

SMART Series Indirect Fired Water Heater



Suggested Specifications SMART Series

General Requirements

- A. Furnish and install _____ (qty) Indirect Fired Water Heater designed for the production of domestic hot water using boiler water as a heating source.
- B. Installation of the Indirect Fired Water(s) shall be according to manufacturer's installation instructions and all work shall be completed in a neat and workmanship like manner.
- C. The Indirect Fired Water Heater shall be a Triangle Tube SMART _____ having a minimum continuous (recovery) of _____ GPH at a 90°F domestic temperature rise at boiler output listed in the performance table on page 3 and a minimum actual storage capacity of not less than _____ gallons per water heater.
- D. The water heater shall have a minimum of _____ square feet of heat transfer surface area.
- E. The water heater shall be designed for a maximum boiler side pressure drop through the outer tank of 3ft of pressure loss or less at volume flow rate of 28 gpm.
- F. The water heater shall have a standby loss less than 1°F per hour.
- G. The water heater shall have a maximum allowable system heating water temperature of 210°F.
- H. The water heater shall comply to the construction standards of UL 174 and be certified by ITS/ETL or other third party agency.

Product Specifications

A. Water Heater Construction

1. Consist of two (2) concentric tanks. The inner tank shall contain the domestic water and the outer tank shall contain the heating system water. This "Tank in Tank" design concept shall allow the inner tank to be self-descaling.
2. The inner tank shall be 304L corrugated stainless steel material that is passivated to provide additional resistance to corrosion.
3. The inner tank shall have a maximum working pressure of 150 psi and shall be able to withstand a hydrostatic test pressure of 300 psi.
4. The outer tank shall be of carbon steel material and have a maximum working pressure of 45 psi.
5. The water heater shall provide a cold water inlet connection, hot water outlet connection and an AUX connection that is to be utilized for the Temperature / Pressure relief valve or a recirculation return connection.
6. The outer tank shall be covered with a minimum 2 inches of CFC/HCFC-free rigid polyurethane foam insulation with an equivalent "R" value of 16.
7. The water heater shall be covered by a single piece polypropylene exterior jacket that resists dents, cuts and abrasions.

B. Temperature Control

1. A drywell shall be inserted into and extend the full length of the inner tank.
2. Within the drywell shall be a remote sensing bulb attached to a low voltage thermostat that senses the water temperature in the tank.

3. The thermostat shall open a circuit contact when the temperature rises above the set point and shall close when the temperature falls to a temperature no more than 9°F below the set point.
4. The thermostat shall be adjustable from 90° F to a maximum temperature setting of 164°F for residential and 194°F for commercial.
5. The thermostat shall be mounted on a removable cover plate and wired to a removable snap-set connector to allow easy installation and servicing. All field wiring to the thermostat / snap-set connector shall be 24V.

C. Field Installation

1. The water heater shall have a field installed Temperature / Pressure relief valve with a minimum element length of 8 inches (extended element).
2. The T&P relief valve shall bear the ASME rating, have a relief pressure of 150 psi and a relief temperature of 210°F.

D. Manuals

1. The water heater(s) shall be provided with complete instruction manuals, including:
 - a) Operational and Maintenance Manual

Warranty

- A. The water heater shall carry a limited lifetime warranty when installed in a residential application.
- B. The water heater shall carry a six (6) year non-prorated warranty when installed in a commercial application.

Code Requirement

- A. The Indirect Fired Water Heater(s) shall be recognized as an ASME Equal by the Commonwealth of Massachusetts Plumbing Board.

- B. The Indirect Fired Water Heater(s) shall comply with the National Standard Plumbing Code provided that:

1. The boiler (system heating) water (including additives) is practically non-toxic, having toxicity rating or Class of 1 as listed in Clinical Toxicology of Commercial Products and
2. Boiler water pressure is limited to a maximum 30 psig by an approved relief valve.

- C. The Indirect Fired Water Heater(s) shall comply with the Uniform Plumbing Code Paragraph L3.2 and L3.3 provided that:

1. The heat transfer medium is potable water or contains only substances which are recognized as safe by the US Food and Drug Administration.
2. The pressure of the heat transfer medium is maintained less than the normal minimum operating pressure of the potable water system.
3. The equipment is permanently labeled to indicate that only additives recognized as safe by the FDA shall be used in the heat transfer medium.

Other heat exchangers designs may be permitted where approved by the Administrative Authority.

- D. The installer shall be responsible to ensure that the installation of the Indirect Fired Water Heater is in compliance with all applicable local, state and national codes.

Product Specifications

Model No.	Dimension	Height	Boiler/Supply Return	Domestic Inlet/Outlet	3rd Domestic Connection*	Domestic Capacity (gal.)	Heating Water Capacity (gal.)	Heat Surface (sq. ft.)	Empty Weight (lbs)
Smart 30	22" dia.	38"	1"	3/4"	3/4"	28	5	13	115
Smart 40	22" dia.	46"	1"	3/4"	3/4"	36	6	16	135
Smart 50	22" dia.	57"	1 1/4"	3/4"	3/4"	46	8	20	165
Smart 60	22" dia.	66"	1 1/4"	3/4"	3/4"	56	8	24	190
Smart 80	26" dia.	61"	1 1/2"	1 1/2"	1 1/2"	70	14	28	271
Smart 100	26" dia.	78"	1 1/2"	1 1/2"	1 1/2"	95	25	36	362
Smart 120	32" dia.	72"	2"	1 1/2"	1 1/2"	119	43	42	479

(*) This fitting can be used as a return connection if circulated domestic water is required or can be used as a connection for the T&P Relief Valve.

Performance

Model No.	Boiler Output Btu/hr	1st Hour Recovery (gal.)	Continuous Flow (gal.)	Peak/Flow Gal/10 min.
Smart 30	87,000	140	115	40
Smart 40	112,000	180	150	50
Smart 50	140,000	220	185	65
Smart 60	270,000	410	360	100
Smart 80	300,000	460	400	125
Smart 100	337,000	525	450	150
Smart 120	420,000	650	560	190

Conditions:

- 200° boiler water supply
- 90° temperature rise