warranty details

## Specifications

Model Number*	Type	Gas Consumption Input**		Inlet Gas Pressure**		UEF
		Minimum (BTU/H)	Maximum (BTU/H)	Minimum (in. W.C.)	Maximum (in. W.C.)	
GTS-140-NIH	Natural	15,000	120,000	4.0	10.5	0.90
GTS-140-NEH	Natural	15,000	120,000	4.0	10.5	0.91

Model Number*	Maximum GPM	Hot/Cold Connections	Gas Connection	Approx Shipping Weight (lbs)
GTS-140-NIH	6.6	3/4" NPT	1/2" NPT	54
GTS-140-NEH	6.6	3/4" NPT	1/2" NPT	52

\*For propane models, change "N" to "P"

\*\*For propane models, minimum fire is 13,000 BTU/H, minimum inlet gas pressure is 8.0 in. W.C. and maximum inlet gas pressure is 14.0 in. W.C.

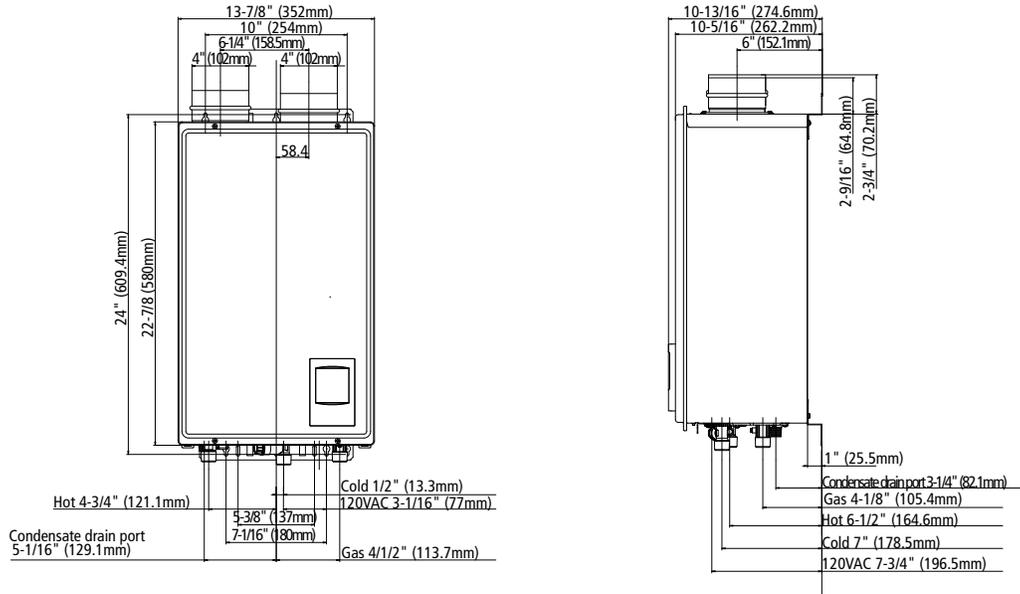
140H Temperature Settings	120°F (Default Setting)		
	100-140°F (5°F Increments)		
Electric	120 V	60 Hz	1.94 Amps



ANSI Z21.10.3 • CSA 4.3

# Dimensions

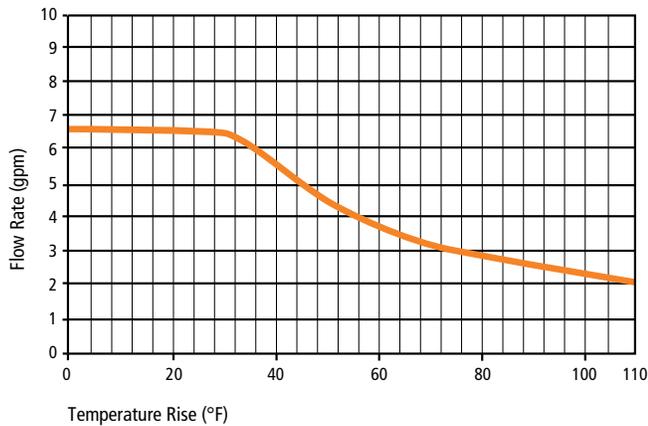
Model Number	Clearances (inches)			
	Top	Bottom	Side	Front
GTS-140-NIH	12	12	3	4
GTS-140-NEH	36	12	3	24



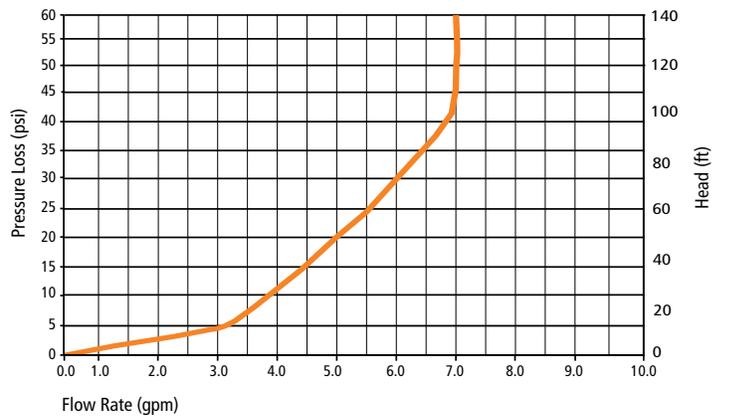
# Accessories



## 140H Output Temp vs. GPM



## 140H Pressure Loss



# RESIDENTIAL NON-CONDENSING ULTRA-LOW NOX



## Features

Gas convertible from natural gas to propane using the included conversion kit

4" category III vent up to 60 equivalent feet

EASY-LINK™ up to four 510U heaters or up to twenty 510U heaters with multi-unit controller

## Warranty

- 15-year limited warranty on heat exchanger in residential applications
- 5-year limited warranty on heat exchanger in commercial applications
- 5-year warranty on all parts
- Refer to [statewaterheaters.com](http://statewaterheaters.com) for further warranty details

## Specifications

Model Number*	Type	Gas Consumption Input**		Inlet Gas Pressure**		UEF
		Minimum (BTU/H)	Maximum (BTU/H)	Minimum (in. W.C.)	Maximum (in. W.C.)	
GTS-510U-I	Natural	15,000	199,000	4.0	10.5	0.82
GTS-510U-E	Natural	15,000	199,000	4.0	10.5	0.81
GTS-310U-I	Natural	15,000	199,000	4.0	10.5	0.82
GTS-310U-E	Natural	15,000	199,000	4.0	10.5	0.82
GTS-110U-I	Natural	15,000	140,000	4.0	10.5	0.81
GTS-110U-E	Natural	15,000	140,000	4.0	10.5	0.81

Model Number*	Maximum GPM	Hot/Cold Connections	Gas Connection	Approx Shipping Weight (lbs)
GTS-510U-I	10	3/4" NPT	3/4" NPT	40
GTS-510U-E	10	3/4" NPT	3/4" NPT	40
GTS-310U-I	8	3/4" NPT	3/4" NPT	39
GTS-310U-E	8	3/4" NPT	3/4" NPT	39
GTS-110U-I	6.6	3/4" NPT	3/4" NPT	39
GTS-110U-E	6.6	3/4" NPT	3/4" NPT	39

\*Units are field convertible from natural gas to propane with supplied conversion kit.

\*\*For propane, minimum inlet gas pressure is 8.0 in. W.C. and maximum inlet gas pressure is 14.0 in. W.C.

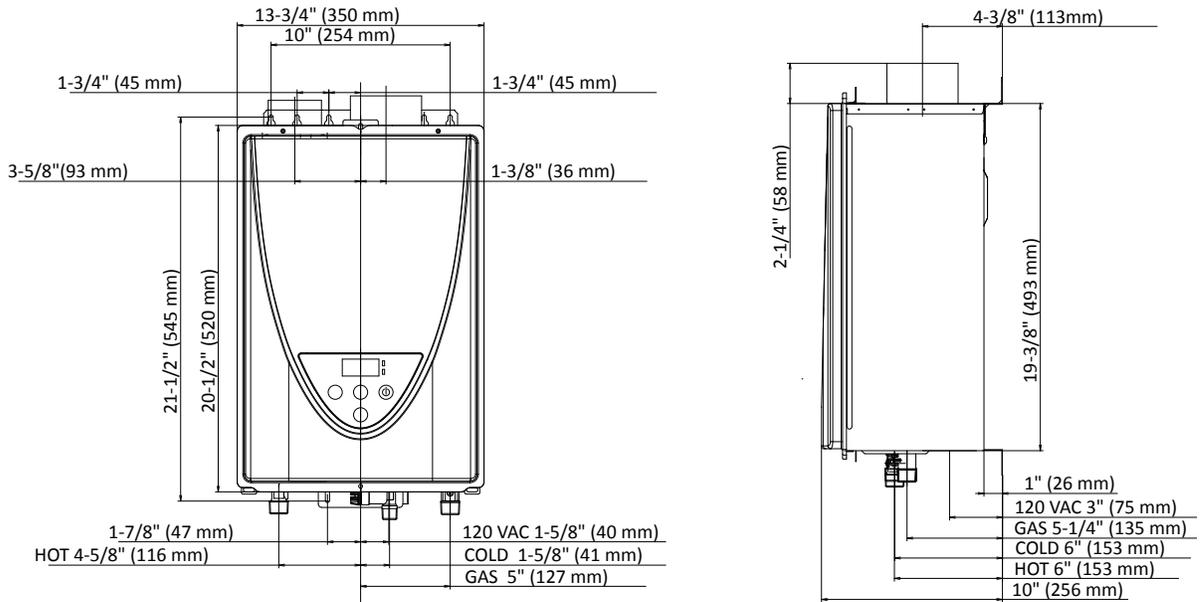
Temperature Settings	120°F (Default Setting)		
	110U/310U: 100-140°F (5°F Increments)		
	510U: 100-160°F (5°F Increments)		
Electric	120 V	60 Hz	1.02 Amps



ANSI Z21.10.3 • CSA 4.3

# Dimensions

Model Number	Clearances (inches)			
	Top	Bottom	Side	Front
GTS-510U-I	12	12	3	4
GTS-510U-E	36	12	3	24
GTS-310U-I	12	12	3	4
GTS-310U-E	36	12	3	24
GTS-110U-I	12	12	3	4
GTS-110U-E	36	12	3	24



# Accessories



Recess Box Std Retrofit  
(100266729)  
Recess Box Flange  
(100266730)



Pipe Cover  
(100324434)



Remote Temperature  
Controller  
(100209924)



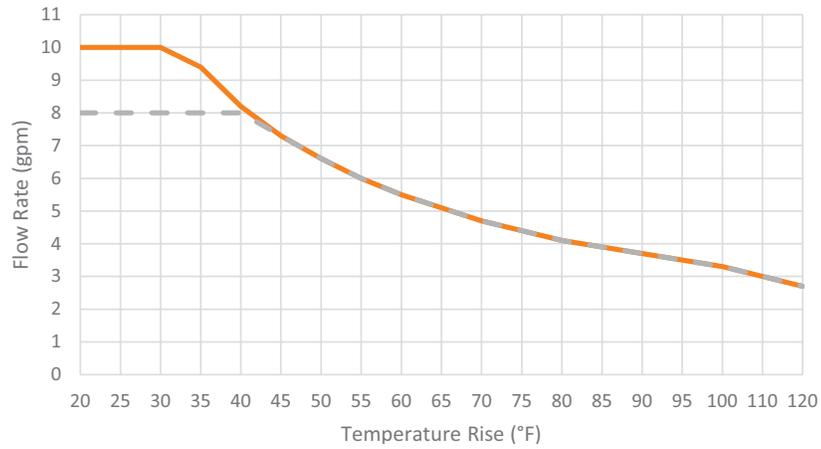
Multi-Unit Controller\*  
(100112691)  
\*Only available  
for 510U



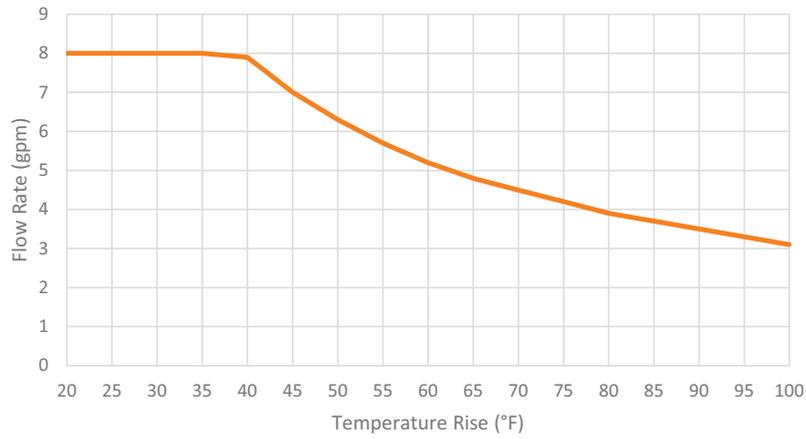
Isolation Valves  
(100112255)

# RESIDENTIAL NON-CONDENSING ULTRA-LOW NOX

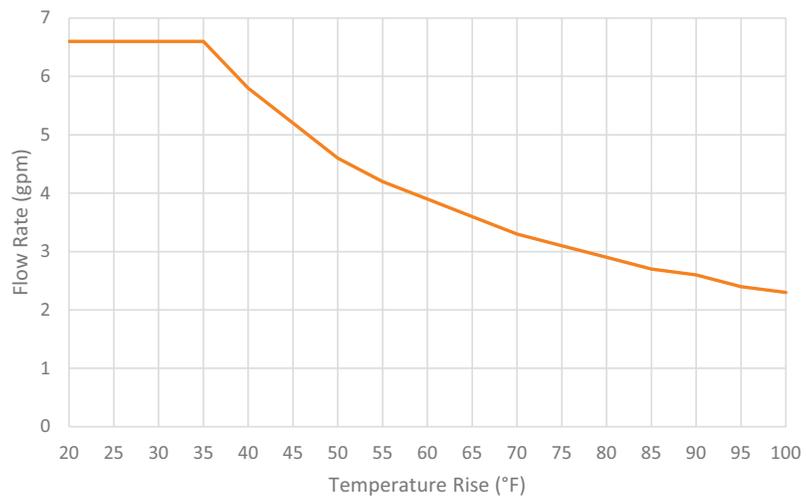
## 510U Output Temp vs. GPM



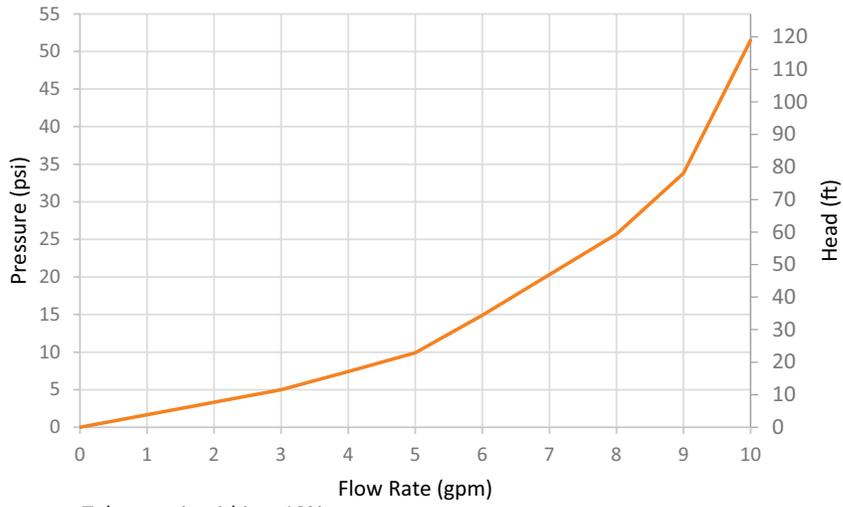
## 310U Output Temp vs. GPM



## 110U Output Temp vs. GPM

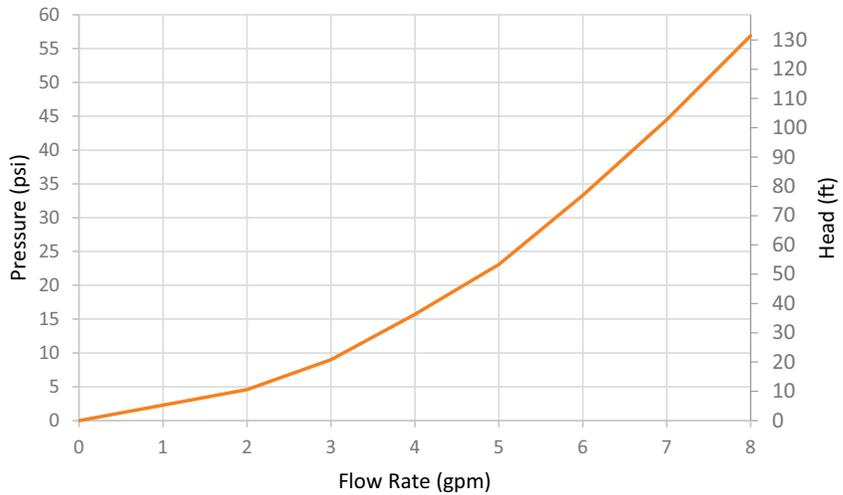


## 510U Pressure Loss



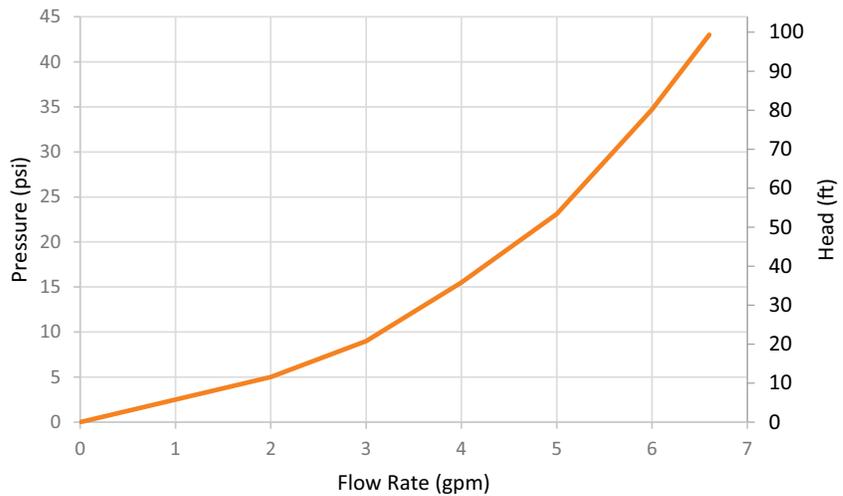
Tolerance is within  $\pm 10\%$

## 310U Pressure Loss



Tolerance is within  $\pm 10\%$

## 110U Pressure Loss



Tolerance is within  $\pm 10\%$

# RESIDENTIAL NON-CONDENSING CONCENTRIC VENT



## Features

Installations are simple and flexible with contractor preferred concentric venting

Venting runs up to 43 equivalent feet

Gas convertible from natural gas to propane using the included conversion kit

Easy-Link™ up to four 510C heaters or up to twenty 510C heaters with multi-unit controller

## Warranty

- 15-year limited warranty on heat exchanger in residential applications
- 5-year limited warranty on heat exchanger in commercial applications
- 5-year warranty on all parts
- Refer to [statewaterheaters.com](http://statewaterheaters.com) for further warranty details

## Specifications

Model Number*	Type	Gas Consumption Input**		Inlet Gas Pressure**		UEF
		Minimum (BTU/H)	Maximum (BTU/H)	Minimum (in. W.C.)	Maximum (in. W.C.)	
GTS-510C-NI	Natural	15,000	199,000	4.0	10.5	0.81
GTS-310C-NI	Natural	15,000	199,000	4.0	10.5	0.82

Model Number*	Maximum GPM	Hot/Cold Connections	Gas Connection	Approx Shipping Weight (lbs)
GTS-510C-NI	10	3/4" NPT	3/4" NPT	55
GTS-310C-NI	8	3/4" NPT	3/4" NPT	55

\*Indoor models only. Units are field convertible from natural gas to propane with supplied conversion kit.

\*\*For propane, minimum inlet gas pressure is 8.0 in. W.C. and maximum inlet gas pressure is 14.0 in. W.C.

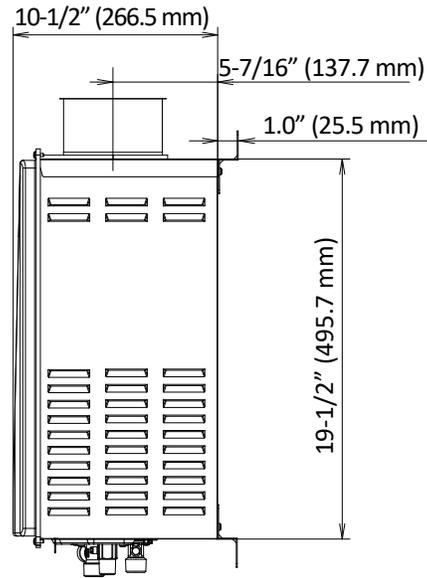
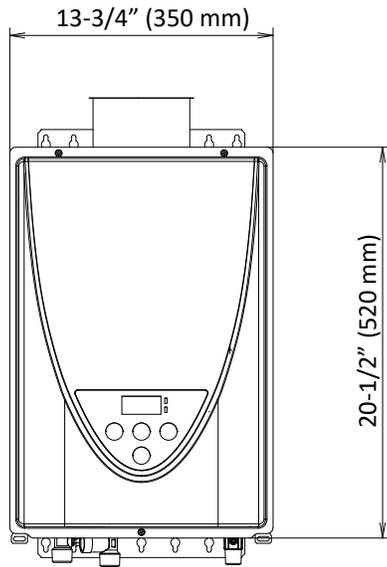
Temperature Settings	120°F (Default Setting)		
	310c: 100-140°F (5°F Increments)		
	510C: 100-160°F (5°F Increments)		
Electric	120 V	60 Hz	0.85 Amps



ANSI Z21.10.3 • CSA 4.3

# Dimensions

Model Number	Clearances (inches)			
	Top	Bottom	Side	Front
GTS-510C-NI	12	12	3	4
GTS-310C-NI	12	12	3	4



# Accessories



Remote Temperature Controller  
(100209924)



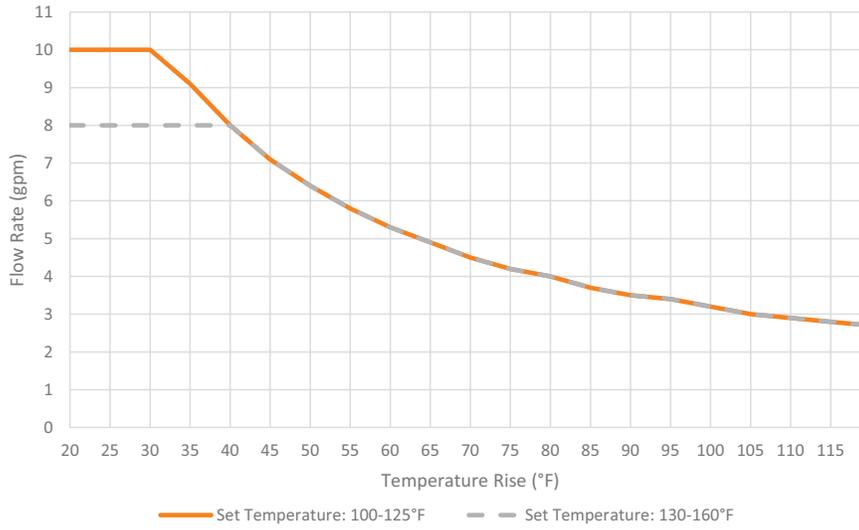
Multi-Unit Controller\*  
(100112691)  
\*Only available for 510C



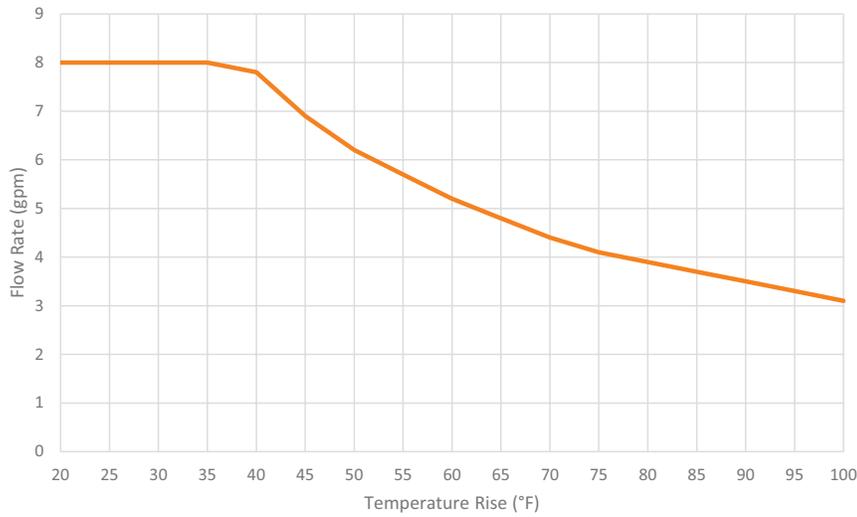
Isolation Valves  
(100112255)

# RESIDENTIAL NON-CONDENSING CONCENTRIC VENT

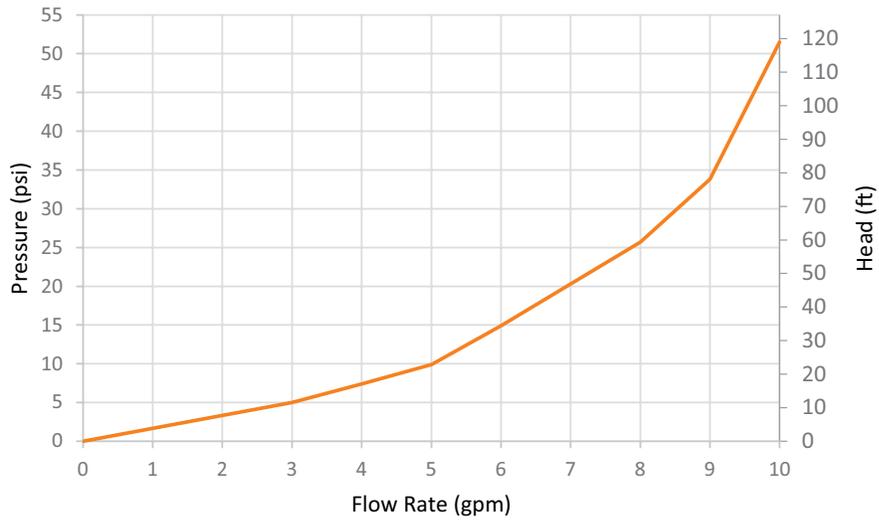
## 510C Output Temp vs. GPM



## 310C Output Temp vs. GPM

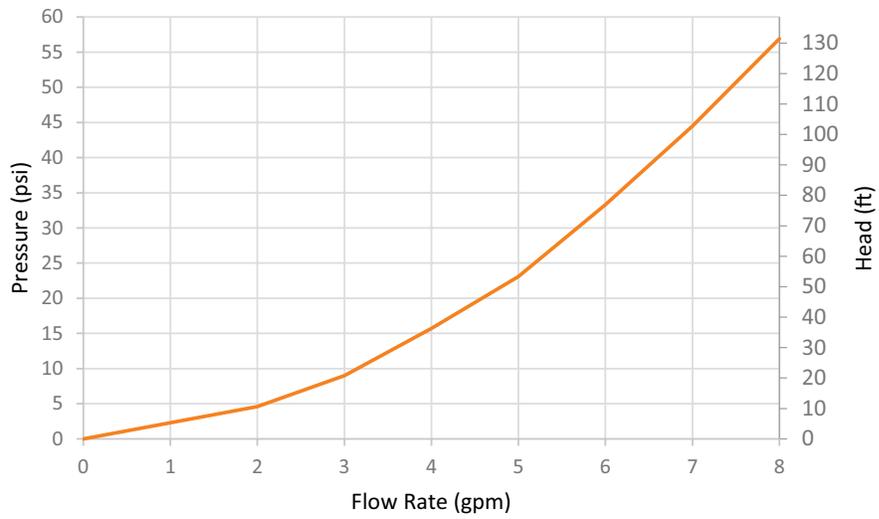


## 510C Pressure Loss



Tolerance is within  $\pm 10\%$ . Max flow is 8 gpm when set temp above 125 F

## 310C Pressure Loss



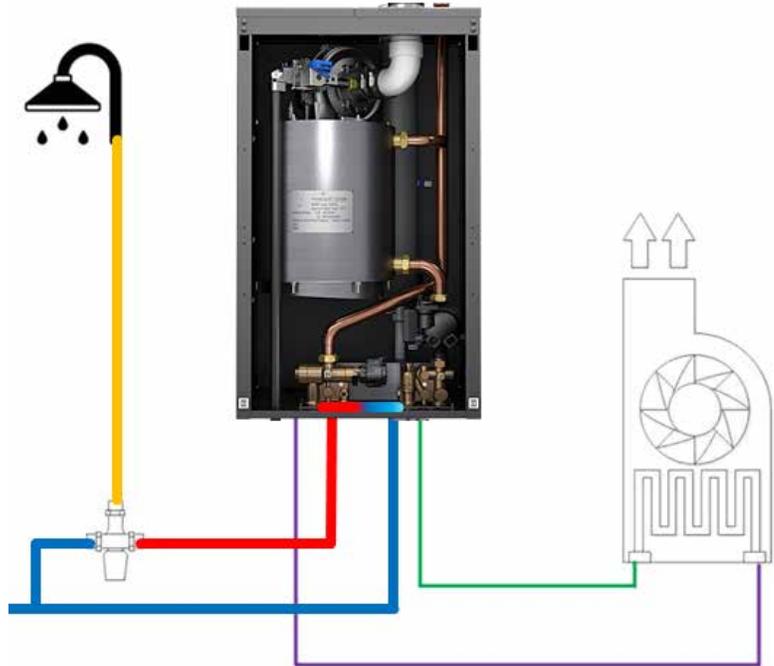
Tolerance is within  $\pm 10\%$

# RESIDENTIAL COMBI BOILERS

## Domestic Hot Water and Space Heating

### How it Works:

- A hot water tap is opened causing incoming potable water to flow through the flat plate heat exchanger.
- Heated boiler water, supplied from the fire tube heat exchanger, flows through a diverter valve and into the flat plate heat exchanger where it prioritizes heating the incoming domestic water to the designated set point temperature.
- The integrated boiler pump circulates boiler water through the fire tube heat exchanger to keep it at set point temperature.
- When there is a call for space heating, the diverter valve directs the heated boiler water into the external space heating loop.



### More Hot Water

ProLine® XE combi boiler provides up to 74% more heating capacity than other combi boilers. For domestic hot water (DHW), it is also sized large enough to provide 2.6 gpm (110 model) to 4.8 gpm (199 model) at a 77°F temperature rise.

### Energy Conservation

With a 10:1 turndown ratio, the ProLine® XE combi boiler has the ability to modulate combustion to maximize efficiency and prevent short cycling when there are small heating demands.

### Compact Size

The ProLine® XE combi boiler combines space heating and domestic hot water (DHW) in one appliance, providing a space saving choice for builders and specifying engineers.

# COMBI BOILER FLOW RATE GUIDE

## Temperature Rise vs. Gallons per Minute

	Temperature Rise												
	40°F	45°F	50°F	55°F	60°F	65°F	70°F	75°F	80°F	85°F	90°F	95°F	100°F
SCB-110S-N	5.1	4.5	4.0	3.7	3.4	3.1	2.9	2.7	2.5	2.4	2.2	2.1	2.0
SCB-150S-N	6.9	6.1	5.5	5.0	4.6	4.2	3.9	3.7	3.5	3.2	3.1	2.9	2.8
SCB-199S-N	9.2	8.2	7.4	6.7	6.1	5.7	5.3	4.9	4.6	4.3	4.1	3.9	3.7



### Innovative Design

Fire tube heat exchanger with a higher rated MAWP of 50 psi reduces unit pressure drop. The easy access front panel can be removed without tools to simplify service.

### Easy Installation and Serviceability

The LCD display is simple to navigate, providing diagnostic and system information in real words, not codes. The first time you turn on the combi boiler, you'll be lead through our Set Up Wizard for quick and easy programing.

### Compact Size

The Preheat Function uses an integrated recirculation pump to ensure that the domestic hot water reaches its target temperature faster. The Air Handler Interlock prevents cool air delivery while the boiler is in domestic hot water mode to increase user comfort.

# PROLINE® XE RESIDENTIAL COMBI BOILER



## Features

Indoor installation only

Modulating burner with 10:1 turndown ratio

DHW flow rate up to 4.8 gpm at 77°F temperature rise

50 PSI max pressure (boiler); 150 PSI max pressure (DHW)

## Warranty

- 10-year limited warranty on heat exchanger in residential applications
- 5-year warranty on all parts
- Refer to [statewaterheaters.com](http://statewaterheaters.com) for further warranty details

## Specifications

Model Number*	Gas Consumption Input		Minimum in. W.C. †	Maximum in. W.C.	AFUE%	Heating Capacity BTU/H	Net AHRI Rating BTU/H
	Minimum BTU/H	Maximum BTU/H					
SCB-110S-N	11,000	110,000	4.0	14.0	95.0	102,000	89,000
SCB-150S-N	15,000	150,000	4.0	14.0	95.0	139,000	121,000
SCB-199S-N	19,999	199,999	4.0	14.0	95.0	185,000	161,000

Model Number*	GPM at 77°F Rise	Water Connections		Gas Connection	Approx. Shipping Weight (lbs)
		Space Heating	DHW		
SCB-110S-N	2.6	1" NPT	3/4" NPT	1/2" NPT	139
SCB-150S-N	3.6	1" NPT	3/4" NPT	1/2" NPT	142
SCB-199S-N	4.8	1" NPT	3/4" NPT	1/2" NPT	159

\*S Models can operate up to 4,500'. For high altitude (3,000' - 9,600'), change S to H. For liquid propane (LP), change N to P.

†For LP, minimum supply pressure is 8.0 in. W.C.

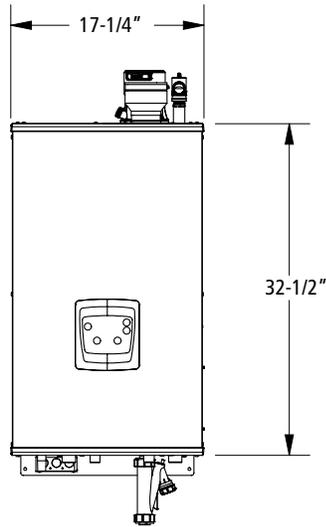
Indoor installation only.

Temperature Settings	Space Heating: 60°F – 190°F, Default 185°F		
	DHW: 60°F – 190°F, Default 150°F		
Electric	120 V	24V controls	2.2 Amps

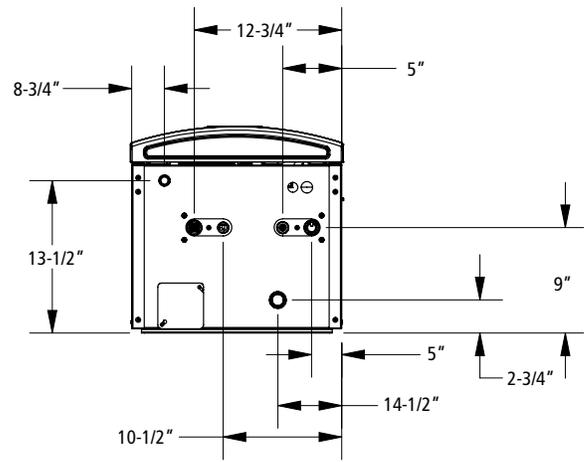


ANSI Z21.13 • CSA 4.9

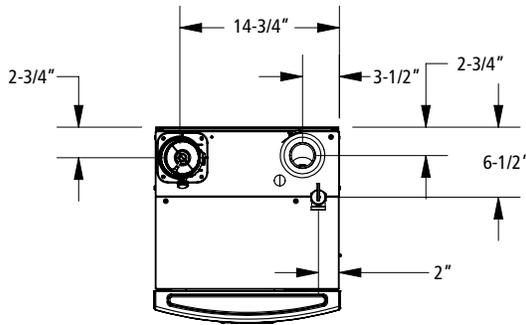
# Dimensions



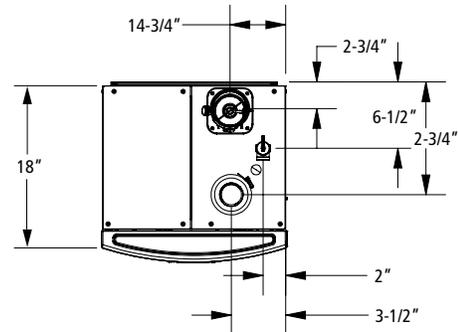
FRONT



BOTTOM

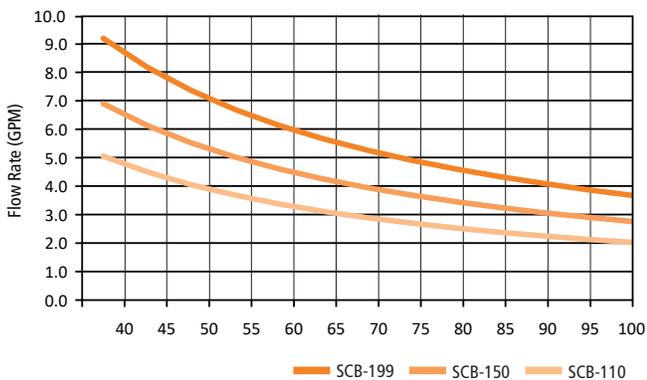


TOP  
110 MODELS

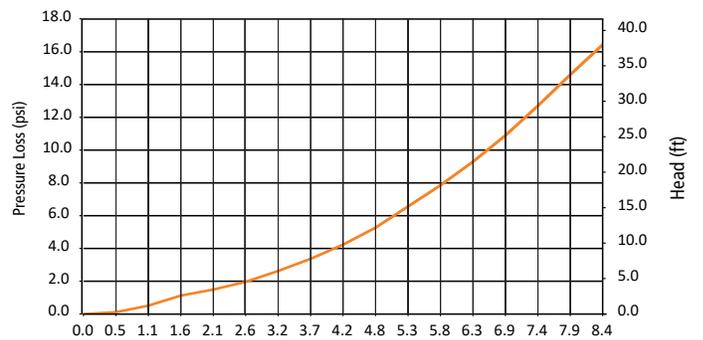


TOP  
150-199 MODELS

## Combi Boiler Output Temp vs. GPM



## Combi Boiler Pressure Loss



# COMMERCIAL NON-CONDENSING



## Features

Low NOx Emissions

EASY-LINK™ up to 4 heaters or connect up to 10 heaters with a multi-unit controller

Warranty

- 6-year limited warranty on heat exchanger in commercial applications
- 5-year warranty on all parts
- Refer to [statewaterheaters.com](http://statewaterheaters.com) for further warranty details

## Specifications

Model Number*	Type	Gas Consumption Input		Inlet Gas Pressure**		Thermal Efficiency
		Minimum (BTU/H)	Maximum (BTU/H)	Minimum (in. W.C.)	Maximum (in. W.C.)	
GTS-910-NIE	Natural	15,000	380,000	4.0	10.5	80%

Model Number*	Connections		Clearances (in.)				Approx Shipping Weight (lbs)
	Water	Gas	Top	Bottom	Side	Front	
GTS-910-NIE	1" NPT	1" NPT	12***	12	2	4***	113

†For ASME version, use model number ATIO-910-A(N/P)

\*For propane models, change "N" to "P"

\*\*For propane models, minimum inlet gas pressure is 8.0 in. W.C. and maximum inlet gas pressure is 14.0 in. W.C.

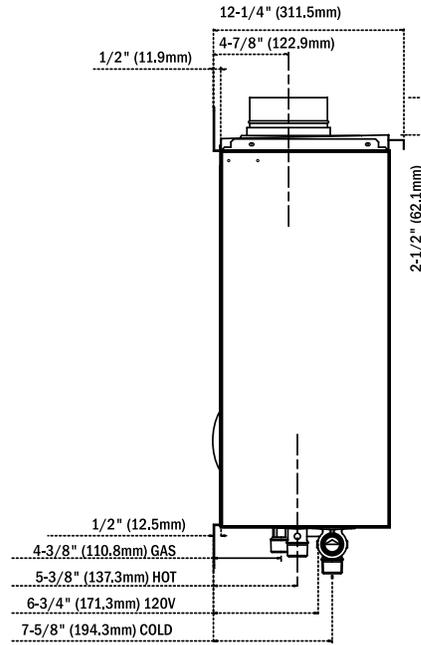
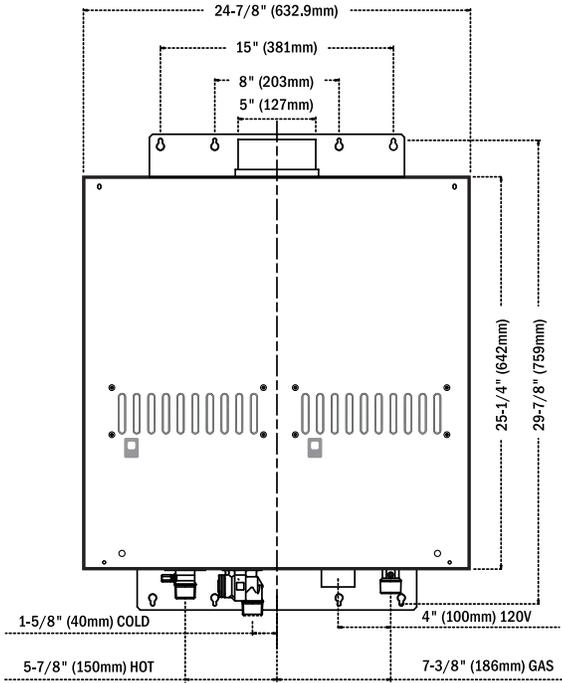
\*\*\*If installed outdoors, top clearance is 36" and front clearance is 24"

Temperature Settings	120°F (Default Setting)		
	No Remote: 100°F, 115°F, 135°F, 145°F, 155°F, 165°F, 185°F		
	With Remote: 100-185°F (5°F Increments)		
Electric	120 V	60 Hz	0.85 Amps



ANSI Z21.10.3 • CSA 4.3

# Dimensions



# Accessories



Outdoor Vent Cap (100112194)



Pipe Cover (100112190)



Multi-Unit Controller (100112691)



Remote Temperature Controller (100112155)

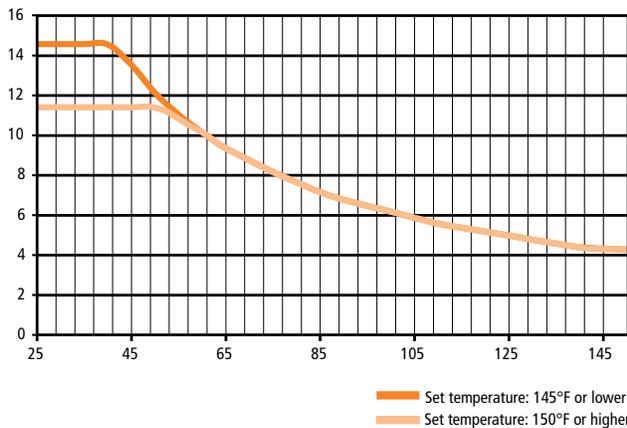


Isolation Valves (100112255)

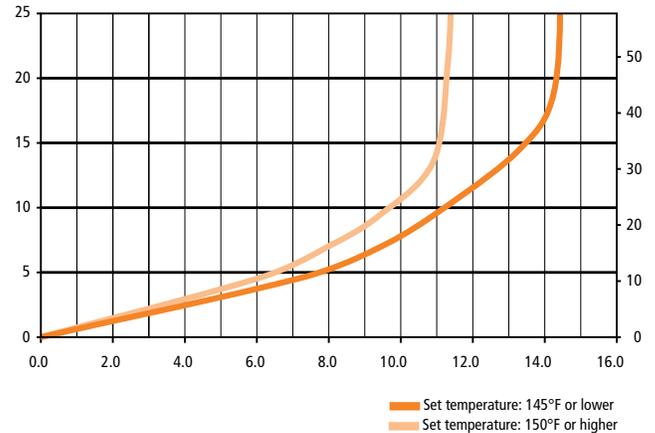


Direct Vent Conversion Kit (100112186)

## 910 Output Temp vs. GPM



## 910 Pressure Loss



# COMMERCIAL CONDENSING



## Features

EASY-LINK™ up to 4 heaters or connect up to 20 heaters with a multi-unit controller

96% thermal efficiency

### Warranty

- 6-year limited warranty on heat exchanger in commercial applications
- 5-year warranty on all parts
- Refer to [statewaterheaters.com](http://statewaterheaters.com) for further warranty details

## Specifications

Model Number*	Type	Gas Consumption Input**		Inlet Gas Pressure**		Thermal Efficiency	UEF
		Minimum (BTU/H)	Maximum (BTU/H)	Minimum (in. W.C.)	Maximum (in. W.C.)		
SCT-199I-N	Natural	15,000	199,000	4.0	10.5	96%	0.93
SCT-1990-N	Natural	15,000	199,000	4.0	10.5	96%	0.95

Model Number	Maximum GPM	Hot/Cold Connections	Gas Connection	Approx Shipping Weight (lbs)
SCT-199I-N	10	3/4" NPT	3/4" NPT	71
SCT-1990-N	10	3/4" NPT	3/4" NPT	69

\*For propane models, change "N" to "P"

\*\*For propane models, minimum fire rate is 13,000 BTU/H, minimum inlet gas pressure is 8.0 in. W.C. and maximum inlet gas pressure is 14.0 in. W.C.

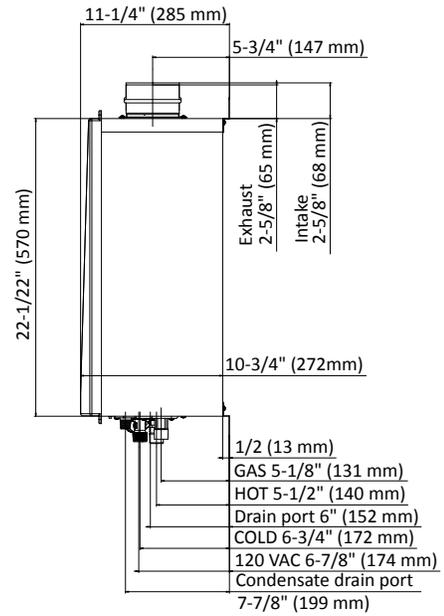
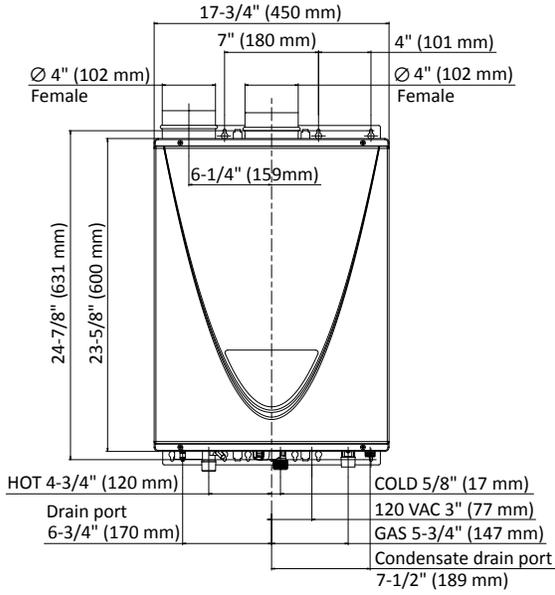
Temperature Settings	120°F (Default Setting)		
	100-185°F (5°F Increments)		
Electric	120 V	60 Hz	1.5 Amps



ANSI Z21.10.3 • CSA 4.3

# Dimensions

Model Number	Clearances (inches)			
	Top	Bottom	Side	Front
SCT-199I-N	12	12	3	4
SCT-1990-N	36	12	3	24



# Accessories



Recess Box Retrofit:  
(100298009)

New Construction: (100306285)



Pipe Cover  
(100112718)



Multi-Unit Controller\*  
(100112691)  
\*Only available for 540H

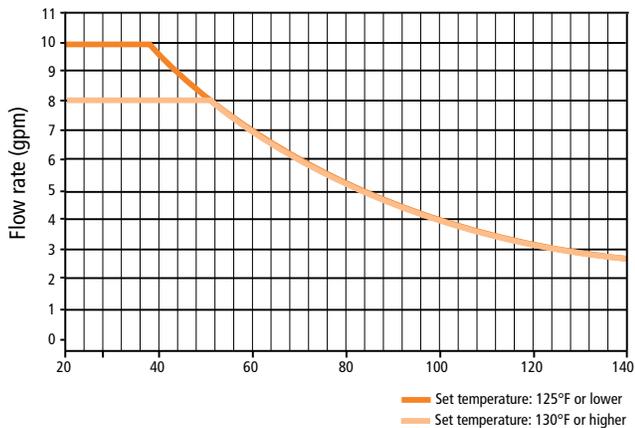


3" Concentric Termination  
(100112163)

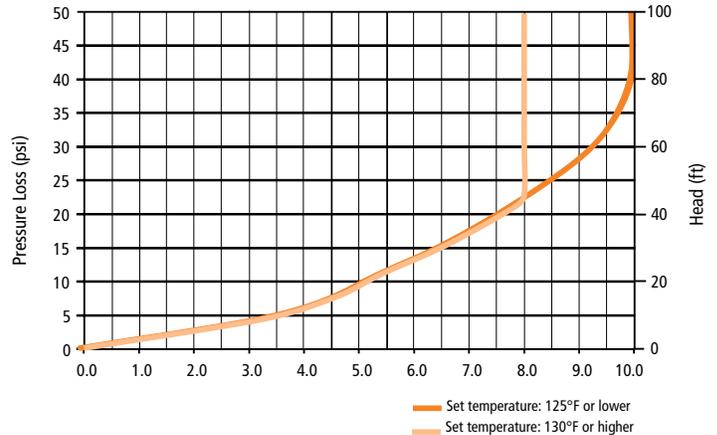


Isolation Valves  
(100112255)

## CT-199 Output Temp vs. GPM



## CT-199 Pressure Loss



# COMMERCIAL TANKLESS RACK SYSTEM

Commercial tankless rack systems allow the power of tankless technology to be customized with unprecedented flexibility. State offers wall mount, free standing and back-to-back configurations with easy options to integrate storage when needed. For jobs that require more than six units, custom solutions are available.

Installation is easier than ever as the rack systems are constructed from a light weight frame and just three connections for hot water, cold water and gas.

Commercial rack systems are expandable with up to 1,194,000 BTU on a single system. The rack system is designed so that individual units can be isolated for maintenance without shutting down the entire rack to provide non-stop operation.



Back-to-Back



Free Standing



Wall-Mount

# MULTI-UNITS SYSTEMS

State tankless water heaters have the capability to link multiple heaters together to act as a system. The primary heater is rotated to ensure even operation of all heaters. The 510U/C, 540H, CT-199, and 910 models can EASY-LINK™ up to four units using included communication cables.

For even larger applications the 510U (series 200), 510C, 540H, CT-199, and 910 models also feature the Multi-Unit System, allowing a greater number of units to work together as an integrated system using a Multi-Unit System Controller. The Multi-Unit System can control up to twenty 510U (series 200), 510C, 540H, and CT-199 or up to ten 910 heaters.

## Unit Comparison

	510U/C Series	540H/CT-199 Series	910 Series
EASY-LINK™ (No Controller Necessary)	Up to 4 units	Up to 4 units	Up to 4 units
Maximum input (BTU/h)	796,000	796,000	1,520,000
Multi-UNIT*	Up to 20 units	Up to 20 units	Up to 10 units
Maximum input (BTU/h)	3,980,000	3,980,000	3,800,000

\*Requires Multi-Unit Controller: 100112691

## Common Venting

The State common venting system utilizes fewer unique components so you can design your venting based on project requirements.

- More design flexibility
- Fewer wall penetrations
- Able to use schedule 40 PVC on intake and exhaust
- Heaters don't de-rate when common vented
- Design doesn't override redundancy benefits



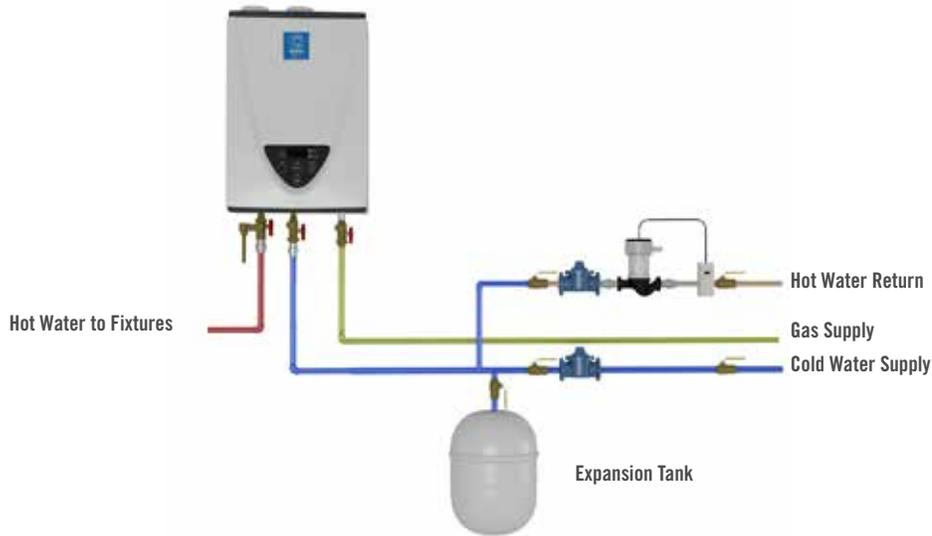
# TANKLESS APPLICATION DIAGRAMS

State tankless water heaters can be used in a wide variety of applications. Whether used in recirculation systems, in conjunction with storage tanks or with heating applications, our commercial units are built to provide continuous hot water when sized appropriately for your home's needs.

Local codes dictate proper compliance.

## Basic Installation

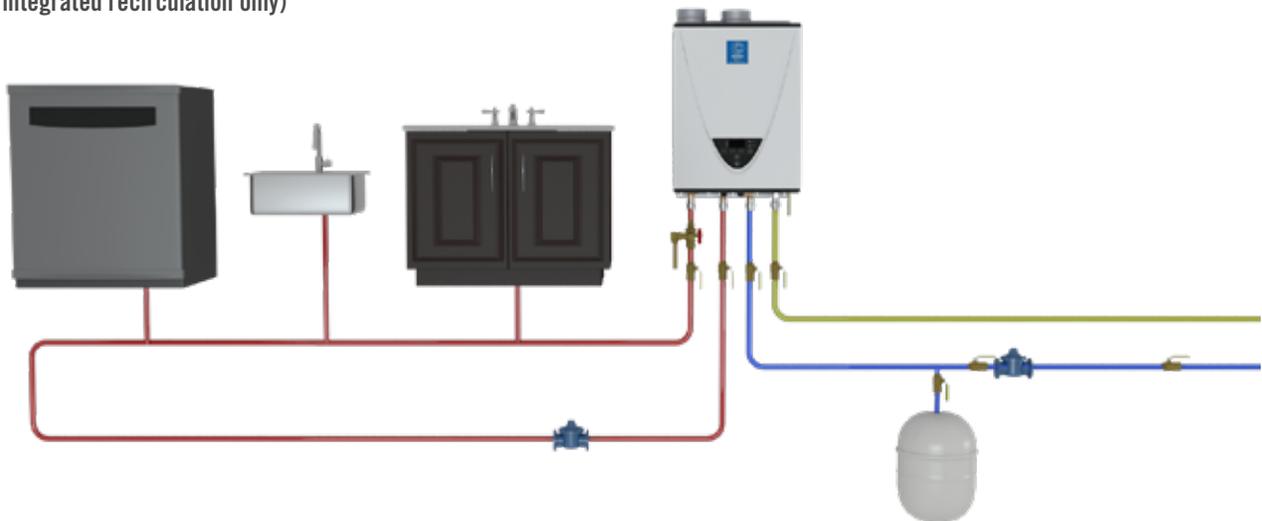
(excluding 540P)



1. Recirculation pump shall be sized for 2-4 gpm per activated heater (4-8 gpm for 910)
2. Recirculation pump shall be controlled by an aquastat. The minimum suggested differential should be 10°F
3. For installations without recirculation, remove the check valves, pump, and aquastat.

## 540P Basic Installation

(Models with integrated recirculation only)



### Legend



Pump



Shut Off / Isolation Valves



Pressure Relief Valve



Air Vent



Aquastat



Check Valve

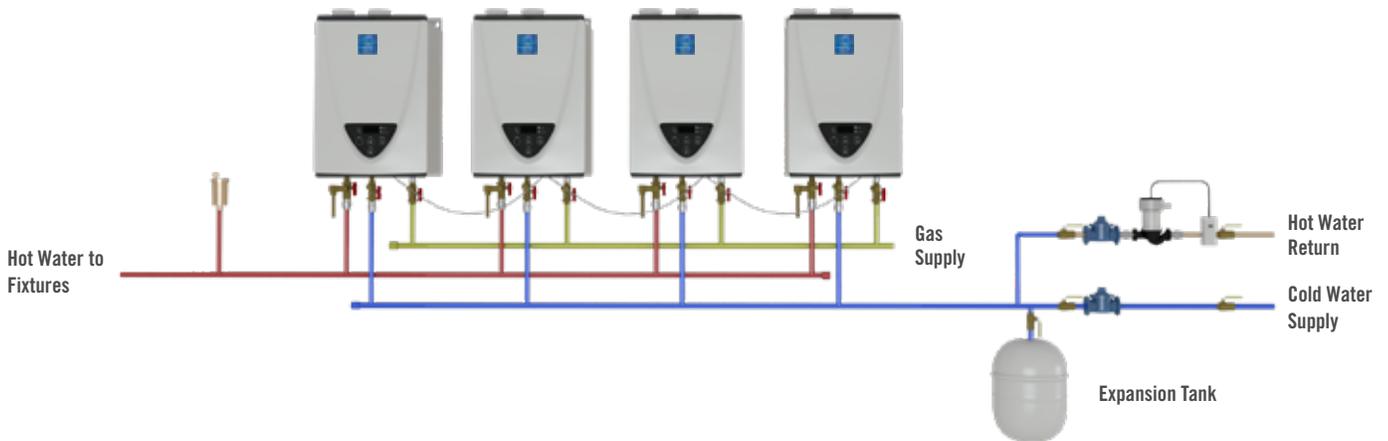


Full Port Ball Valve

All application diagrams shown are concept drawings only. These diagrams are only to be used as basic guides. It is up to the application designer to properly design the plumbing layout and correctly size all components within an application (pumps, piping, storage tanks, water heaters, etc.). All national and local codes must be followed and will dictate proper compliance.

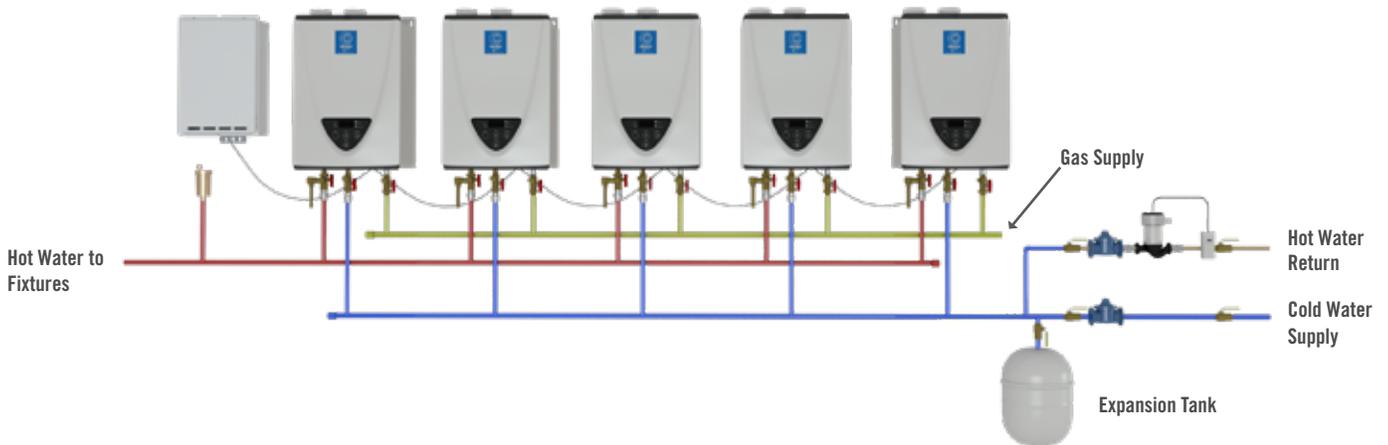
# MULTIPLE UNITS

## Multiple Units with EASY-LINK™



1. Recirculation pump shall be sized for 2-4 gpm per activated heater (4-8 gpm for 910)
2. Recirculation pump shall be controlled by an aquastat. The minimum suggested differential should be 10°F
3. The automatic air should be installed at the highest location of the system in accordance with the manufacturer's instructions.

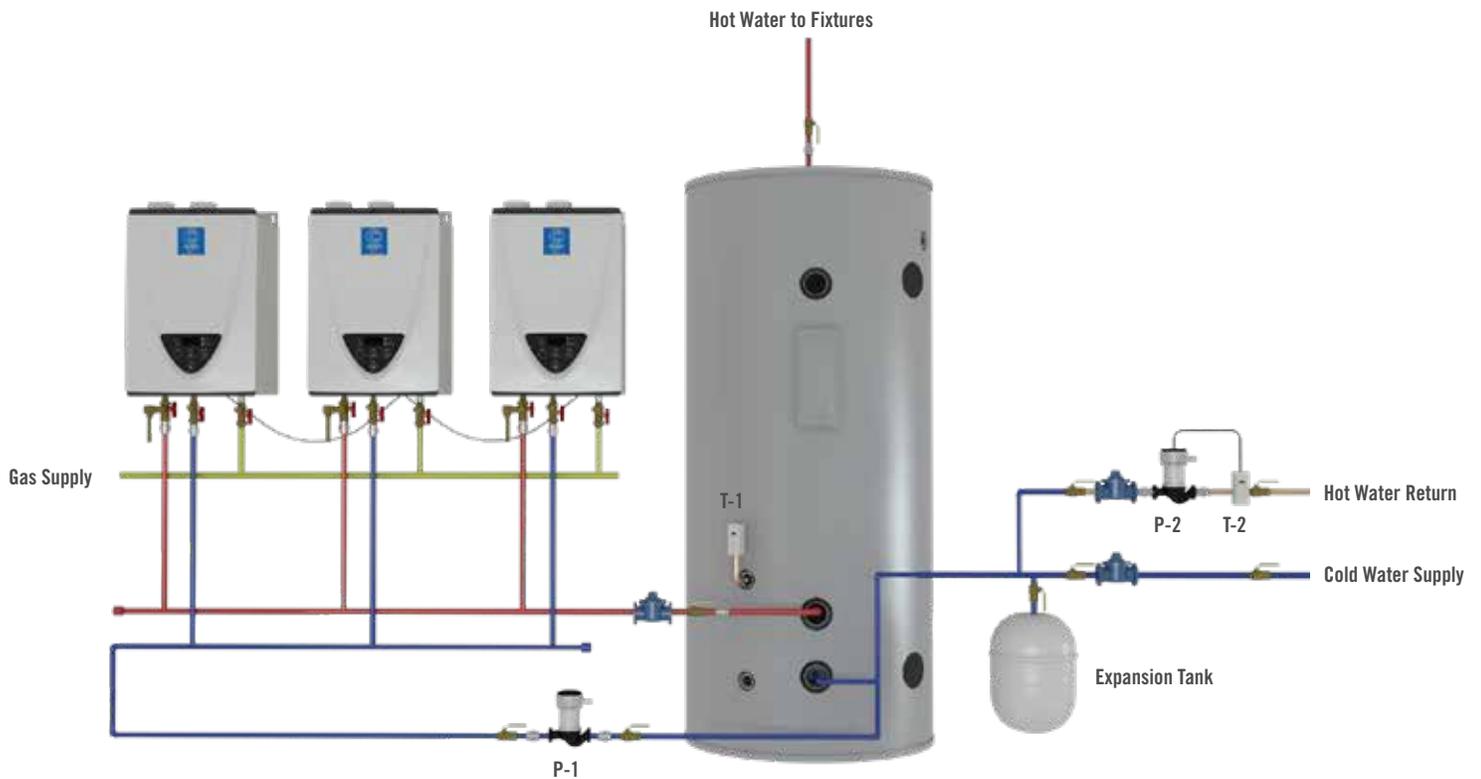
## Multiple Unit with the Multi-Unit Controller



1. Recirculation pump shall be sized for 2-4 gpm per activated heater (4-8 gpm for 910)
2. Recirculation pump shall be controlled by an aquastat. The minimum suggested differential should be 10°F
3. The automatic air should be installed at the highest location of the system in accordance with the manufacturer's instructions.

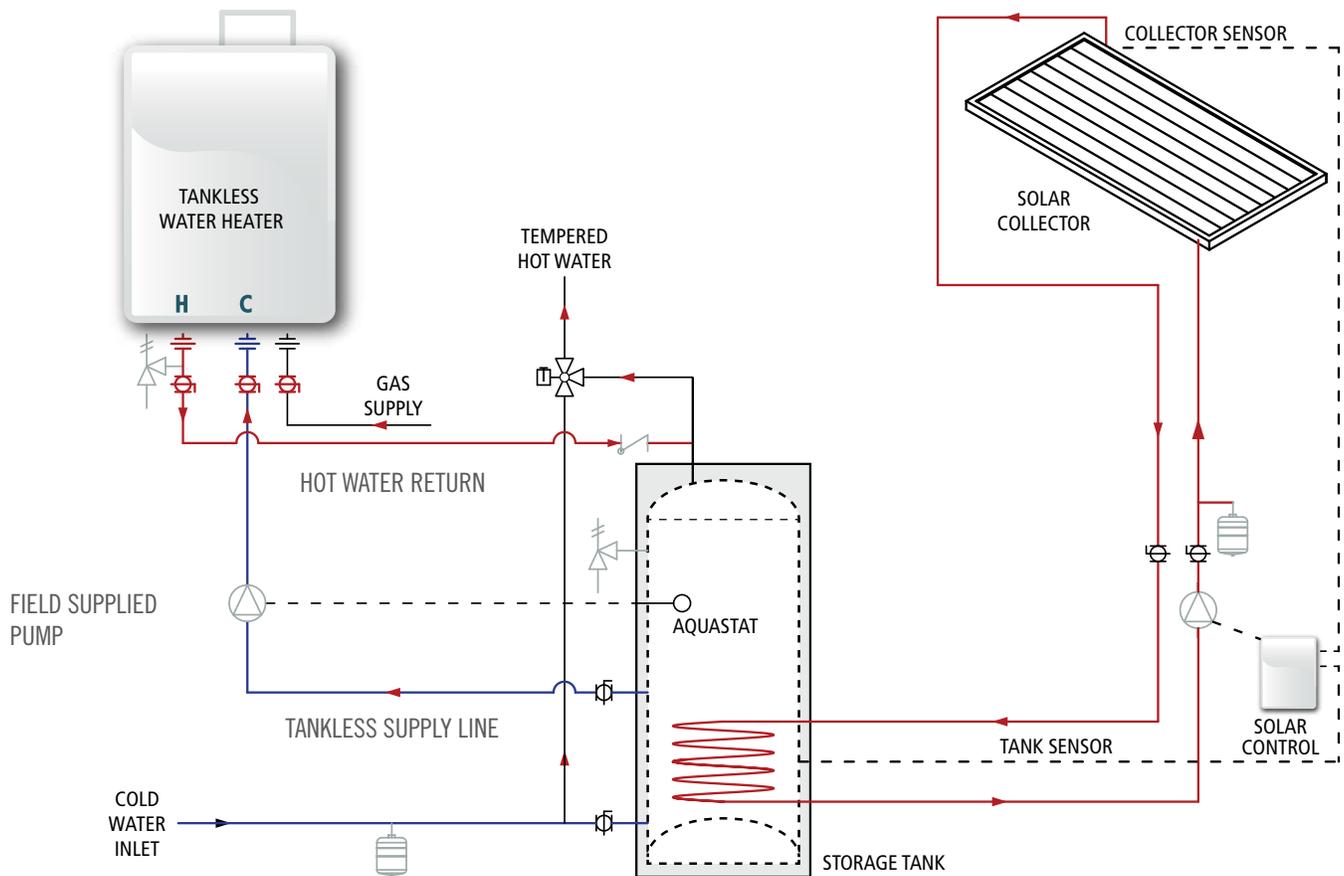
All application diagrams shown are concept drawings only. These diagrams are only to be used as basic guides. It is up to the application designer to properly design the plumbing layout and correctly size all components within an application (pumps, piping, storage tanks, water heaters, etc.). All national and local codes must be followed and will dictate proper compliance.

## Multiple Unit with Storage



1. Tank circulation pump, P-1, should be controlled by tank aquastat, T-1.
2. Tank aquastat, T-1, should be set 20°F below water heater set temperature.
3. Pump P-1 should be sized to provide flow necessary to heat the storage tank. Refer to the water heater's spec sheet for pressure drop curves.

# SOLAR TANKLESS BACK UP



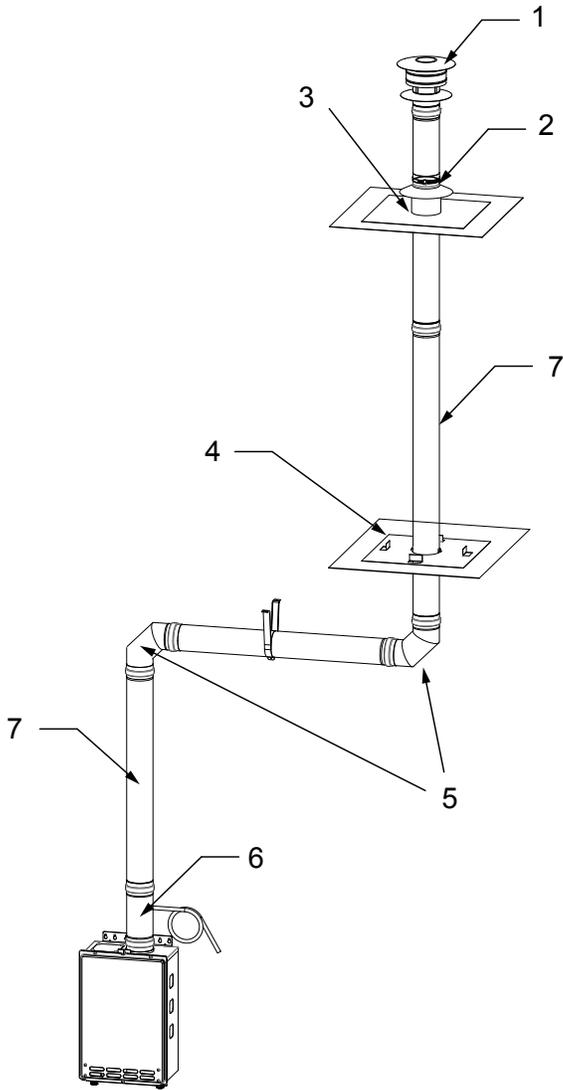
## NOTES:

1. Ensure field supplied tank aquastat is in top 1/3 section of the tank.
2. Set tank aquastat 10°F lower than tankless unit set point.
3. Ensure the hot water return from the tankless unit is connected to the hot water outlet from the solar tank as shown in the drawing.
4. The supply line to the tankless unit may be made at the element fitting (after element is removed) with a 1"-11 1/2 NPSH fitting and gasket.
5. Field supplied pump must provide > 3 GPM flow through tankless backup loop - contact pump manufacturer for sizing assistance.

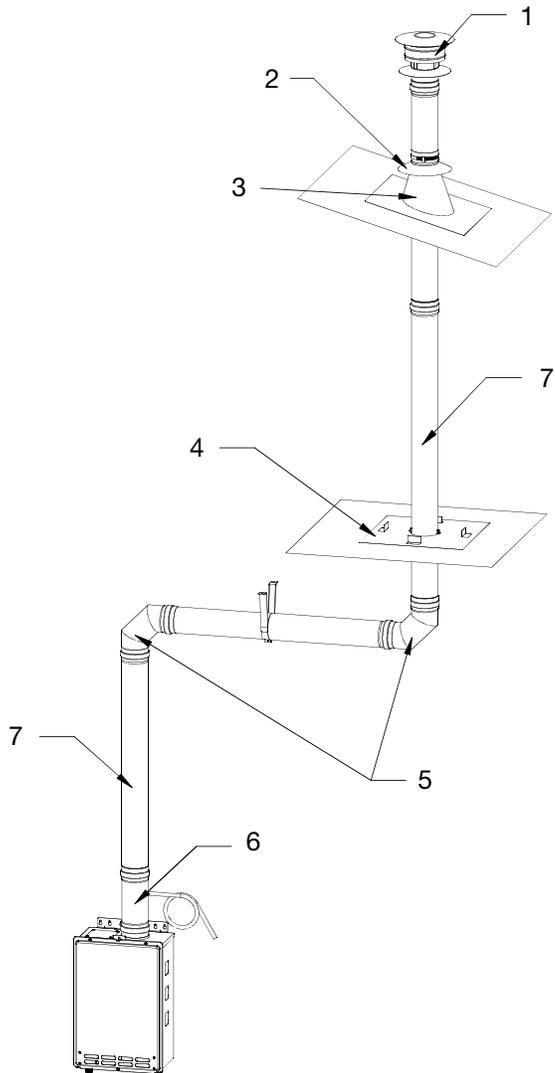
All application diagrams shown are concept drawings only. These diagrams are only to be used as basic guides. It is up to the application designer to properly design the plumbing layout and correctly size all components within an application (pumps, piping, storage tanks, water heaters, etc.). All national and local codes must be followed and will dictate proper compliance.

# VENTING AND ACCESSORIES

## Solar Tankless Back Up Diagrams 4" Rooftop Termination



Models 110U, 310U, 510U				Qty.
<b>4" Flat Roof Termination</b>				
Kit Part Number: 100112727	1	100112548	4" Extreme Weather Rain Cap	1
	2	100112410	4" Storm Collar	1
	3	100112412	4" Flat Roof Flashing	1
	4	100112408	4" Vertical Firestop	1
	5	100112400	4" 90 degree Elbow	2
	6	100112549	4" Universal Appliance Adaptor	1
	7	Refer to Accessories Chart	Straight Pipe	TBD

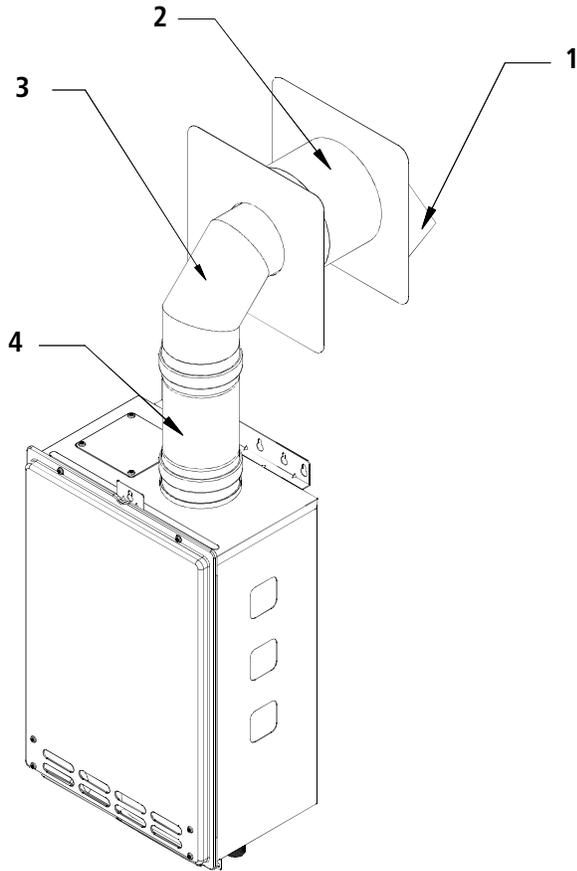


Models 110U, 310U, 510U				Qty.
<b>4" Angled Roof Termination</b>				
Kit Part Number: 100112728	1	100112548	4" Extreme Weather Rain Cap	1
	2	100112410	4" Storm Collar	1
	3	100112411	4" Angled Roof Flashing	1
	4	100112408	4" Vertical Firestop	1
	5	100112400	4" 90 degree Elbow	2
	6	100112549	4" Universal Appliance Adaptor	1
	7	Refer to Accessories Chart	Straight Pipe	TBD

# VENTING DIAGRAMS

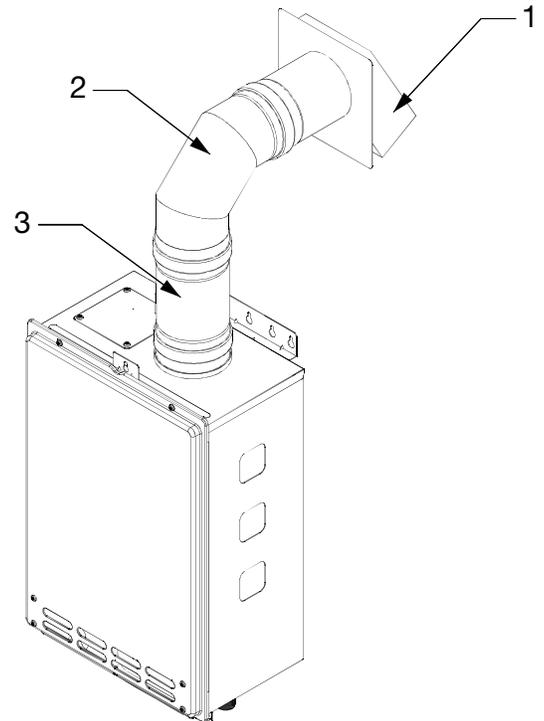
## 4" Sidewall Termination

(Please check the wall thickness for proper installation)



Models 110U, 310U, 510U				Qty.
4" Combustible Sidewall Termination				
Kit Part Number: 100112726	1	100112419	4" Sidewall Hood Terminator	1
	2	100112732	4" Wall Thimble (4.0"-7.0")	1
	3	100112400	4" 90 degree Elbow	1
	4	100112399	4" Female-Female Adaptor	1

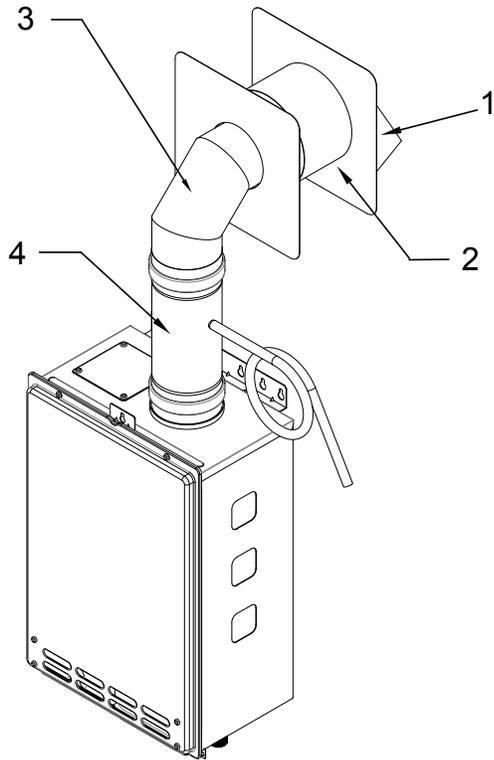
Models 110U, 310U, 510U				Qty.
4" Non-Combustible Sidewall Termination				
Kit Part Number: 100112767	1	100112419	4" Sidewall Hood Terminator	1
	2	100112400	4" 90 degree Elbow	1
	3	100112399	4" Female-Female Adaptor	1



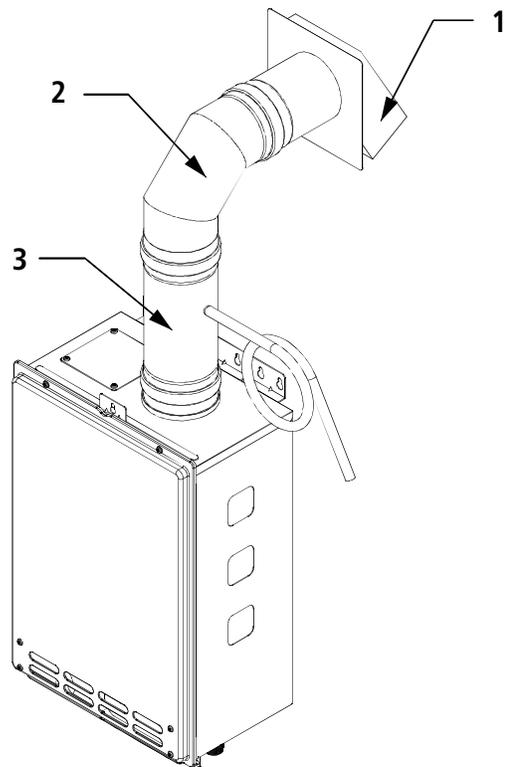
# VENTING DIAGRAMS

## 4" Sidewall Termination (With Condensate Trap)

(Please check the wall thickness for proper installation)



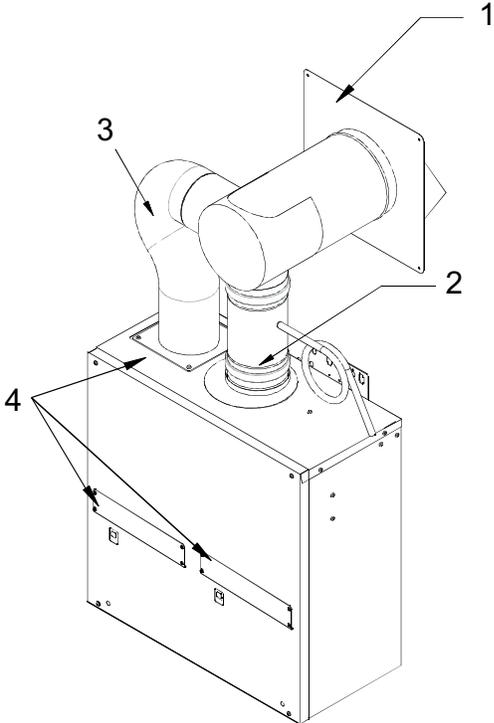
Models 110U, 310U, 510U				Qty.
4" Combustible Sidewall Termination (With Condensate Trap)				
Kit Part Number: 100112775	1	100112419	4" Sidewall Hood Terminator	1
	2	100112732	4" Wall Thimble (4.0"-7.0")	1
	3	100112400	4" 90 Degree Elbow	1
	4	100112549	4" Universal Appliance Adaptor	1



Models 110U, 310U, 510U				Qty.
4" Non-Combustible Sidewall Termination (With Condensate Trap)				
Kit Part Number: 100112776	1	100112419	4" Sidewall Hood Terminator	1
	2	100112400	4" 90 degree Elbow	1
	3	100112549	4" Universal Appliance Adaptor	1

# DIRECT VENT, CONCENTRIC SIDEWALL TERMINATION

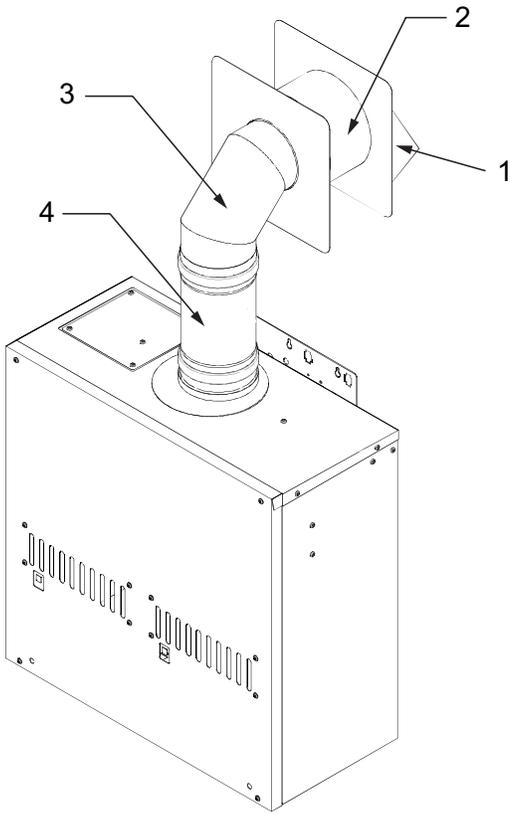
## 910 Model



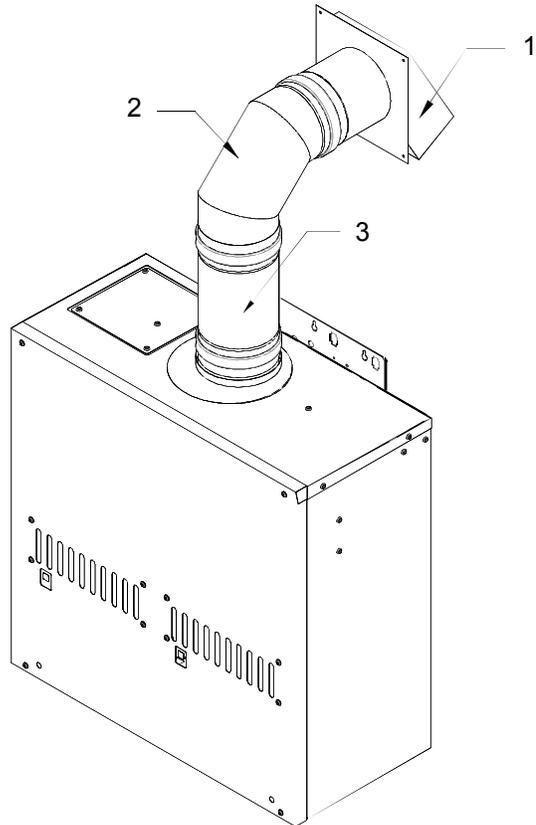
Model 910				Qty.
<b>5-10" Sidewall Thickness Direct Vent, Concentric Termination</b>				
Kit Part Number: 100112606	1	100112604	Concentric Intake/Exhaust Kit	1
	2	100112597	Universal Appliance Adapter	1
	3	NA	5" Aluminum Flex	1
	4	100112186	Direct Vent Conversion Kit	1
<b>12-18" Sidewall Thickness Direct Vent, Concentric Termination</b>				
Kit Part Number: 100112601	1	100112605	Concentric Intake/Exhaust Kit	1
	2	100112597	Universal Appliance Adaptor	1
	3	NA	5" Aluminum Flex	1
	4	100112186	Direct Vent Conversion Kit	1

# DIRECT VENT, CONCENTRIC SIDEWALL TERMINATION

## 5" Sidewall Termination



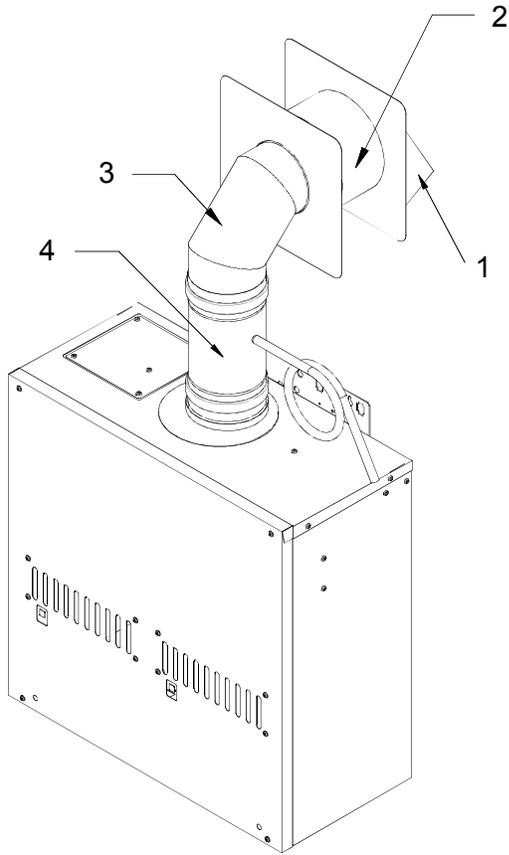
Model 910				Qty.
5" Combustible Sidewall Termination				
Kit Part Number: 100112729	1	100112594	5" Sidewall Hood Terminator	1
	2	100112734	5" Wall Thimble (4.0"-7.0")	1
	3	100112587	5" 90 degree Elbow	1
	4	100112599	5" Female-Female Adaptor	1



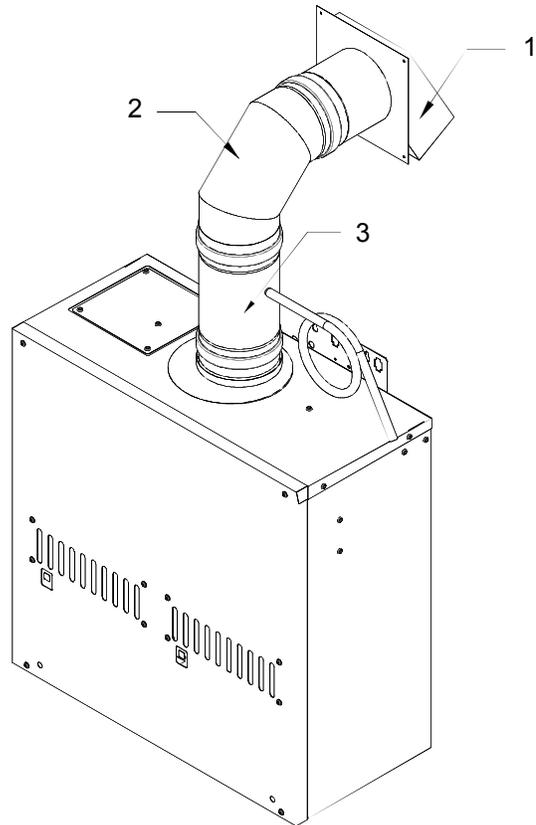
Model 910				Qty.
5" Non-Combustible Sidewall Termination				
Kit Part Number: 100112768	1	100112594	5" Sidewall Hood Terminator	1
	2	100112587	5" 90 degree Elbow	1
	3	100112599	5" Female-Female Adaptor	1

# DIRECT VENT, CONCENTRIC SIDEWALL TERMINATION

## 5" Sidewall Termination (With Condensate Traps)



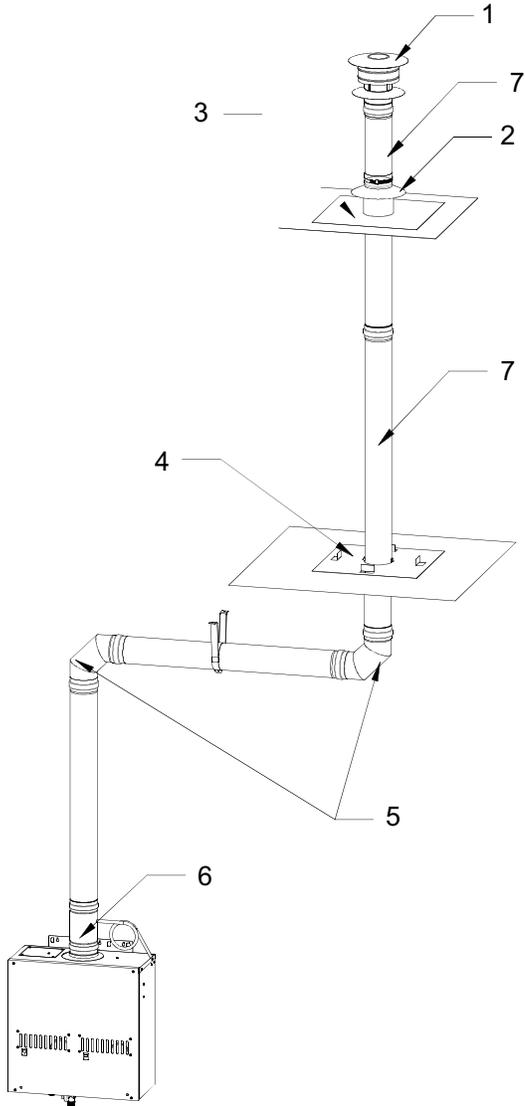
Model 910				Qty.
5" Combustible Sidewall Termination (With Condensate Trap)				
Kit Part Number: 100112777	1	100112594	5" Sidewall Hood Terminator	1
	2	100112734	5" Wall Thimble (4.0"-7.0")	1
	3	100112587	5" 90 degree Elbow	1
	4	100112597	5" Universal Appliance Adaptor	1



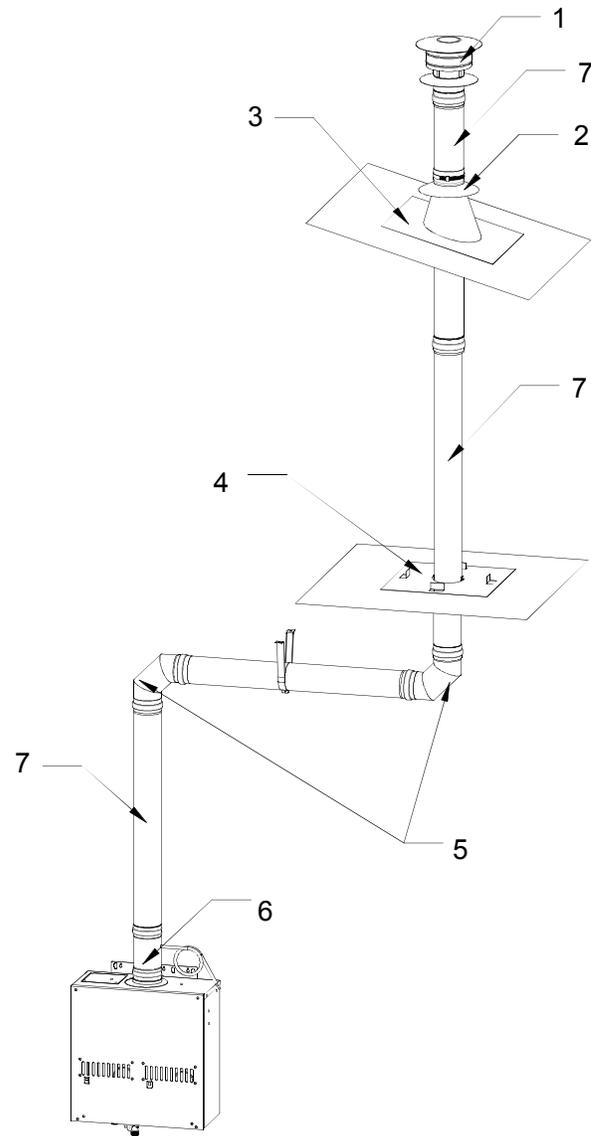
Model 910				Qty.
5" Non-Combustible Sidewall Termination (With Condensate Trap)				
Kit Part Number: 100112778	1	100112594	5" Sidewall Hood Terminator	1
	2	100112587	5" 90 degree Elbow	1
	3	100112597	5" Universal Appliance Adaptor	1

# DIRECT VENT, CONCENTRIC SIDEWALL TERMINATION

## 5" Rooftop Termination



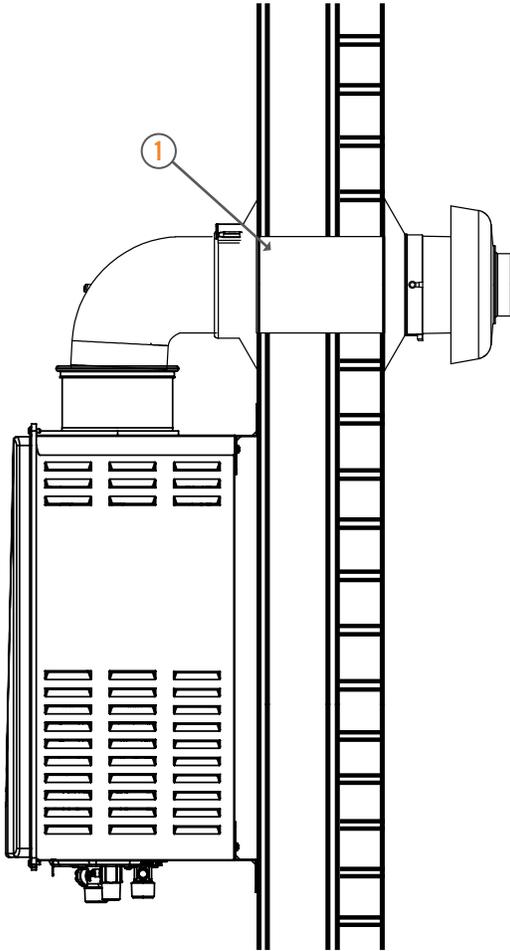
Model 910				Qty.
5" Flat Roof Termination				
Kit Part Number: 100112730	1	100112596	5" Extreme Weather Rain Cap	1
	2	100112590	5" Storm Collar	1
	3	100112592	5" Flat Roof Flashing	1
	4	100112591	5" Vertical Firestop	1
	5	100112587	5" 90 degree Elbow	2
	6	100112597	5" Universal Appliance Adaptor	1
	7	Refer to Accessories Chart	Straight Pipe	TBD



Model 910				Qty.
5" Angled Roof Termination				
Kit Part Number: 100112731	1	100112596	5" Extreme Weather Rain Cap	1
	2	100112590	5" Storm Collar	1
	3	100112593	5" Angled Roof Flashing	1
	4	100112591	5" Vertical Firestop	1
	5	100112587	5" 90 degree Elbow	2
	6	100112597	5" Universal Appliance Adaptor	1
	7	Refer to Accessories Chart	Straight Pipe	TBD

# CONCENTRIC VENT SERIES

## Horizontal Installation

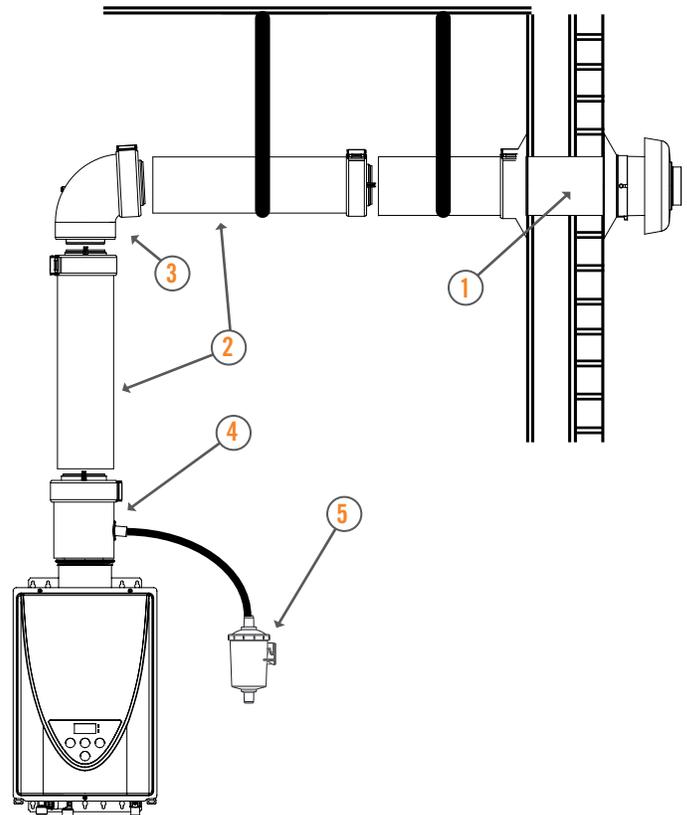


### Models 310C, 510C

1	Standard Sidewall Kits*	100322374 (11.5")
		100322375 (21")
2	Straight Pipe	100266133 (10")
		100266134 (19.5")
		100266135 (39")
3	Elbow	100266119 (45°)
		100266132 (87°)
4	Condensate Collector	100266139
5	Condensate Trap	100266140
6	Flue Adapter	100322379

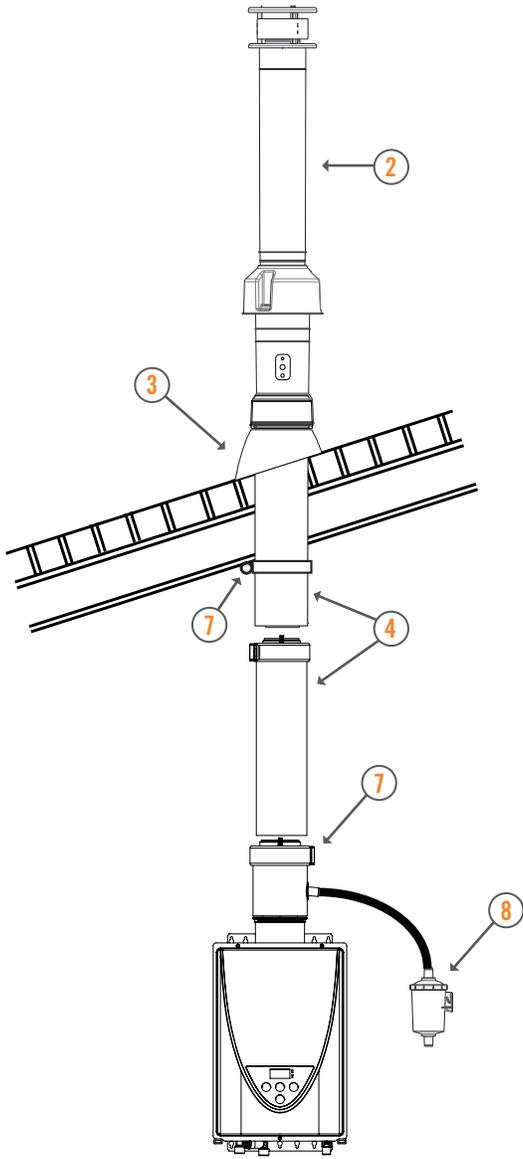
\*This kit includes one 87° elbow and Flue Adapter.

## Horizontal Installation



# CONCENTRIC VENT SERIES

## Vertical Installation

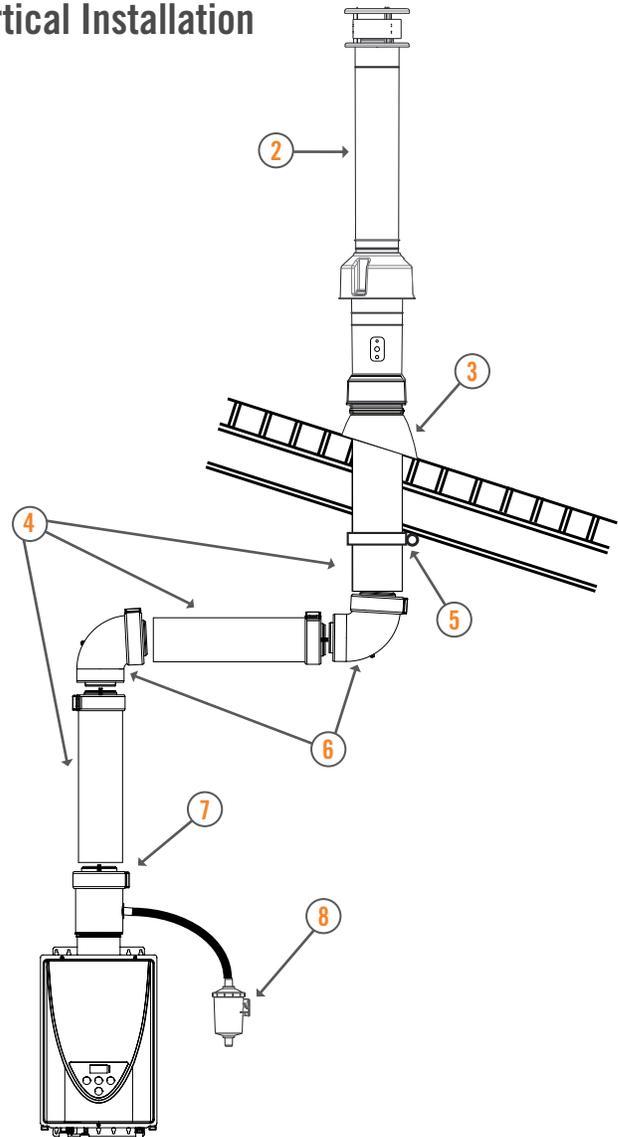


## Vertical Installation

### Models 310C, 510C

	Roof Termination (38")	100305170
2	Roof Termination (38")	100266118
3	Tile/Shingle Roof Flashing	100266136 (1/12 to 6/12 pitch)
		100266137 (8/12 to 16/12 pitch)
		100266138 (6/12 to 12/12 pitch)
		100266187 (Flat Roof)
4	Straight Pipe	100266133 (10")
		100266134 (19.5")
		100266135 (39")
5	Pipe Hangers	100266141
6	Elbow	100266119 (45°)
		100266132 (87°)
7	Condensate Collector	100266139
8	Condensate Trap	100266140

## Vertical Installation



# VENTING COMPONENTS

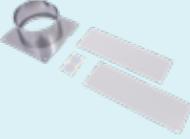
Simple Leak-Proof Gasketed Connections – No Sealant Required. High Quality – Category III / IV Stainless Steel.  
 Versatile – Vertical and Horizontal Terminations. Convenient – Vent Kits Available.  
 UL Listed. All Connections have Heat-Resistant Rubber Gaskets.

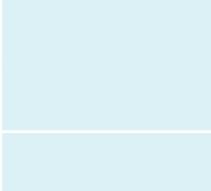
Nova Vent Part #	Description	
<b>Straight Vent Pipe</b>		
100112407	4" Straight pipe - 6" Length	
100112406	4" Straight pipe - 12" Length	
100112404	4" Straight pipe - 24" Length	
100112403	4" Straight pipe - 36" Length	
100112402	4" Straight pipe - 48" Length	
100112580	5" Straight pipe - 6" Length	
100112581	5" Straight pipe - 12" Length	
100112582	5" Straight pipe - 24" length	
100112583	5" Straight pipe - 36" Length	
100112584	5" Straight pipe - 48" Length	
<b>Adjustable Vent Pipe</b>		
100112405	4" Adjustable Pipe (7" - 9.9")	
100112585	5" Adjustable Pipe (7" - 9.9")	
<b>Elbow</b>		
100112401	4" 45 Degree Elbow	
100112586	5" 45 Degree Elbow	
100112400	4" 90 Degree Elbow	
100112587	5" 90 Degree Elbow	
<b>Adaptor</b>		
100112399	4" Female-Female Adaptor	
100112599	5" Female-Female Adaptor	
100112549	4" Universal Appliance Adaptor 3-in-1 (F-F adaptor, condensate drain, & back-flow preventer)	
100112597	5" Universal Appliance Adaptor 3-in-1 (F-F adaptor, condensate drain, & back-flow preventer)	

Nova Vent Part #	Description	
<b>Backflow Preventer</b>		
100112416	4" Back-flow Preventer & F-F Adaptor	
100112598	5" Back-flow Preventer & F-F Adaptor	
<b>Condensation Drain</b>		
100112414	4" Horizontal Drain Tee	
100112588	5" Horizontal Drain Tee	
100112413	4" Vertical Drain Tee	
100112589	5" Vertical Drain Tee	
<b>Support</b>		
100112409	4" Support Strap (1")	
100112600	5" Support Strap (1")	
<b>Wall Thimble</b>		
100112732	4" Wall Thimble (4"-7")	
100112733	4" Wall Thimble (5"-10")	
100112734	5" Wall thimble (4"-7")	
100112735	5" Wall thimble (5"-10")	
<b>4" Sidewall Termination &amp; Thimble Kit</b>		
100112424	Sidewall Vent Terminator (Hood) and Wall Thimble (4"-7")	
100112425	Sidewall Vent Terminator (Hood) and Wall Thimble (5"-10")	

Note: 110U, 140H, 310U, 510U, 240H, 340H, 540H series are compatible with 4" components. 910 series is compatible with 5" components.

# VENTING COMPONENTS

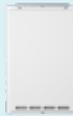
Nova Vent Part #	Description	
<b>Termination</b>		
100112547	4" Termination Tee	
100112595	5" Termination Tee	
100112419	4" Exhaust Sidewall Vent Terminator (Hood)	
100112594	5" Exhaust Sidewall Vent Terminator (Hood)	
100112415	4" Rain Cap	
100112548	4" Extreme Weather Rain Cap	
100112596	5" Extreme Weather Rain Cap	
100112163	3" Concentric PVC Termination	
<b>Firestop</b>		
100112408	4" Firestop	
100112591	5" Firestop	
<b>Roof Flashing</b>		
100112412	4" Flat Roof Flashing	
100112592	5" Flat Roof Flashing	
100112411	4" Angled Roof Flashing	
100112593	5" Angled Roof Flashing	
<b>Storm Collar</b>		
100112410	4" Storm Collar	
100112590	5" Storm Collar	
<b>Direct Vent Conversion Kit</b>		
100112186	Direct Vent Conversion Kit for Model 910	

Nova Vent Part #	Description	
<b>Intake Hood (Galvanized)</b>		
100112545	3"	
100112546	4"	
100112547	5"	

<b>Direct Vent, Concentric Sidewall Termination Kit</b>		
100112421	5.0" to 10.0" 3" Intake, 4" Exhaust	
100112420	12.0" to 18.0" 3" Intake, 4" Exhaust	
100112602	5.0" to 10.0" 4" Intake, 4" Exhaust	
100112603	12.0" to 18.0" 4" Intake, 4" Exhaust	
100112606	5.0" to 10.0" 5" Intake, 5" Exhaust	
100112601	12.0" to 18.0" 5" Intake, 5" Exhaust	

Note: 110U, 140H, 310U, 510U, 240H, 340H, 540H series are compatible with 4" components. 910 series is compatible with 5" components.

# ACCESSORIES

	Description		GTS-110U-I	GTS-110U-E	GTS-310C-NI	GTS-310U-I	GTS-310U-E	GTS-510C-NI	GTS-510U-I	GTS-510U-E	GTS-140-NIH	GTS-140-NEH	GTS-240-NIH	GTS-240-NEH	GTS-340-NIH	GTS-340-NEH	GTS-540-NIH/P	GTS-540-NEH/P	GTS-910-NIE	SCT-1991/O	GTS-540X3-NIH	GTS-540X3-NEH		
100112194	Outdoor Vent Cap																		X					
100266729, 100266730	Recess Box Retrofit New Construction			X			X			X		X												
100112188	Pipe Cover		X	X																				
100324434			X	X		X	X		X	X														
100112190																				X				
100112718														X	X	X	X	X	X			X	X	X
100187904												X	X											
100112691	Multiple Unit Controller							X	X*	X*							X	X	X	X	X	X	X	
100112183	Remote Temperature Controller		X	X		X	X																	
100112155									X	X										X				
100209924			X*	X*	X	X*	X*	X	X*	X*	X	X	X	X	X	X	X	X**	X**			X**	X**	
100276687																		X***	X***			X***	X***	
100112572																						X		
100112156	Isolation Valves (Lead Free)		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
100112159	Neutralizer										X	X	X	X	X	X	X	X		X	X	X		
100113129	PVC Adapter for Common Venting											X		X		X				X	X			
100113130	Non-Return Valve for Common Venting											X		X		X				X	X			
100291509	Product Preservers® Anti-Scale System		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X			
100291510	Product Preservers Replacement Cartridge		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X			

\*Compatible with Ultra-Low NOx models only  
 \*\*Compatible with 540H models only  
 \*\*\*Compatible with 540P models only

# PRODUCT OVERVIEW

I = Indoor O= Outdoor		Connection: Gas/Water Power	Venting Intake Exhaust	Easy-Link™ (EL) Multi-Unit (MU)	Temperature	GPM (Max) Per Unit	Uniform Energy Factor	Max BTU/h	Dimension/ Weight	
Residential Non-Condensing	310C Series  GTS-310C-NI	Ideal for 2 to 3 bath homes	3/4" Gas/Water 120 VAC	3" / 5" Concentric, 43' Max	N/A	100 - 140 °F	8.0	0.81	190,000	H= 20-1/2" W= 13-3/4" D= 11-1/2" 51 lbs
	510C Series  GTS-510C-NI	Well suited for light commercial applications. Commercial-grade copper	3/4" Gas/Water 120 VAC	3" / 5" Concentric, 43' Max	(EL) 4 units (MU) 20 unit	100 - 160 °F	10.0	0.81	199,000	H= 20-1/2" W= 13-3/4" D= 11-1/2" 51 lbs
	110U Series  GTS-110U-I GTS-110U-E	Great for apartments, condos and summer cabins.	3/4" Gas/Water 120 VAC	I Model: 3" Intake, 60' Max 4" Exhaust, 60' Max	N/A	100 - 140 °F	6.6	I: 0.81 O: 0.81	140,000	H= 20-1/2" W= 13-3/4" D= 10" 38 lbs
	310U Series  GTS-310U-I GTS-310U-E	Ideal for 2 to 3 bath homes	3/4" Gas/Water 120 VAC	I Model: 3" Intake, 60' Max 4" Exhaust, 60' Max	N/A	100 - 140 °F	8.0	I: 0.81 O: 0.81	190,000	H= 20-1/2" W= 13-3/4" D= 10" 38 lbs
	510U Series  GTS-510U-I GTS-510U-E	Well suited for light commercial applications. Commercial-grade copper	3/4" Gas/Water 120 VAC	I Model: 3" Intake, 60' Max 4" Exhaust, 60' Max	(EL) 4 units (MU) 20 units	100 - 160 °F	10.0	I: 0.81 O: 0.81	199,000	H= 20-1/2" W= 13-3/4" D= 10" 40 lbs

# PRODUCT OVERVIEW

I = Indoor O= Outdoor		Connection: Gas/Water Power	Venting Intake Exhaust	EASY-LINK™ (EL) Multi-Unit (MU)	Temperature	GPM (Max) Per Unit	Uniform Energy Factor	Max BTU/h	Dimension/ Weight	
Residential Condensing	<b>140H Series</b>    <b>GTS-140-NIH GTS-140-NEH</b>	High efficiency ultra-low NOx condensing tankless. 3" PVC venting. 0" clearance to combustible.	1/2" Gas 3/4" Water 120 VAC	Intake & Exhaust 3", 70' Max, 5 elbow Max OR 4", 100' Max, 5 elbow Max	N/A	100 - 140 °F	7.0	I: 0.90 O: 0.91	120,000	H = 22-7/8" W = 13-7/8" D = 10-3/4" 50 lbs
	<b>240H Series</b>    <b>GTS-240-NIH GTS-240-NEH</b>	High efficiency ultra-low NOx condensing tankless. 3" PVC venting. 0" clearance to combustible.	3/4" Gas/Water 120 VAC	Intake & Exhaust 3", 70' Max, 5 elbow Max OR 4", 100' Max, 5 elbow Max	N/A	100 - 140 °F	6.6	I: 0.94 O: 0.95	160,000	H = 23-5/8" W = 17-3/4" D = 11-1/4" 58 lbs
	<b>340H Series</b>    <b>GTS-340-NIH GTS-340-NEH</b>	High efficiency ultra-low NOx condensing tankless. 3" PVC venting. 0" clearance to combustible.	3/4" Gas/Water 120 VAC	Intake & Exhaust 3", 70' Max, 5 elbow Max OR 4", 100' Max, 5 elbow Max	N/A	100 - 140 °F	8.0	I: 0.95 O: 0.94	180,000	H = 23-5/8" W = 17-3/4" D = 11-1/4" 58 lbs
	<b>540H Series</b>     <b>GTS-540-NIH GTS-540-NEH</b>	High efficiency ultra-low NOx condensing tankless. 3" PVC venting. 0" clearance to combustible.	3/4" Gas/Water 120 VAC	Intake & Exhaust 3", 70' Max, 5 elbow Max OR 4", 100' Max, 5 elbow Max	(EL) 4 units (MU) 20 units	100 - 160 °F	10.0	I: 0.93 O: 0.95	199,000	H = 23-5/8" W = 17-3/4" D = 11-1/4" 59 lbs
	<b>540P Series</b>    <b>GTS-540P-NI GTS-540P-NE</b>	High efficiency ultra-low NOx condensing tankless with integrated recirculation pump.	3/4" Gas/Water 120 VAC	Intake & Exhaust 3", 70' Max, 5 elbow Max OR 4", 100' Max, 5 elbow Max	(EL) 4 units	100 - 140 °F	10.0	I: 0.93 O: 0.95	199,000	H = 23-5/8" W = 17-3/4" D = 11-1/4" 61 lbs
	<b>540HX3 Series</b>     <b>GTS-540X3-NIH GTS-540X3-NEH</b>	High efficiency ultra-low NOx condensing tankless. 3" PVC venting. 0" clearance to combustible.	3/4" Gas/Water 120 VAC	Intake & Exhaust 3", 70' Max, 5 elbow Max OR 4", 100' Max, 5 elbow Max	(EL) 4 units (MU) 20 units	100 - 160 °F	10.0	I: 0.93 O: 0.95	199,000	H = 23-5/8"* W = 17-3/4" D = 11-1/4" 59 lbs  *cabinet only
Commercial	   <b>GTS-910-NIE</b>	Generates Most GPM in tankless industry. 14.5 GPM (Max). Commercial-grade copper alloy. LED display	1" Gas/Water 120 VAC	5" Intake, 50' Max 5" Exhaust, 50' Max	(EL) 4 units (MU) 10 units	100 - 185 °F	14.5 (Up to 145 GPM max with 10 unit system)	Thermal Efficiency NG: 80.2% LP: 82.4%	380,000	H= 25-1/4" W= 24-3/4" D= 11-3/4" 113 lbs
	    <b>SCT-199I-N SCT-199O-N</b>	High efficiency ultra-low NOx condensing tankless. 3" PVC venting. 0" clearance to combustible.	3/4" Gas/Water 120 VAC	Intake & Exhaust 3", 70' Max, 5 elbow Max OR 4", 100' Max, 5 elbow Max	(EL) 4 units (MU) 20 units	100 - 185 °F	10.0 (Up to 200 GPM max with 20 unit system)	Thermal Efficiency 96% I: 0.93 O: 0.95	199,000	H = 23-5/8" W = 17-3/4" D = 11-1/4" 59 lbs



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