



Lochinvar[®]
HIGH EFFICIENCY BOILERS & WATER HEATERS

Water Heater Product Line Brochure





Lochinvar[®]

HIGH EFFICIENCY BOILERS & WATER HEATERS



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The Innovator In Water Heating Technology

From the tiny 2 gallon Jr. Electric to the innovative ARMOR X2, Lochinvar water heaters are noted for their range of features and application flexibility. Collectively, they represent the most complete product line in the industry, from a company with a long history of innovation and a reputation for excellence.

You'll find there's a Lochinvar product for any application imaginable — from standard residential units to the advanced Copper-Fin II with proportional firing. And with selection, comes opportunity.

In fact, the diversity and performance of our product line is surpassed only by its quality — in design, construction, and training. Lochinvar quality is reinforced by our world class manufacturing plant, commitment to research and development and unparalleled industry training available at Lochinvar University.

Quality, efficiency, features, service, and selection. For more than 85 years, these have been the hallmarks of Lochinvar products. Lochinvar... the innovator in water heating technology.



Lochinvar water heaters are compliant to the national “Safe Drinking Water Act” (42 USC 300g) for Low Lead Content. Per the requirement, all water heating product sold into commerce must be compliant by January 4, 2014.



This logo represents that a product has a NOx rating which exceeds the requirements of the South Coast Air Quality Management District and Texas National Resource Conservation Commission.



This ingot means the Stack Frame is available for use with that product. See page 43 & 44 for details.

This catalog is designed to provide a convenient, condensed overview of the entire Lochinvar water heater line. For a complete list of features, specifications and technical data on a particular product, see your manufacturer's representative or contact Lochinvar.

Every Lochinvar product is designed and built to meet or exceed the fuel efficiency and safety standards of one or more of these agencies, wherever applicable.



1	ARMOR X2™
3	ARMOR®
5	ARMOR® Wall Mount
7	SHIELD®
9	Power-Fin®
11	Copper-Fin II®
13	Copper-Fin
15	Efficiency+
16	Efficiency Pac®
17	Copper-Fin® “Better Idea”
18	Low NOx Charger
18	Ultra Low NOx Charger
19	Multi-Flue Charger
20	Light Duty Charger
21	Custom Hi-Power®
23	Standard Hi-Power®
25	Compact ASME Hi-Power®
26	Light Duty Commercial
27	Hot Water Generators
29	Squire® Indirect Water Heaters
30	Solar Stainless Steel Indirect Water Heaters
31	Lock-Temp® Round Jacketed Storage Tanks
32	Lock-Temp® Square Jacketed Storage Tanks
32	Lock-Temp® Stainless Steel Storage Tanks
31	Lock-Temp® Bare Storage Tanks
34	Energy Saver Residential Gas
35	Specialty Residential Gas
36	Ultra Low NOx Residential
37	Power Vented Residential
38	Power Direct Vent Residential
39	Residential Electric
40	Junior Electric
41	Manufactured Home
42	Solar
43	Stack Frame

ARMOR X2® 1,000,000 to 1,500,000 Btu/hr Models

Innovation for Commercial Water Heating

Lochinvar's commitment to research and development once again brings new innovation to the industry! The ARMOR X2 Commercial Water Heater combines stainless steel heat exchanger technology with Modulating Condensing combustion to deliver efficiencies as high as 96%. With models at 1.0, 1.3 and 1.5 million BTU/hr inputs, ARMOR X2 will serve a large range of commercial applications and add the "green" touch that building owners and facility managers desire.

Fully Modulating with 10:1 Turndown

With unparalleled modulation capabilities the ARMOR X2 boasts a turndown ratio of 10:1. This means that at times when the hot water demand requires less than the full input capabilities of the water heater, ARMOR X2 will deliver the proper amount of heat to exactly match the demand with inputs as low as 10% of the maximum water heater input.

Couple the ARMOR X2 with a Lock-Temp Storage tank for long system life and high performance. All Lock-Temp storage tanks are equipped with the patented Lock-Temp baffle. This baffle isolates the turbulence of incoming water thus allowing the tank to be a constant temperature throughout, this feature allows for an industry best 80% tank drawdown.

If foot print, installation costs or final installed appearance are of great concern consider allowing Lochinvar to create a custom water heater package for your application. Each package is custom built, factory assembled and tested to meet the requirements of the job. All packages include a welded I-beam skid which houses the water heater plant and associated storage tank(s) for ease of maneuverability and installation.

The ARMOR X2 Combustion System

Advanced Negative Regulation Technology

ARMOR X2 safely and reliably operates with supply gas pressure as low as 4 inches water column, because Negative Regulation (Neg/Reg) technology automatically adjusts fan speed to ensure the correct volume of fuel and air entering the burner.

"Fail-Safe" Direct-Spark Ignition

With each call for heat, two electrodes ignite the fuel/gas mixture. A third electrode then senses for flame. SMART TOUCH will lock out and display the fault if ignition does not occur.

Two-in-One Stainless Steel Heat Exchanger

A primary heat exchanger combined with a secondary heat exchanger captures flue gas heat and eliminates low temperature protection requirements. The stainless steel, pH-tolerant design features a weld-sealed assembly with no O-rings or gaskets. The ARMOR X2 is ASME Section IV approved and stamped.

Fully Modulating Burner

SMART TOUCH allows fully modulating combustion with 10:1 turndown. The combustion system can fire as low as 10% of maximum input, and modulates the firing rate up to 100% as demand increases. The burner design incorporates a woven steel mesh sleeve over a stainless steel burner tube and fires in a 360° pattern along the entire length of the primary heat exchanger. These together allow ARMOR X2's compact size to excel compared to units with larger multiple burners.



96% THERMAL EFFICIENCY



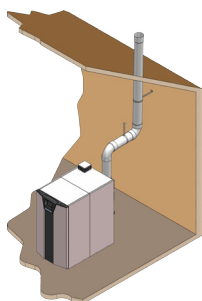
SMART TOUCH™

The full-color Lochinvar SMART TOUCH Main Menu screen is your gateway to complete control of all ARMOR X2 functions, and total access to system performance data and history. Do it all and see it all right here, with or without connecting to a separate PC using Lochinvar SMART TOUCH software.

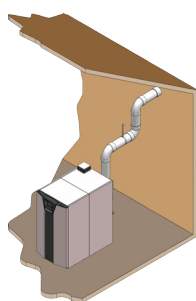
- Modbus Communication
- Password Security
- Product Service Indicator
- Freeze Protection
- Low Water Flow Indicator
- Night Temperature Setback
- Building Management System Control
- Tank Temperature Readout
- Water Heater Controls
- PC Connection

Flexible Venting Options - Up to 100 feet of air intake and 100 feet of exhaust vent with PVC, CPVC, Polypropylene or Stainless Steel.

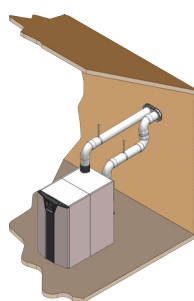
Room Air Vertical



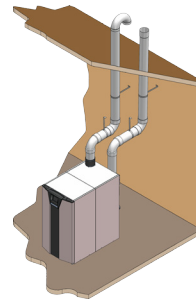
Room Air Sidewall



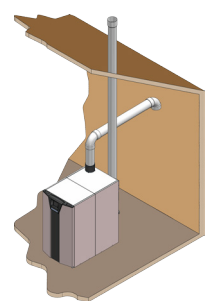
Direct Vent Sidewall



Direct Vent Vertical

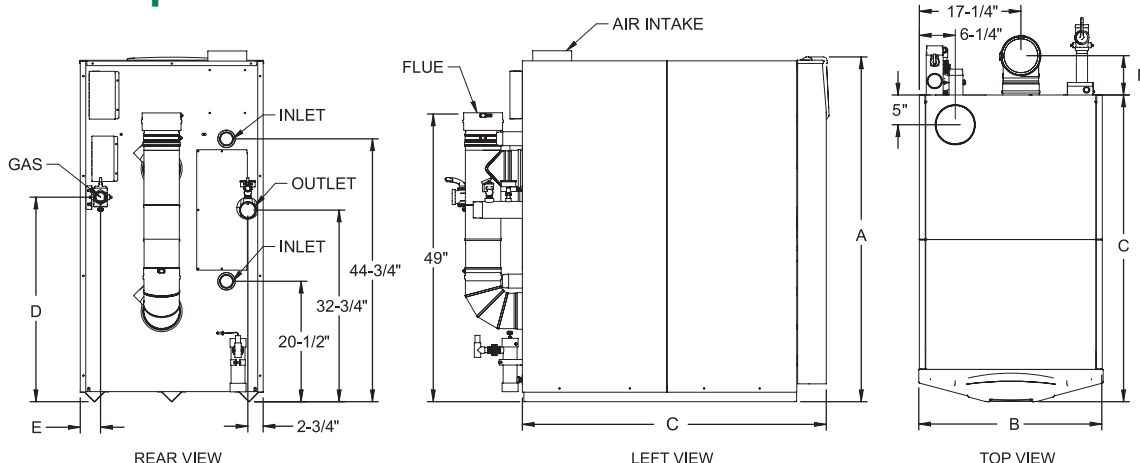


Vertical w/Sidewall Air



ARMOR X2[®] 1,000,000 to 1,500,000 Btu/hr Models

Dimensions & Specifications



Model Number	Btu/hr Input	Thermal Efficiency	GPH @ 100° Rise	Dimensions (inches)						Inlet Conn.		Outlet Conn.		Vent Size	Shipping Wt. (lbs.)
				A	B	C	D	E	F	Gas	Water	Water	Air		
AWN1000PM	1,000,000	96.0%	1,164	58-3/4"	31"	48"	35"	4-1/2"	15"	1-1/2"	2 x 2"	3"	6"	6"	910
AWN1300PM	1,300,000	96.0%	1,513	58-3/4"	31"	52-1/4"	34-3/4"	3-1/2"	6-3/4"	1-1/2"	2 x 2"	3"	6"	6"	1049
AWN1500PM	1,500,000	96.0%	1,745	58-3/4"	31"	56-1/2"	34-3/4"	3-1/2"	6-3/4"	1-1/2"	2 x 2"	3"	6"	6"	1185

Notes: Change 'N' to 'L' for L.P. Gas Model. No deration on L.P. models. Performance data based on manufacturer test results. 120 VAC / 15 AMP circuit required. All dimensions shown in inches.

STANDARD FEATURES

- › 96% Thermal Efficiency
- › Modulating Burner with 10:1 Turndown
 - › Direct-Spark Ignition
 - › Low NOx Operation
 - › Sealed Combustion
 - › Low Gas Pressure Operation
- › Vertical & Horizontal Venting
 - › Category IV Venting up to 100 Feet
 - › PVC, CPVC, Polypropylene or AL29-4C Vent Material
 - › Sidewall Vent Termination Provided
- › ASME Stainless Steel Heat Exchanger
 - › Gasketless Design
 - › 160 psi Working Pressure
- › (2) All Bronze Circulating Pumps
- › On/Off Switch
- › Adjustable High Limit with Manual Reset
- › Low Air Pressure Switch
- › Flow Switches
- › Inlet & Outlet Temperature Sensors
- › Two Easy Access Terminal Strips
- › ASME Temperature & Pressure Relief Valve
- › Zero Clearance to Combustible Material
- › Approved for Combustible Floor Installation
- › 1 Year Warranty on Parts
- › 5 Year Limited Warranty (see warranty for details)

SMART TOUCH™ FEATURES

- › SMART TOUCH™ Touchscreen Operating Control
 - › Full-Color Touchscreen LCD Display
 - › Built-in Cascading Sequencer for up to 8 Water Heaters
 - › Building Management System Integration with 0-10 VDC Input
 - › Password Security
 - › Low Water Flow Safety Control & Indication
 - › Inlet & Outlet Temperature Readout
 - › Freeze Protection
 - › Service Reminder
 - › Time Clock
- › Data Logging
 - › Hours Running
 - › Ignition Attempts
 - › Last 10 Lockouts
- › Programmable System Efficiency Optimizers
 - › Night Setback
 - › Anti-Cycling
- › Water Heater Pump Control
 - › High Voltage Terminal Strip
 - › 120 VAC / 60 Hertz / 1-Phase Power Supply
 - › Pump Contacts
- › Low Voltage Terminal Strip
 - › 24 VAC Auxiliary Device Relay
 - › Auxiliary Proving Switch Contacts
 - › Alarm on Any Failure Contacts
 - › Runtime Contacts
 - › Tank Thermostat Contacts
 - › Tank Sensor Contacts
 - › Cascade Contacts

OPTIONAL EQUIPMENT

- › Modbus Communications
- › BMS Gateway to LON or BACnet
- › SMART TOUCH PC Software
- › Condensate Neutralization Kit
- › Alarm Bell
- › Stainless Steel Vent Kits (1300 & 1500)

CODES & REGISTRATIONS

- › ANSI Z21.10.3 certified
- › ASME certified, "HLW" stamp
- › California Code compliant
- › Massachusetts Code compliant
- › South Coast Air Quality Management District registered

ARMOR® 150,000 to 800,000 Btu/hr Models

The Intelligent Approach to Water Heating

There are several tank-type commercial water heaters on the market with 96% thermal efficiency. They all promise tremendous savings on operating costs compared to standard-efficiency units, but none of them truly measures up to the Lochinvar ARMOR™.

ARMOR is a fully condensing commercial gas water heater. Available in eight models with inputs ranging from 150,000 to 800,000 Btu/hr, the ARMOR achieves 96% thermal efficiency.

ARMOR delivers long-lasting life-cycle efficiency surpassing any commercial unit in its class. When you look beyond the numbers you'll discover the many ways that ARMOR technology is in a class by itself!

Fully Modulating with 5:1 Turndown

ARMOR is equipped with fully modulating combustion with 5:1 turndown. This means ARMOR can fire as low as 20% of maximum input when water heating demand is lowest, and increase the firing rate up to 100% as demand increases. The result is better overall efficiency and less cycling, compared to all other tank-type units which are "on-off," which means they can only fire at 100% of maximum input.

ARMOR features advanced Negative Regulation (Neg/Reg) sealed combustion technology, permitting fan speed to constantly adjust the volume of fuel and air entering the burner. This ensures that ARMOR can safely and reliably operate with supply gas pressure as low as 4 inches water column.

Stainless Steel Condensing Heat Exchanger

The ARMOR's stainless steel heat exchanger is built to ASME Section IV requirements. Its design provides superior resistance to corrosion caused by condensation from low entering water temperatures. Traditional commercial water heaters will fail early with low entering water temperatures; however, with the ARMOR the lower the supply water temperature the more efficiently it performs throughout the life of the heater.



96% THERMAL EFFICIENCY



SMART SYSTEM™

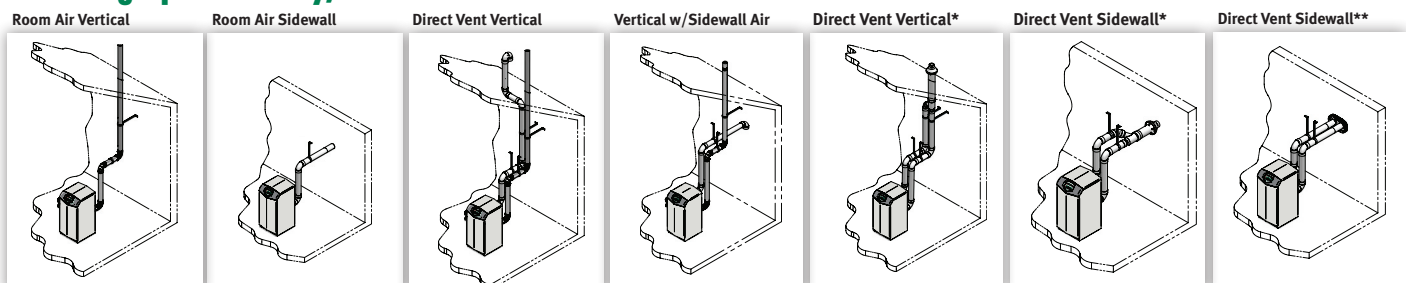
The Ultimate Water Heater Operating Control

- Easy to use – makes setup and service a breeze
- Multi-color graphic lcd display of setup, system status and diagnostic data in words, not codes
- Water heater pump control:
 - > Pump delay with freeze protection
 - > Pump exercise
- High-voltage terminal strip:
 - > 120 Vac input to water heater
 - > Water heater pump contacts
 - > Building recirculating pump contacts
- Low-voltage terminal strip with 28 points of connection
- Built-in cascading sequencer controls up to 8 ARMOR units without the added cost of a separate third-party sequencer
- Interface for optional Smart System PC software for advanced setup and diagnostics.

MULTI-COLOR GRAPHIC LCD DISPLAY OF SETUP, SYSTEM STATUS AND DIAGNOSTIC DATA IN WORDS, NOT CODES



7 Venting Options - Easy, Flexible Installation and Service

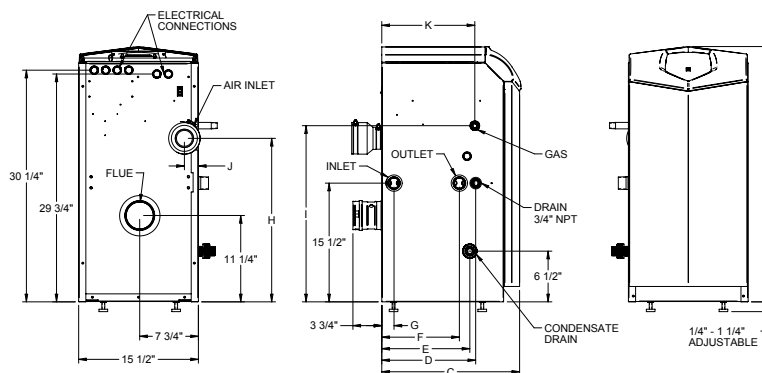


*Optional Concentric Vent Kit Sold Separately

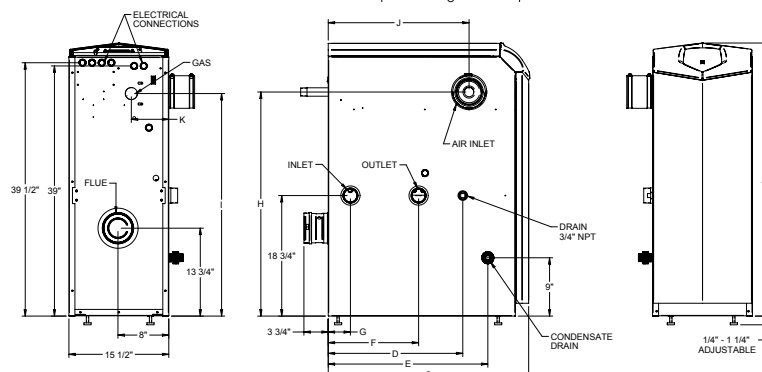
** Sidewall Termination Plate Factory Provided as Standard Equipment

ARMOR® 150,000 to 800,000 Btu/hr Models

MODELS 151 - 200



MODELS 286-801



Model Number	Btu/hr Input	GPH @ 100° Rise	A	C	D	E	F	G	H	I	J	K	Gas Conn.	Water Conn.	Air Inlet	Vent Size	Shipping Wt. (lbs.)
AWN151PM	150,000	175	33-1/4"	18"	12-1/4"	11-1/2"	10"	1-1/2"	21-1/4"	23"	1-3/4"	12"	1/2"	1-1/4"	3"	3"	165
AWN200PM	199,999	233	33-1/4"	22-1/4"	16-1/2"	15-3/4"	14-1/4"	5-1/4"	21-1/4"	23"	1-3/4"	16-1/4"	1/2"	1-1/4"	3"	3"	185
AWN286PM	285,000	332	42-1/2"	19-3/4"	12-3/4"	13-1/2"	6"	2"	34"	31"	11-3/4"	4-1/4"	3/4"	2"	4"	4"	236
AWN400PM	399,999	466	42-1/2"	27"	21"	20-3/4"	14"	3-1/2"	34"	34"	18-3/4"	2"	1"	2"	4"	4"	300
AWN501PM	500,000	582	42-1/2"	31-1/2"	21"	25"	14"	3-1/2"	35"	35"	22"	5-3/4"	1"	2"	4"	4"	339
AWN601PM	600,000	699	42-1/2"	36-1/4"	25"	21"	14"	3-1/2"	36"	32-3/4"	19-1/2"	5-1/2"	1"	2"	4"	4"	380
AWN701PM	700,000	815	42-1/2"	40-1/4"	29"	23"	17"	3-1/2"	36"	32-3/4"	23-1/2"	3-1/4"	1"	2"	4"	6"	461
AWN801PM	800,000	931	42-1/2"	45-1/4"	33-1/4"	23"	17"	3-1/2"	36"	32-3/4"	27-3/4"	3-1/4"	1"	2"	4"	6"	527

STANDARD FEATURES

- › 96% Thermal Efficiency (AHRI Certified)
- › Modulating Burner with 5:1 Turndown
 - › Direct-Spark Ignition
 - › Low NOx Operation
 - › Sealed Combustion
 - › Low Gas Pressure Operation
- › Vertical & Horizontal Direct-Vent
 - › PVC, CPVC, Polypropylene or SS up to 100 Feet
 - › PVC/CPVC Sidewall Vent Termination
- › Stainless Steel Heat Exchanger
 - › All Welded Construction, Gasketless Design
 - › 160 psi Working Pressure
 - › ASME Construction (AW 286-801)
- › Natural to L.P. Conversion Kit
- › All Bronze Circulating Pump
- › On/Off Switch
- › Flow Switch
- › ASME Temperature & Pressure Relief Valve (286-801)
- › Temperature & Pressure Gauge (AW 501-801)
- › Downstream Test Valves (AW 501-801)
- › Adjustable Leveling Legs
- › Tank Sensor
- › Adjustable High Limit w/ Manual Reset
- › Automatic Reset High Limit
- › Condensate Trap
- › Zero Clearances to Combustible Material
- › 5 Year Limited Warranty (See Warranty for Details)
- › 1 Year Parts Warranty (See Warranty for Details)

SMART SYSTEM FEATURES

- › SMART SYSTEM Digital Operating Control
- › Multi Color Graphic LCD Display
- › Built in Cascading Sequencer for up to 8 Water Heaters
 - › Multiple Size Water Heater Cascade
 - › Lead Lag
 - › Efficiency Optimization
 - › Front-End Loading Capability with CopperFin II
- › Building Management System Integration
 - › Modbus Communication (Optional)
 - › 0-10 VDC Input to Control Modulation or Set point
 - › 0-10 VDC Modulation Rate Output
 - › 0-10 VDC Input to Enable/Disable call for heat
- › Access to BMS Settings Through Graphic LCD Display
- › Low Water Flow Safety Control & Indication
- › Inlet & Outlet Temperature Sensors & Readout
- › Flue Temperature Sensor
- › Water Heater Pump Control
- › Pump Delay with Freeze Protection
- › Pump Exercise
- › Night Setback
- › Building Recirculation Loop Pump Control*
 - › Night Setback of Building Recirculation Loop*
- › Time Clock
- › Maintenance Reminder
 - › Ability to program installer name and number into the product as service contact

*Exclusive to Lochinvar

- › High Voltage Terminal Strip
 - › 120 VAC / 60 Hertz / 1 Phase Power Supply
 - › Pump Control Contacts
 - › Water Heater Pump Control Contacts
 - › Building Recirculation Pump Control Contacts
- › Low Voltage Terminal Strip
 - › 24 VAC Auxiliary Device Relay
 - › Auxiliary Proving Switch Contacts
 - › Flow Switch Contacts
 - › Alarm on Any Failure Contacts
 - › Runtime Contacts
 - › Tank Sensor Contacts
 - › Cascade Contacts
 - › 0-10 VDC BMS External Control Contact
 - › 0-10 VDC Boiler Rate Output Contacts

FIRING CONTROL SYSTEMS

- › M9 Standard Construction
- › M7 California Code (AW 286-801)

OPTIONAL EQUIPMENT

- › Alarm Bell
- › Condensate Neutralization Kit
- › High & Low Gas Pressure Switches (AW 501-801)
- › Concentric Vent Kit (3" & 4" PVC/CPVC only)
- › BMS Gateway to LON or BacNet
- › ModBus Communications
- › SMART SYSTEM PC Software
- › Room Air Vent Kits
- › Stack Frame

ARMOR® Wall Mount 125,000 and 199,999 Btu/hr Models

A Wall Mounted Water Heater

Lochinvar has added to its successful stainless steel, condensing ARMOR water heater series with wall mounted models. The ARMOR Wall Mount is available in two sizes, 125,000 and 199,999 Btu/hr input. The light weight but powerful water heaters hang on any wall to give you more free space in your mechanical room.

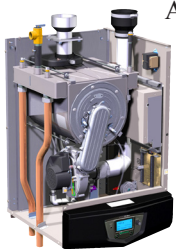
The "Better Idea" System and Instantaneous Water Heaters



The water heater and tank combination is the heart of Lochinvar's "BETTER IDEA" water heating philosophy. The ARMOR water heater is always installed with a separate storage tank to provide an effective water heating package for commercial domestic water systems. The industry has made a few unsuccessful attempts at applying residential instantaneous water heating to commercial applications. Instantaneous products are outmatched by the faster, larger and variable hot water demands of a commercial application. Storage is essential to supply the water to a system at a variety of speeds and volumes. What's more, the ARMOR "BETTER IDEA" system delivers lower equipment costs and lower installation costs than a comparable instantaneous package.

Fully Modulating with 5:1 Turndown

ARMOR features advanced Negative Regulation (Neg/Reg) sealed combustion technology, permitting fan speed to constantly adjust the volume of fuel and air entering the burner. This ensures that ARMOR can safely and reliably operate with supply gas pressure as low as 4 inches water column.



ARMOR is equipped with fully modulating combustion with 5:1 turndown. This means ARMOR can fire as low as 20% of maximum input when water heating demand is lowest, and increase the firing rate up to 100% as demand increases. The result is better overall efficiency and less cycling, compared to all other tank-type units which are "on-off," which means they can only fire at 100% of maximum input.



96% THERMAL EFFICIENCY



SMART SYSTEM™

The Ultimate Water Heater Operating Control

- Water heaters with different inputs can be cascaded together to maximize turndown capability
- Compatibility with Copper-Fin II® non-condensing water heater to create a front end loading system
- Night Setback Capabilities
 - Setback of Storage Tank Temperature
- Water heater pump control
 - Pump delay with freeze protection
 - Building Recirculation Pump Control*
 - Pump exercise
- High-voltage terminal strip
 - 120 Vac input to water heater
 - Dry Contacts for Water Heater Pump Control
 - Dry Contacts for Building Recirc. Pump Control *
- Low-voltage terminal strip with 28 points of connection
 - 0-10 VDC Water Heater Rate Output
 - 0-10 VDC Heat Demand Input
 - Modbus Contacts
- USB Connection Point for optional Smart System PC software with advanced setup and diagnostics
- Modbus Compatibility (Optional)

5 Flexible Venting Options - Up to 100 feet of air intake and 100 feet of exhaust vent with PVC, CPVC, Polypropylene or SS.

Direct Vent Sidewall



Direct Vent Vertical



Vertical w/Sidewall Air



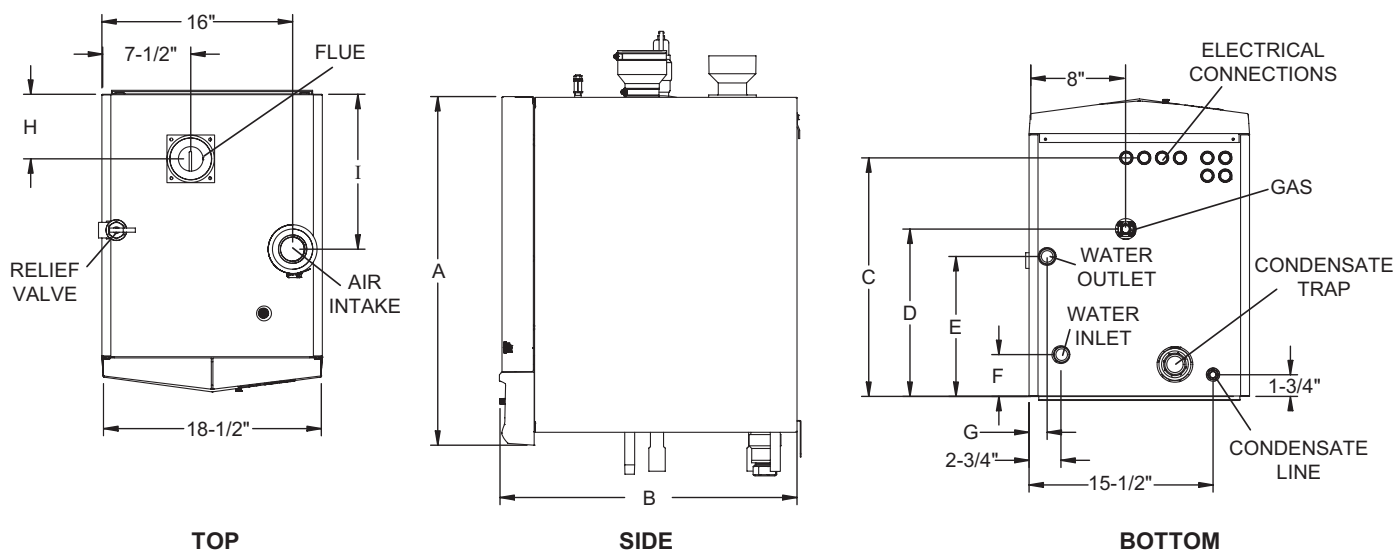
Concentric Direct Vent Vertical



Concentric Direct Vent Sidewall



ARMOR® Wall Mount 125,000 and 199,999 Btu/hr Models



Model Number	Btu/hr Input	GPH @ 100° Rise	A	B	C	D	E	F	G	H	I	Gas Conn.	Water Conn.	Air Inlet	Vent Size	Shipping Wt. (lbs.)
WAN125PM	125,000	144	29-1/4"	18"	13"	7"	13"	3-1/2"	2-3/4"	5-1/2"	6'	1/2"	1"	3"	3"	145
WAN200PM	199,999	233	29-1/4"	25"	20"	14"	11-3/4"	3-1/2"	1-1/2"	5-1/2"	13"	1/2"	1-1/4"	3"	3"	177

STANDARD FEATURES

- › AHRI Certified 96% Thermal Efficiency
- › Wall Mounted Models
- › Modulating Burner with 5:1 Turndown
 - › Direct-Spark Ignition
 - › Low NOx Operation
 - › Sealed Combustion
 - › Low Gas Pressure Operation
- › Vertical & Horizontal Direct-Vent
 - › PVC/CPVC, Polypropylene or SS up to 100 Feet
 - › PVC/CPVC, Polypropylene Sidewall Vent Termination
- › Stainless Steel Heat Exchanger
 - › All Welded Construction, Gasketless Design
 - › 160 psi Working Pressure
- › Natural to L.P. Conversion Kit
- › All Bronze Circulating Pump
- › Flow Switch
- › Temperature & Pressure Relief Valve
- › Tank Sensor
- › Adjustable High Limit w/ Manual Reset
- › Automatic Reset High Limit
- › Condensate Trap
- › Zero Clearances to Combustible Material
- › 5 Year Limited Warranty (See Warranty for Details)
- › 1 Year Parts Warranty (See Warranty for Details)

SMART SYSTEM™ FEATURES

- › SMART SYSTEM™ Digital Operating Control
- › Multi Color Graphic LCD Display
- › Built in Cascading Sequencer for up to 8 Water Heaters
 - › Multiple Size Water Heater Cascade
 - › Lead Lag
 - › Efficiency Optimization
- › Building Management System Integration
 - › Modbus Communication (Optional)
 - › 0-10 VDC Input to Control Modulation or Set point
 - › 0-10 VDC Modulation Rate Output
 - › 0-10 VDC Input to Enable/Disable call for heat
 - › Access to BMS Settings Through Graphic LCD Display
 - › Low Water Flow Safety Control & Indication
 - › Inlet & Outlet Temperature Sensors & Readout
 - › Flue Temperature Sensor
 - › Water Heater Pump Control
 - › Pump Delay with Freeze Protection
 - › Pump Exercise
 - › Night Setback
 - › Building Recirculation Loop Pump Control
 - › Time Clock
- › Maintenance Reminder
 - › Ability to program installer name and number into the product as service contact

› High Voltage Terminal Strip

- › 120 VAC / 60 Hertz / 1 Phase Power Supply
- › Pump Control Contacts
 - › Water Heater Pump Control Contacts
 - › Building Recirculation Pump Control Contacts

› Low Voltage Terminal Strip

- › 24 VAC Louver Relay
- › Louver Proving Switch Contacts
- › Flow Switch Contacts
- › Alarm on Any Failure Contacts
- › Runtime Contacts
- › Tank Sensor Contacts
- › Cascade Contacts
- › 0-10 VDC BMS External Control Contacts
- › 0-10 VDC Boiler Rate Output Contacts

FIRING CONTROL SYSTEMS

- › M9 Standard Construction

OPTIONAL EQUIPMENT

- › Alarm Bell
- › Condensate Neutralization Kit
- › Concentric Vent Kit (3" PVC/CPVC only)
- › ModBus Communications
- › BMS Gateway to LON or BacNet
- › SMART SYSTEM PC Software

SHIELD® 125,000 to 500,000 Btu/hr Models

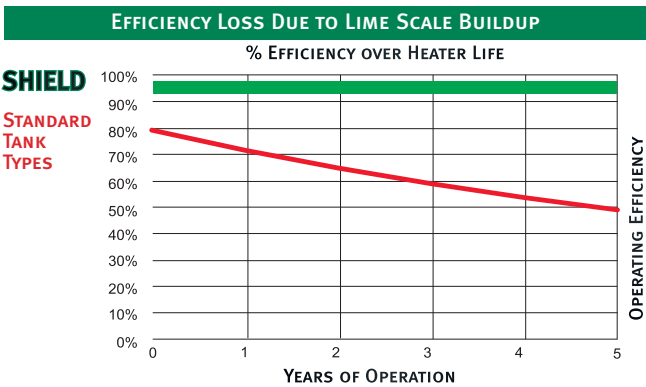
SHIELD – Even Better

The SHIELD is now available in eight models. Offering you more sizes in ASME construction and a new 125,000 Btu/hr-65 gallon model. We have added a large LCD display and a new control with more features. All utility connections are now out the top of the unit to reduce equipment room footprint and improve installation flexibility. Additionally, a large removable pump access panel has been added and the control has been moved to the front of the cabinet, improving the serviceability of the SHIELD.

96 % Thermal Efficiency for Life

The SHIELD water heater operates at 96% thermal efficiency and provides 100% effective defense against a water heater's worst enemy – lime scale buildup on the tank and heating surfaces. Tank type water heaters suffer from one thing the SHIELD does not, lime scale buildup. Lime scale insulates the water from the heat source, decreasing thermal efficiency and increasing operating costs. Just a 1/4" of lime scale will increase fuel consumption and raise operating costs as much as 25%.

SHIELD has no flue tubes inside the tank. The water is heated in a separate stainless steel heat exchanger mounted above the tank. By controlling and creating high water velocity through the heat exchanger, the heat surface areas are kept clean so thermal efficiency remains high, for life.



NOTE: The chart is based on limescale build-up of 1/16 inch per year which reduces operating efficiency approximately 8-10% per year.

Fully Modulating with 5:1 Turndown

SHIELD can fire as low as 20% of maximum input when water heating demand is lowest, and increase to 100% for peak-demand periods. This results in better overall efficiency and less cycling compared to “on-off” tank-type units that can only fire at 100%.

Negative/Regulation Fully Modulating with 5:1 Turndown

SHIELD utilizes an advanced combustion system which provides NO_x ratings compatible with the most stringent air quality standards. Additionally, the NEG/REG sealed combustion technology allows the unit to operate with inlet gas pressure as low as 4 inches water column.

Advanced Electronic Control

SHIELD features the ultimate water heater control which makes system setup, service and operation a breeze. A backlit LCD display gives readouts of setup, system status and diagnostic information.

96% THERMAL EFFICIENCY



SMART CONTROL™ SMART

CONTROL™ also includes:

- > Night Setback
- > Time Clock
- > Alarm Contacts
- > Runtime Contacts
- > Last 10 Lock-Outs
- > Security Protection
- > Adjustable Pump Delay
- > Enable/Disable Contacts
- > Contacts for Louvers



7 Venting Options - Easy, Flexible Installation and Service

Room Air Vertical



Room Air Sidewall



Direct Vent Vertical



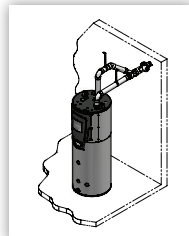
Vertical w/ Sidewall Air



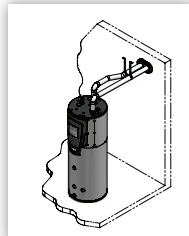
Direct Vent Vertical*



Direct Vent Sidewall*



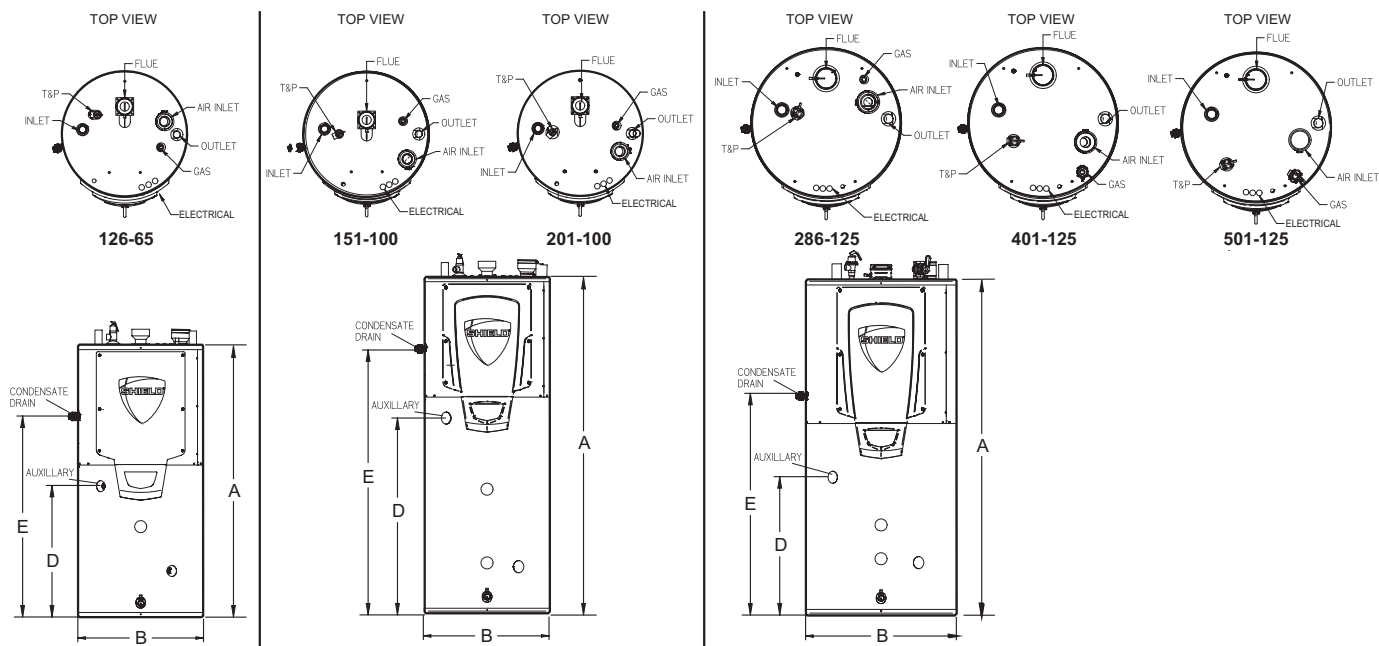
Direct Vent Sidewall



*Optional Concentric Vent Kit Sold Separately

** Sidewall Termination Plate Factory Provided as Standard Equipment

SHIELD® 150,000 to 500,000 Btu/hr Models



Model Number	Btu/hr Input	Capacity (Gal)	GPH@ 100° Rise	First Hour	A	B	D	E	Gas Conn.	Water Conn.	Air Inlet	Vent Size	Shipping Wt. (lbs.)
SNR126-065	125,000	65	145	197	60-1/4"	28"	29-1/2"	45-1/4"	1/2"	1-1/2"	3"	3"	377
SNR151-100	150,000	90	175	247	75-1/2"	28"	44"	59-1/2"	1/2"	1-1/2"	3"	3"	700
SNR201-100	199,999	90	233	305	75-1/2"	28"	44"	59-1/2"	1/2"	1-1/2"	3"	3"	725
SNA151-100*	150,000	90	175	247	75-1/2"	28"	44"	59-1/2"	1/2"	1-1/2"	3"	3"	700
SNA201-100*	199,999	90	233	305	75-1/2"	28"	44"	59-1/2"	1/2"	1-1/2"	3"	3"	725
SNA286-125*	285,000	120	332	428	75-1/2"	34"	31"	49"	3/4"	2"	4"	4"	800
SNA401-125*	399,999	120	465	561	75-1/2"	34"	31"	49"	1"	2"	4"	4"	850
SNA501-125*	500,000	120	582	678	75-1/2"	34"	31"	49"	1"	2"	4"	4"	875

Change N to L for LP gas.

Field convertible to LP Gas

*A = ASME Construction

Electrical Requirements: 120 VAC/60Hz/Phase

All Information is subject to change.

STANDARD FEATURES

- › 96% Thermal Efficiency
- › Modulating Burner with 5:1 Turndown
- › Operates at Temperatures up to 180°F for Sanitizing Applications
- › Stainless Steel Heat Exchanger
- › Glass-Lined Steel Tank
- › Magnesium Anode Rods
- › 150 PSI Working Pressure
- › ASME Construction (SNA151-501)
- › ASME Temperature and Pressure Relief Valve
- › Zero Clearances to Combustible Material
- › Certified for Installation on Combustible Floors
- › PVC, CPVC, Polypropylene and Stainless Steel Venting up to 100 Equivalent Feet
- › Direct-Vent Sealed Combustion
- › Rooftop and Sidewall Venting
- › Sidewall Vent Termination
- › Advanced SMART CONTROL, with:
 - › LCD Display
 - › Time Clock
 - › Night Setback
 - › Alarm Contacts
 - › Runtime Contacts
 - › Manual Reset High Limit
 - › 3 Water Temperature Sensors
 - › Flue Temperature Sensor
 - › Contacts for Louvers
 - › Adjustable Pump Delay
 - › Security Protection
- › Enable/Disable Contacts
- › Low-NOx Operation, meets SCAQMD Rule 1146.2
- › Low Gas Pressure Operation
- › Direct-Spark Ignition
- › Full Port Brass Drain Valve
- › 8-Foot Power Cord
- › 3-Year Limited Warranty
- › 1-Year Parts Warranty

OPTIONAL EQUIPMENT

- › Alarm Bell
- › Concentric Vent Kit
- › Condensate Neutralization Kit
- › Low Water Cutoff
- › Tank Side Tappings for Alternate Heat Source

Power-Fin® 500,000 to 2,000,000 Btu/hr Models

The Next Generation

The latest generation of Power-Fin, with new “Built-in Advantages” from Lochinvar Corporation®. These include expanded burner modulation and the advanced SMART SYSTEM™ operating control, including a built-in cascading sequencer for up to eight water heaters. Power-Fin water heaters can be installed with Lochinvar’s advanced Lock-Temp® storage tanks, in a wide variety of combinations to meet system sizing requirements. “Factory packaged” water heater/storage tank systems can be built to your specifications, with all piping installed, and shipped on channel iron skids.

SMART SYSTEM™ Control

- Built-in cascading sequencer controls up to 8 water heaters
- 2-line 16-character LCD readout of setup, system status and diagnostic data in words, not codes.
- Password security
- Pump control for operation of water heater pump
- Pump delay w/freeze protection
- Low NOx operation
- 0-10 Vdc BMS input for easy integration into Building Management Systems
- Optional smart system PC software for advanced setup and diagnostics
- Modbus Communication - Optional



Infinite Modulation

With thermal efficiencies up to 87%, Power-Fin water heaters feature infinitely modulating burner firing rates (turndown), precisely matching the firing rate to domestic water load requirements. The result is better overall efficiency and less cycling. Power-Fin water heaters may be specified as either 5:1 turndown

(502 - 2001), 2:1 turndown (1501 - 2001), or ON/OFF (502 - 1302). With 5:1 turndown the burner fires as low as 20% of maximum input when demand is lowest and increases the firing rate up to 100% as demand increases. Models with 2:1 turndown modulate from 50% to 100% of maximum input.

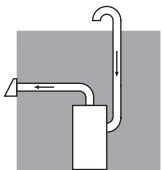


Gasketless Heat Exchanger

The Power-Fin heat exchanger features an array of 20 or 24 copper-finned tubes surrounding the burner for maximum heat transfer. Lochinvar also pioneered the “gasketless” heat exchanger, which eliminates the use of O-rings and gaskets. Because of the time-proven reliability of this design, the Power-Fin heat exchanger is backed by a 5 year limited warranty.

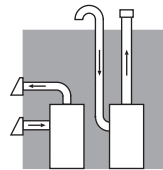
Venting Options

DirectAire Horizontal*



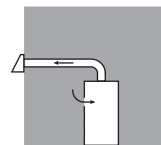
Vents horizontally up to 50 equivalent feet using Category IV vent materials. Draws combustion air up to 50 ft. from a different pressure zone.

Direct Venting*



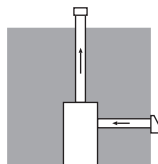
Horizontal or vertical venting up to 50 equivalent feet using Category IV vent materials. Draws combustion air from the same pressure zone. This option only available with 5:1 (M) firing code models.

Sidewall Venting*



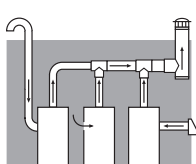
Horizontal venting up to 50 equivalent feet using Category IV vent materials. Draws combustion air from the room.

DirectAire Vertical*



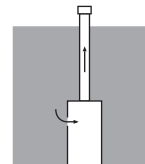
Vertical venting up to 50 equivalent feet using Category I or IV vent materials. Draws combustion air up to 50 ft. from a different pressure zone.

Common Venting*



Vents multiple units vertically through one vent termination with Category II vent materials and draws combustion air from the room, roof or sidewall. Vent kit and Category IV to II conversion kit required.

Vertical Vent

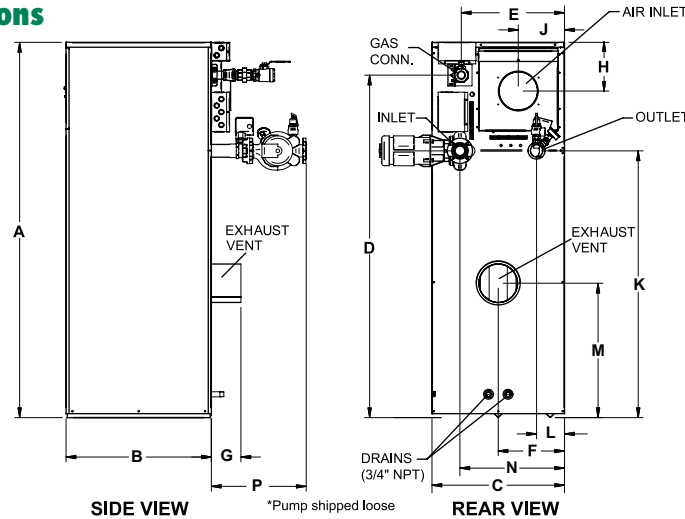


Vertical venting using Category I or Category IV vent materials. Draws combustion air from the room.

*Requires factory supplied vent kit with “M” firing code models.

Power-Fin[®] 500,000 to 2,000,000 Btu/hr Models

Dimensions & Specifications



Model Number	Btu/Hr Input	GPH @ 100°F Rise (F)	GPH @ 100°F Rise (M)	A	B	C	D	E (B)/(F)	E (M)	F	G	H	J
PFN0502PM	500,000	515	527	44-1/2"	28-1/2"	23-1/4"	34"	17-3/4"	19-1/2"	6-1/2"	6"	8"	7-3/4"
PFN0752PM	750,000	773	791	52"	28-1/2"	23-1/4"	41-1/2"	17-3/4"	19-1/2"	6-3/4"	6"	8"	7-3/4"
PFN1002PM	999,999	1,030	1,054	59-1/4"	28-1/2"	23-1/4"	48-3/4"	17-3/4"	19-1/2"	7-1/4"	6"	8"	7-3/4"
PFN1302PM	1,300,000	1,323	1,371	67-3/4"	28-1/2"	23-1/4"	57-1/4"	17-3/4"	19-1/2"	8-1/4"	6"	8"	7-3/4"
PFN1501PM	1,500,000	1,527	1,582	65-1/2"	29-3/4"	27-1/4"	58-3/4"	21"	21"	13-1/2"	8"	10"	9-1/2"
PFN1701PM	1,700,000	1,731	1,793	70"	29-3/4"	27-1/4"	63-1/4"	21"	21"	13-1/2"	8"	10"	9-1/2"
PFN2001PM	2,000,000	2,036	2,109	76-3/4"	29-3/4"	27-1/4"	70"	21"	21"	13-1/2"	8"	10"	9-1/2"

Model Number	K	L	M	N	P (B)/(F)	P (M)	Gas Conn.	Air Inlet	Cat I (B)/(F)	Vent Sizes Cat II (M)	Cat IV (M)	Wt. (lbs)
PFN0502PM	23"	11-1/2"	11-1/4"	17-1/2"	15-1/4"	15-1/4"	1"	5"	7"	7"	4"	571
PFN0752PM	30-1/2"	11-1/2"	11-1/4"	17-1/2"	15-1/4"	15-1/4"	1-1/4"	5"	9"	9"	5"	620
PFN1002PM	37-3/4"	11-1/2"	11-1/4"	17-1/2"	15-1/4"	15-1/4"	1-1/4"	6"	10"	10"	6"	669
PFN1302PM	46-1/4"	11-1/2"	19-1/2"	17-1/2"	15-1/4"	15-1/4"	1-1/4"	6"	12"	12"	8"	718
PFN1501PM	43-1/2"	5-3/4"	22-1/4"	21-1/2"	24-1/2"	19-1/2"	1-1/2"	6"	12"	8"	6"	1,115
PFN1701PM	48"	5-3/4"	25"	21-1/2"	24-1/2"	19-1/2"	1-1/2"	7"	14"	9"	7"	1,150
PFN2001PM	54-3/4"	5-3/4"	27-1/2"	21-1/2"	24-1/2"	19-1/2"	1-1/2"	8"	14"	10"	8"	1,184

Notes: Change 'N' to 'L' for LP Gas Model. No deration on LP models. Temperature rise calculations based on firing rate of 100% All water connections are 2-1/2"

STANDARD FEATURES

- › Up to 87% Thermal Efficiency (M Models)
 - › Modulating Burner with 5:1 Turndown
- › Up to 84% Thermal Efficiency (B/F models)
 - › Modulating Burner with 2:1 Turndown (B Models)
 - › On/Off Burner (F Models)
- › Fan Assisted Sealed Combustion
 - › Hot Surface Ignition
 - › Low NOx Operation
 - › Low Gas Pressure Operation
- › Venting Flexibility
 - › Category I (B & F)
 - › Category IV Venting (M)
 - › Optional Combined Venting Cat. II (M)
- › ASME Copper-Finned Tube Heat Exchanger
 - › ASME Certified, "HLW" Stamped
 - › 150 psi ASME T & P Relief Valve
 - › Gasketless design
 - › 160 psi working pressure
- › On/Off Switch
- › Adjustable High Limit w/ Manual Reset
- › Flow Switch
- › Low Air Pressure Switch
- › Flue Temperature Sensor
- › Downstream Test Cocks
- › Combustion Air Filtration
- › All Bronze Circulating Pump
- › Zero Clearances to Combustible Material

STANDARD FEATURES CONT'D

- › 1 Year Warranty on Parts
- › 5 Year Limited Warranty (See Warranty for Details)

SMART SYSTEM FEATURES

- › SMART SYSTEM Operating Control
 - › 2 line, 16 Character Display
 - › Dual Level Password Security
 - › Built in Cascading Sequencer for up to 8 Water Heaters
 - › Building Management System Integration with 0-10 VDC Input
 - › Low Water Flow Safety Control & Indication
 - › Inlet & Outlet Temperature Readout
 - › Product Service Indicator
 - › Freeze Protection
 - › Service Reminder
 - › Time Clock
- › Data Logging
 - › Ignition Attempts
 - › Last 10 Lockouts
- › Programmable System Efficiency Optimizers
 - › Night Setback
 - › Pump Control
 - › Domestic Hot Water Pump
- › High Voltage Terminal Strip
 - › 120 VAC/ 60 Hertz/ 1 Phase Power Supply
 - › Pump Contacts with Pump Relays

› Low Voltage Terminal Strip

- › 24 VAC Auxiliary Device Relay
- › Auxiliary Proving Switch Contacts
- › Flow Switch Contacts
- › Alarm on Any Failure Contacts
- › Runtime Contacts
- › Cascade Contacts
- › 0-10 VDC BMS External Control Contact

FIRING CONTROL SYSTEMS

- › M Indicates 5:1 Turndown, Category IV
- › B Indicates 2:1 Turndown, Category I
- › F Indicates 100% On/Off Fire, Category I
- › M9 Standard
- › B9 or F9 Special Order, Factory Trimmed
- › M7, B7 or F7 California Code

OPTIONAL EQUIPMENT

- › Alarm Bell
- › Modbus Communication
- › BMS Gateway to LON or BACnet
- › Cupro-Nickel Heat Exchanger
- › High & Low Gas Pressure Switches w/ Manual Reset
- › Low Water Cutoff w/Manual Reset & Test
- › SMART SYSTEM PC Software
- › Vent Kits:
 - Horizontal Exhaust Cap
 - Horizontal Air Intake Cap
 - Horizontal Direct Vent Kit
 - Category IV to Category II Conversion Kit

Copper-Fin II[®] 400,000 to 2,070,000 Btu/hr Models

Nine models from 399,999 to 2,070,000 Btu/hr input provide an exceptional product with some refined features in addition to the established features that redefined the industry.

Refined Design Puts More Control and Information at your Fingertips

The most exciting addition to the Copper-Fin II is the SMART SYSTEM™ control. The SMART SYSTEM is an advanced, state of the art integrated operating control. The control provides the installer, owners and operators with precise temperature control and diagnostic information.

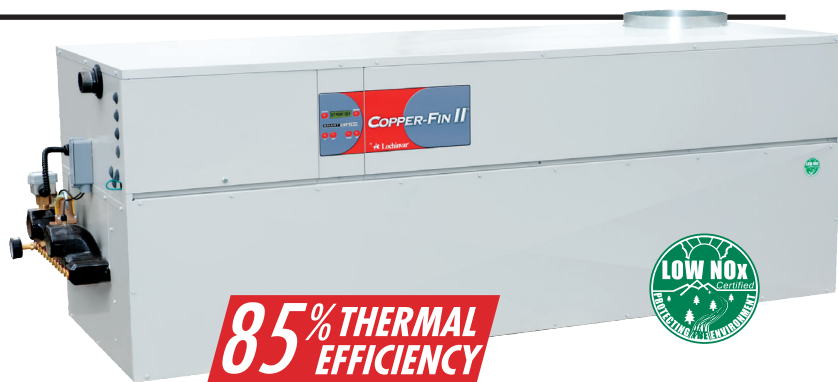


Advanced features include:

- 2-Line, 16 Character LCD display of Setup, System Status and Diagnostic Data in Words, not codes
- Built-in Cascade sequencer controlling up to 8 water heaters
- 0-10 VDC BMS Input to control water heater operation
- Modbus communications - optional

Gasketless Heat Exchanger

In 1989, Lochinvar was the first water heater manufacturer to offer gasketless cast iron and copper-finned tube heat exchangers. Our unique gasketless design enhances reliability by eliminating o-rings and gaskets found on other brands. The heat exchanger features glass lined headers and copper-finned tubes with extruded integral fins spaced 7-fins per inch for exceptional heat transfer. The heat exchanger is built to ASME construction standards for 160 psi working pressure and is backed by a five year limited warranty.



Proportional Firing

Proportional firing divides a single manifold of multiple burners into smaller, independent stages. With up to four stages of individual operation, the Smart System control can reduce the firing input rate down to approximately 25% Btu/hr input. This simple but effective design matches the water heater's firing capacity to the constantly changing system demand on the water heating system. Stage firing delivers the Btu's required in smoother and longer burn cycles which will improve operation and reduce component fatigue.

Meets The Toughest Air Quality Standards

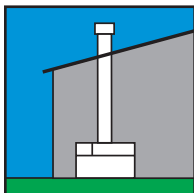
Because of our unique fan-assisted combustion process, the Copper-Fin II exceeds today's toughest NO_x emissions requirements. An independent certification laboratory test gave us a rating of less than 20 ppm — corrected to 3% O₂. And less NO_x means a cleaner environment.

Compact Design - For Installation Ease

The Copper-Fin II is compact enough to fit through standard 36" doorways with ease. Even our 2 million Btu/hr model is only 33-1/2" wide. This space-saving design frees up more space in the mechanical room. And our optional Stack Frame lets you put two units in the footprint of just one.

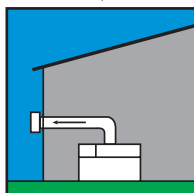
Venting Options

Conventional



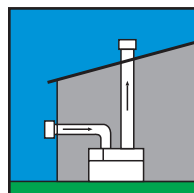
Vents into conventional flue or vent breaching using Type B double wall vent.

Sidewall (CF 402-752)

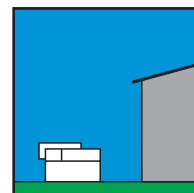


Draws fresh air from inside the room. Vents up to 50 equivalent feet directly through the outside wall without the need for a powered sidewall cap.

DirectAire Vertical w/ Sidewall Inlet Outdoor

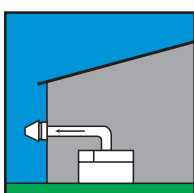


Draws fresh air from outside and vents through conventional vertical flue.



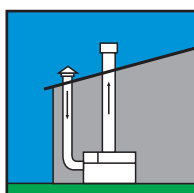
Requires optional outdoor vent cap. Use when indoor space is a problem or if outdoor location gives better access.

Powered Sidewall



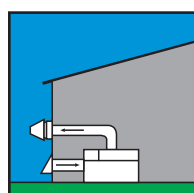
Vents directly through the outside wall using an optional powered sidewall cap. Ideal when a vent stack is not practical.

DirectAire Vertical



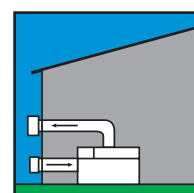
Draws fresh air from outside and vents through conventional vertical flue.

Power DirectAire Horizontal



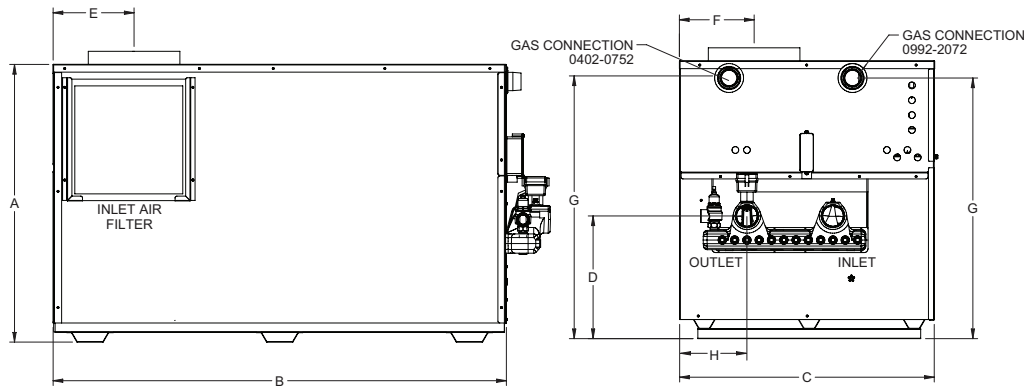
Draws fresh air from outside and vents through sidewall using optional powered vent cap.

Aire-Lock Direct Vent



Draws fresh air 50 equivalent feet from a sidewall. Vents horizontally up to 50 equivalent feet through the sidewall.

Copper-Fin II® 400,000 to 2,070,000 Btu/hr Models



Model Number	Btu/Hr Input	GPH @ 100°F Rise	A	B	C	D	E	F	G	H	Vent Size	Air Inlet	Gas Conn	Shipping Weight
CFN0402PM	399,000	412	31-1/2"	37-3/4"	22-1/4"	12-1/2"	7"	7"	29"	6-1/2"	6"	6"	1-1/4"	454
CFN0502PM	500,000	515	31-1/2"	45-1/2"	22-1/4"	12-1/2"	7"	7"	29"	6-1/2"	6"	6"	1-1/4"	467
CFN0652PM	650,000	670	31-1/2"	56-3/4"	22-1/4"	12-1/2"	8-1/2"	8-1/4"	29"	6-1/2"	8"	8"	1-1/4"	551
CFN0752PM	750,000	773	31-1/2"	64"	22-1/4"	12-1/2"	8-1/2"	8-1/4"	29"	6-1/2"	8"	8"	1-1/4"	611
CFN0992PM	990,000	1,020	36"	48-1/4"	33-1/2"	15-3/4"	8-1/2"	8-1/2"	33-3/4"	8-3/4"	10"	10"	2"	843
CFN1262PM	1,260,000	1,298	36"	58-1/2"	33-1/2"	15-3/4"	10-1/2"	9-1/2"	33-3/4"	8-3/4"	12"	12"	2"	939
CFN1442PM	1,440,000	1,484	36"	68-3/4"	33-1/2"	15-3/4"	10-1/2"	10-1/2"	33-3/4"	8-3/4"	12"	12"	2"	1,035
CFN1802PM	1,800,000	1,855	36"	82-1/4"	33-1/2"	15-3/4"	11"	11"	33-3/4"	8-3/4"	14"	12"	2"	1,168
CFN2072PM	2,070,000	2,133	36"	92-1/2"	33-1/2"	15-3/4"	11"	11"	33-3/4"	8-3/4"	14"	12"	2"	1,285

Notes: Change 'N' to 'L' for LP gas models.

No deration on LP models

Header increases "B" dimension 3-1/2" for models CF 0402-0752 and 6-1/4" for models CF 0992-2072

Pump and flanges are shipped loose for field installation.

Water connections for models CF 0402-0752 are 2" NPT on 6-1/2" centers.

Water connections for models CF 0992-2072 are 2-1/2" NPT on 11-1/4" centers.

Performance data is based on manufacturer test results.

STANDARD FEATURES

- › 85% Thermal Efficiency (AHRI Certified)
- › Proportional Firing up to 4:1 Turndown
 - › Hot Surface Ignition
 - › Low NOx Operation
 - › Sealed Combustion
 - › Low Gas Pressure Operation
- › Vertical & Horizontal Venting
 - › Category I Venting
 - › Double Wall "B" Vent Material
 - › Category IV Venting
 - › AL29-4C Stainless Steel Vent Material
- › ASME Copper Finned Tube Heat Exchanger
 - › ASME Certified, "HLW" Stamped
 - › Gasketless design
 - › 160 psi working pressure
- › On/Off Switch
- › Combustible Floor Rated (0992-2072)
- › Adjustable High Limit w/ Manual Reset
- › All Bronze Circulating Pump
- › Flow Switch
- › Low Air Pressure Switch
- › Inlet & Outlet Temperature Sensors
- › Easy Access Terminal Strips
- › Downstream Test Cocks
- › 150 psi ASME Temperature and Pressure Relief Valve
- › 1 Year Warranty on Parts (See Warranty for Details)
- › 5 Year Limited Warranty (See Warranty for Details)

SMART SYSTEM™ FEATURES

- › SMART SYSTEM™ Operating Control
- › 2 Line/16 Character LCD Display
- › Multiple Size Water Heater Cascade
- › Compatibility with ARMOR (AW 151-801) for Front End Loading
- › Built in Cascading Sequencer for up to 8 water heaters
- › Building Management System Integration with 0-10 VDC Input
- › 0-10 VDC Rate Output
- › Password Security
- › Low Water Flow Control & Indication
- › Inlet & Outlet Temperature Readout
- › Freeze Protection
- › Condensing Protection
- › Service Reminder
- › Time Clock
- › Data Logging
 - › Hours Running
 - › Ignition Attempts
 - › Last 10 Lockouts
- › Programmable System Efficiency Optimizers
 - › Night Setback
- › Pump Control
 - › Water Heater Pump
 - › Recirculation Pump
- › High Voltage Terminal Strip
 - › 120 VAC / 60 Hertz / 1 Phase Power Supply
 - › Pump Contacts with Pump Relay

Low Voltage Terminal Strip

- › 24 VAC Auxiliary Device Relay Output - Louvers
- › Auxiliary Proving Switch Contacts - Louvers
- › Alarm on Any Failure Contacts
- › Runtime Contacts
- › Unit Enable/Disable Contacts
- › Tank Sensor Contacts
- › Contacts for Air Louvers
- › Contacts on Any Failure
- › Cascade Contacts
- › 0-10 VDC BMS External Control Contact
- › 0-10 VDC Rate Output Contacts

OPTIONAL EQUIPMENT

- › Alarm
- › High & Low Gas Pressure Switches w/ Manual Reset
- › Cupro-Nickel Heat Exchanger
- › Low Water Cut Off, Probe Type w/ Manual Reset & Test
- › Modbus Communications
- › BMS Gateway to LON or BACnet
- › Combustible Floor Kit (0402-0752)
- › Stack Frame

FIRING CODES

- › M7 Firing Code - California Code
- › M9 Firing Code - Hot Surface Ignition with Electronic Supervision

CODES AND REGISTRATIONS

- › ANSI Z21.10.3/CSA 4.3 certified
- › South Coast Air Quality Management District registered
- › Texas Commission on Environmental Quality

Copper-Fin[®] 495,000 to 2,065,000 Btu/hr Models

Installation Flexibility and Cost-Savings

With compact sizes that use less floor space than ever before, all Copper-Fin units are narrow enough to fit through a standard 36" doorway—an advantage most commercial boilers can't provide. Plus, thanks to special insulating materials, Copper-Fin units require only 3" clearance from combustible walls. What's more, our Stack Frame allows you to install two units in the area normally required for one. This makes it easier to fit multiple Copper-Fin water heaters into cramped mechanical rooms. And you can even use a smaller diameter vent stack - up to 8" smaller than typically required for comparable atmospheric boilers - so it saves money as well as valuable mechanical room space

**STACK
FRAME**

Unique Copper-Fin Heat Exchanger

The Lochinvar Copper-Fin water heater design uses a two-pass heat exchanger. Water is circulated through a row of highly-efficient, finned copper tubes. The high rate of water flow creates a scouring action that prevents sediment and lime-scale buildup so common in conventional water heaters, and the finned copper tubes allow maximum heat transfer efficiency.

To create this special heat capability, Lochinvar extrudes the fins from thick wall copper tubing to precise specifications -exactly 7 fins per inch. The result is an integrally-finned tube with a heat transfer ratio 9 times greater than a plain copper tube.

Heavy-Duty Gasketless Design

What's more, advanced casting processes allowed Lochinvar to develop a unique one-piece header system. This gasketless design provides enhanced reliability, improved durability and optimizes performance - but without the problems or failures so common to O-rings and gaskets.



**81% THERMAL
EFFICIENCY**



Meets The Toughest Air Quality Standards

Because of our unique fan-assisted combustion process, the Copper-Fin exceeds today's toughest NO_x emissions requirements. An independent certification laboratory test gave us a rating of less than 20 ppm—corrected to 3% O₂. And less NO_x means a cleaner environment.

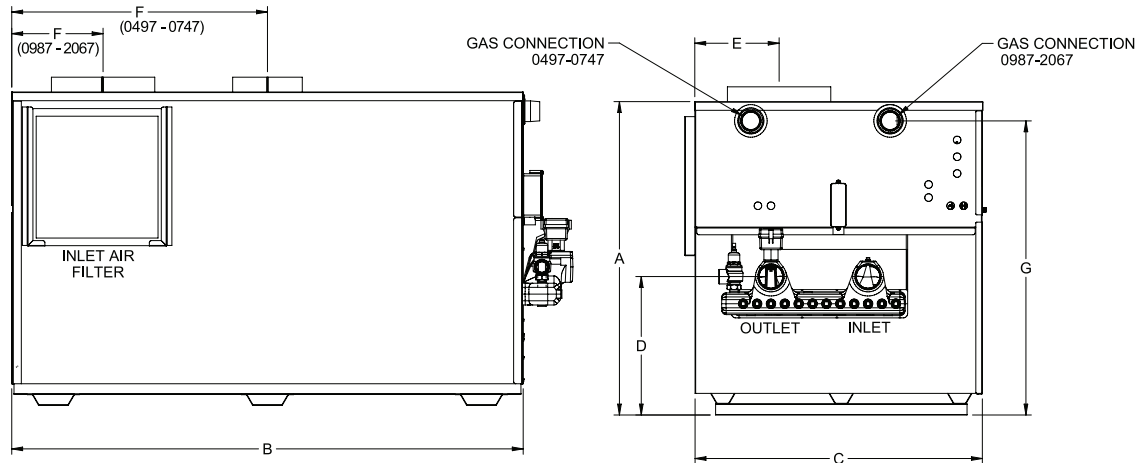
Enhanced to Provide Performance and Serviceability

Our Copper-Fin models offer reliable operation and feature a service friendly design. The referenced gas valves are in the upper deck for easy access, and the electrical and EMS connections have all been repositioned toward the front of the unit for easier service access.

The gas valves are referenced to the sealed combustion chamber to improve operational performance by monitoring the pressure in the sealed combustion chamber and adjusting gas flow to maintain the optimum air/fuel mixture. And the built-in air inlet filter reduces maintenance and improves performance by trapping dust and airborne particulates that can foul the burners and blowers. With dual sight glasses (one on each end), you can easily monitor burner performance and flame characteristics throughout the entire combustion chamber.

The operator interface panel provides electronic temperature control and comprehensive diagnostic status, without opening the control panel. Its user friendly design simplifies service while providing additional diagnostic information through a series of LEDs.

Copper-Fin[®] 495,000 to 2,065,000 Btu/hr Models



Model Number	Btu/hr Input	GPH @ 100°F Rise	Dimensions (inches)							Inlet Gas Conn.	Inlet Water Conn.	Outlet Water Conn.	Vent Size	Shipping Weight
			A	B	C	D	E	F	G					
CWNO497PM	495,000	486	31-1/2"	45-1/4"	22-1/4"	12-1/2"	9-1/2"	22-3/4"	29-1/2"	1-1/4"	2"	2"	6"	490
CWNO647PM	645,000	633	31-1/2"	56-3/4"	22-1/4"	12-1/2"	9-1/2"	28-1/2"	29-1/2"	1-1/4"	2"	2"	8"	555
CWNO747PM	745,000	731	31-1/2"	64"	22-1/4"	12-1/2"	9-1/2"	32"	29-1/2"	1-1/4"	2"	2"	8"	610
CWNO987PM	985,000	967	36"	48-1/4"	33-1/2"	15-3/4"	8-1/2"	8-1/2"	33-1/4"	2"	2-1/2"	2-1/2"	10"	900
CWN1257PM	1,255,000	1,232	36"	58-1/2"	33-1/2"	15-3/4"	9-1/2"	10-1/2"	33-1/4"	2"	2-1/2"	2-1/2"	12"	1,020
CWN1437PM	1,435,000	1,409	36"	68-3/4"	33-1/2"	15-3/4"	10-1/2"	10-1/2"	33-1/4"	2"	2-1/2"	2-1/2"	12"	1,065
CWN1797PM	1,795,000	1,762	36"	82-1/4"	33-1/2"	15-3/4"	11"	11"	33-1/4"	2"	2-1/2"	2-1/2"	14"	1,265
CWN2067PM	2,065,000	2,027	36"	92-1/2"	33-1/2"	15-3/4"	11"	11"	33-1/4"	2"	2-1/2"	2-1/2"	14"	1,400

Change 'N' to 'L' for LP gas models.

Water connections for models (CW 0497-0747) are 2" NPT on 6-1/2" centers.

Performance data is based on manufacturer test results.

Water connections for models (CW 0987-2067) are 2-1/2" NPT on 11-1/4" centers.

Standard Features

- 81% Thermal Efficiency
- Electronic Temperature Control
- Fan Assisted Combustion
- Sealed Combustion Chamber
- Stainless Steel Burners
- Low NOx Operation Exceeds the most Stringent Air Quality Requirements
- ASME Copper Finned Tube Heat Exchanger
- 160 psi Working Pressure
- Gasketless Heat Exchanger Design
- All Bronze Circulating Pump
- Pump Delay w/ Freeze Protection
- Remote Tank Thermostat
- Glass-Lined Water Surfaces
- Referenced Gas Valves
- Loch-Heat Ceramic Tile Combustion Chamber
- Hot Surface Ignition
- ASME Temperature & Pressure Relief Valve
- Adjustable High Limit w/ Manual Reset
- Flow Switch
- 24 Volt Control System

- BMS Terminal Strip
- Combustion Air Filter
- 5 Year Limited Warranty on Heat Exchanger (See warranty for details)

Optional Equipment

- Alarm Bell
- Contacts on any Failure
- Contacts for Air Louvers
- Cupro-Nickel Heat Exchanger
- High and Low Gas Pressure Switch w/ Manual Reset
- Low Water Cut-Off
- Stack Frame
- MP2 Sequencer

Available Firing Systems

- M9 HSI (Standard)
- M7 California Code

Venting

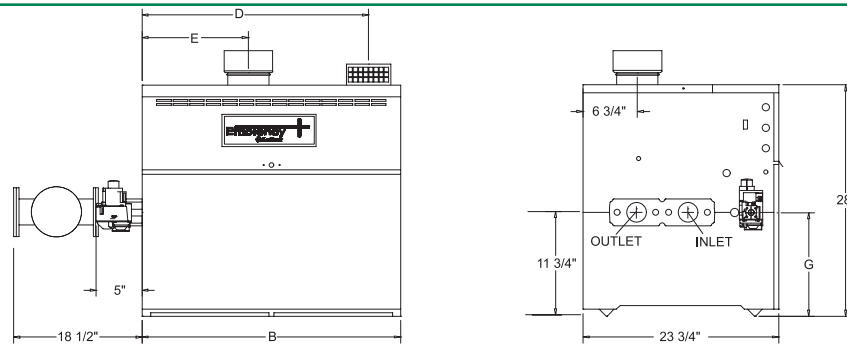
- Outdoor Vent Cap and Pump Cover

Efficiency+® 150,000 to 300,000 Btu/hr Models

Efficiency+ delivers unsurpassed performance, reliability and energy savings - year after year. While most competitive models peak at 80% thermal efficiency, the Efficiency+ delivers a remarkable 84% thermal efficiency, which means that 84¢ out of each fuel dollar goes toward heating the water, and not up the flue! When you combine the outstanding thermal efficiency with the scale free operation of the copper-fin tube heat exchanger and the convenience and safety of direct venting you have a product that is simply the smartest choice in water heating.

Moreover, when you package the Efficiency+ with a Lock-Temp storage tank, you get a system that provides high efficiency and high delivery. The EfficiencyPac is a powerful combination that lowers operating costs, provides high delivery rates, and offers longer equipment life than traditional tank type water heaters.

Dimensions & Specifications



Model Number	Btu/hr Input	GPH @ 100°F Rise	B	D	E	G	Vent Size*	Gas Conn.	Shipping Weight
EWN150PM	150,000	153	19-3/4"	16"	7-1/4"	11-3/4"	5"	3/4"	295
EWN200PM	199,999	204	23-3/4"	20"	9-1/4"	11-3/4"	5"	3/4"	318
EWN250PM	250,000	255	27-1/2"	23-3/4"	11"	11-3/4"	6"	3/4"	341
EWN300PM	300,000	305	31-1/4"	27-1/2"	13"	11-3/4"	6"	3/4"	363

Notes: Change 'N' to 'L' for LP gas models.

Air inlet equals vent diameter.

Performance data based on manufacturer test results.

Water connections for models (EW 150-300) are 2" NPT on 6-1/4" centers.

* Vent size is for conventional venting, venting options require 1" smaller vent diameter.

Standard Features

- 84% Thermal Efficiency
- Sealed Combustion Chamber
- Stainless Steel Burners
- Low NOx Operation Exceeds the most Stringent Air Quality Requirements
- ASME Copper Finned Tube Heat Exchanger
- 160 psi Working Pressure
- Gasketless Heat Exchanger Design
- Low Lead Circulating Pump
- Pump Delay w/Freeze Protection
- Remote Tank Thermostat

- Automatic Reset High Limit
- Manual Reset High Limit
- Glass-Lined Water Surfaces
- Loch-Heat Ceramic Tile Combustion Chamber
- Hot Surface Ignition
- ASME Temperature & Pressure Relief Valve
- 24 Volt Control System
- 3 Year Limited Warranty on Heat Exchanger (See warranty for details)

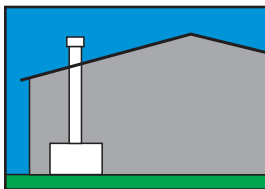
Available Firing Systems

- F9 Hot Surface Ignition with Electronic Supervision
- F7 California Code

Optional Equipment

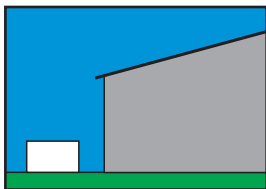
- Adjustable High Limit w/ Manual Reset
- Alarm Bell
- Contacts on any Failure
- Cupro-Nickel Heat Exchanger
- Flow Switch
- Low Water Cut-Off
- Stack Frame
- Outdoor Installation Kit

Venting Options

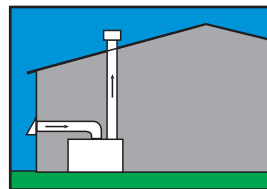


Conventional
Vents into conventional flue or vent breaching using Type B double wall vent.

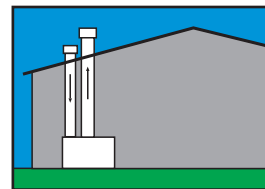
* Requires factory supplied vent kit.



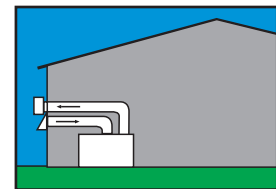
* **Outdoor**
Use when indoor space is a problem or if outdoor location gives better access.



* **E+ DirectAir Vent with Sidewall Inlet**
Draws fresh combustion air from an outside wall horizontally, and vents combustion by-products through a vertical flue.



Direct Vent Vertical
Draws fresh combustion air from outside, and vents combustion by-products through a vertical flue.



* **Direct Vent Horizontal**
Draws fresh combustion air from outside and vents combustion by-products through a side wall.



Registered under U.S. Patent No. 5,989,020

EfficiencyPac® Water Heater

When you depend on hot water to stay in business, you should expect your water heater to work “smarter,” not harder! Traditional tank-type water heaters build up lime scale deposits when they heat water. This makes the water heater work harder, which leads to reduced efficiency, increased fuel costs, and shorter tank life. Lime scale build-up can cause a typical tank-type unit to fail in as few as 4–5 years. Sometimes less!

The Efficiency Pac from Lochinvar combines the high efficiency of an Efficiency+ (EW series) water heater with the durability of a Lock-Temp baffled storage tank to create a water heating system that performs at peak efficiency year after year.

- **Thermal Efficiency** – the Efficiency Pac delivers a remarkable 84% thermal efficiency. Most tank-type units peak at 80%.
- **No Lime Scale Build-up** – the Efficiency Pac limits lime scale build-up with the scrubbing action of water flow through the solid copper-tube heat exchanger.
- **Unsurpassed Delivery** – the Lock-Temp storage tank employs a baffle that allows 80% tank draw down without a drop in temperature. When combined with an 84% efficient water heater, the results are a First Hour Delivery that can't be beat - 274 gallons for an EPN200-85.
- **Direct-Venting Convenience** – The Efficiency Pac can draw its combustion air directly from outdoors. This feature prevents contamination from airborne dirt particles and chemicals, while isolating the water heater from negative air pressures often found in restaurants and mechanical rooms.

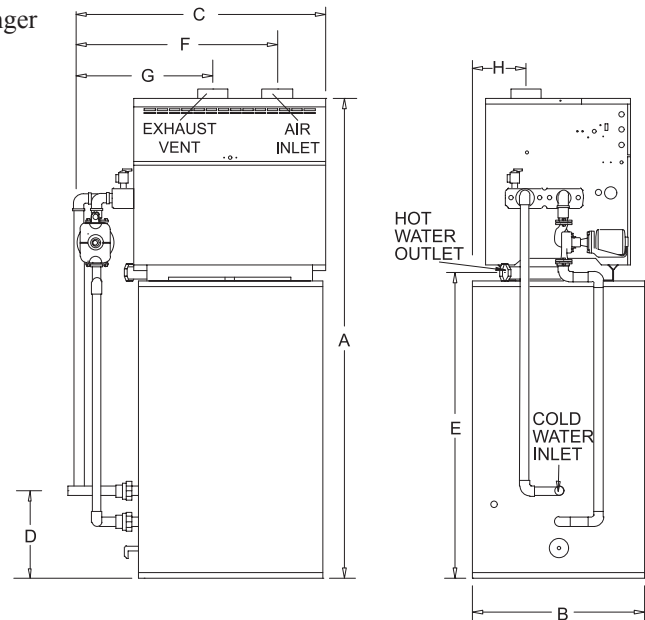


Standard Features

- 84% Thermal Efficiency
- Sealed Combustion Chamber
- Stainless Steel Burners
- Low NOx Operation Exceeds the most Stringent Air Quality Requirements
- ASME Copper Finned Tube Heat Exchanger
- 160 psi Working Pressure
- Gasketless Heat Exchanger Design
- All Bronze Circulating Pump
- Pump Delay w/ Freeze Protection
- Manual Reset High Limit
- Automatic Reset High Limit
- Glass-Lined Water Surfaces
- Loch-Heat Ceramic Tile Combustion Chamber
- Hot Surface Ignition
- ASME Pressure Relief Valve (Heater)
- R16 Foam Insulated, Glass-Lined Storage Tank
- 24 Volt Control System
- ASME Temperature & Pressure Relief Valve (Tank)
- Brass Drain Valve (Tank)
- 3 Year Limited Warranty on Heat Exchanger
- 5 Year Limited Warranty on Tank
- 1 Year Limited Warranty on Parts

Optional Equipment

- Adjustable High Limit w/ Manual Reset
- Alarm Bell
- Contacts on any Failure
- Cupro-Nickel Heat Exchanger
- Flow Switch
- Low Water Cut-Off



Model Number	Btu/hr Input	Gallon Capacity	GPH @ 100°F Rise	A	B	C	D	E	F	G	H	Vent Size	Shipping Weight
EPN150-085	150,000	85	153	78-1/2"	28"	40"	14-1/2"	50-1/4"	30-1/2"	21-3/4"	9"	5"	728
EPN200-085	199,999	85	204	78-1/2"	28"	40"	14-1/2"	50-1/4"	34-1/2"	23-3/4"	9"	5"	716
EPN200-100	199,999	100	204	75"	32"	44"	16-1/2"	47"	34-1/2"	23-3/4"	11"	5"	811
EPN250-100	250,000	100	255	75"	32"	44"	16-1/2"	47"	38-1/4"	25-1/2"	11"	6"	839
EPN300-100	300,000	100	305	75"	32"	45-3/4"	16-1/2"	47"	42"	27-1/2"	11"	6"	857

Note: Change 'N' to 'L' for LP gas models. (no deration for LP).

Air inlet dimensions equal vent diameter.

Vent size denotes conventional vent.

Cold water inlet is 2" copper.

Hot water outlet is 1-1/2" copper.

Gas connections are 3/4" NPT.

Performance data is based on manufacturer test results.

Copper-Fin[®] 90,000 to 500,000 Btu/hr Models

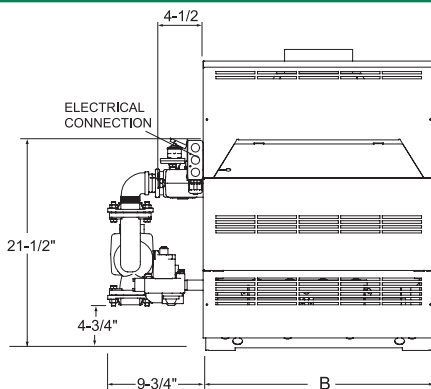
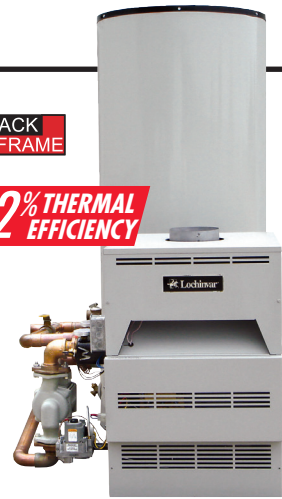
High efficiency Copper-Fin water heaters combine the benefits of a copper finned tube heat exchanger with the simplicity of atmospheric combustion to provide a durable, trouble-free design with quick and easy component removal for service simplicity.

And with the Lochinvar "Better Idea" system, you combine the highly efficient Copper-Fin water heater with a separate Lock-Temp storage tank and manifold piping. By separating the water heater and storage tank, stand-by losses are virtually eliminated and operating efficiency is enhanced.

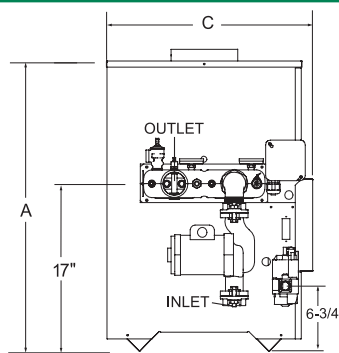
For additional flexibility, the Copper-Pak starts with a Lock-Temp storage tank and places a Copper-Fin water heater directly on top in a unique space saving design. The circulator pump and piping are all in place and the unit is ready to be installed as a single package.

STACK
FRAME

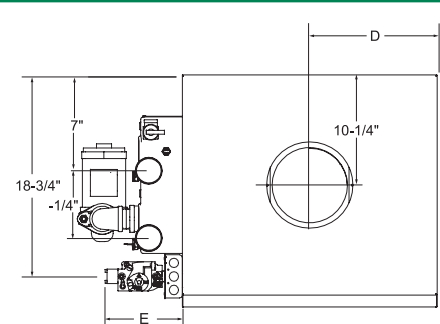
82% THERMAL
EFFICIENCY



Front View



Side View



Top View

Model Number	Btu/Hr Input	GPH @ 100°F Rise	A	B	C	D	E	Vent Size	Gas Conn.	Shipping Weight
CWN090PM	90,000	89	29-1/2"	15-1/2"	21-1/2"	7-3/4"	6-1/4"	5"	1/2"	175
CWN135PM	135,000	134	29-1/2"	19-1/2"	21-1/2"	9-3/4"	6-1/4"	6"	1/2"	195
CWN180PM	180,000	179	29-1/2"	23-1/2"	21-1/2"	11-3/4"	7-1/4"	7"	3/4"	220
CWN199PM	199,999	198	29-1/2"	26-1/2"	21-1/2"	13-1/4"	7-1/4"	7"	3/4"	230
CWN225PM	225,000	224	29-1/2"	26-1/2"	21-1/2"	13-1/4"	7-1/4"	7"	3/4"	235
CWN270PM	270,000	268	29-1/2"	29 1/2"	21 1/2"	14 3/4"	7-1/4"	8"	3/4"	240
CWN315PM	315,000	313	29-1/2"	32-1/2"	21-1/2"	16-1/4"	6-1/4"	8"	3/4"	250
CWN360PM	360,000	358	29-1/2"	35-1/2"	21-1/2"	17-3/4"	8-1/4"	9"	1"	270
CWN399PM	399,999	397	29-1/2"	44-1/2"	22"	22-1/4"	5-1/2"	10"	1"	340
CWN500PM	500,000	497	34-1/2"	52-1/2"	22"	26-1/4"	9-1/2"	10"	1"	365

Notes: Change 'N' to 'L' to denote L.P. gas models
Electrical Requirements: 120 VAC / 2.5 AMP

Inlet water connections are 1-1/2" NPT and outlet water connections are 2" NPT on 6-1/4" centers
Approved for indoor installation only

Performance data based on manufacturer test results

Standard Features

- 82% Thermal Efficiency
- Built-In Draft Diverter
- Stainless Steel Burners
- ASME Copper Finned Tube Heat Exchanger
- 160 psi Working Pressure
- Gasketless Heat Exchanger Design
- All Bronze Circulating Pump
- Pump Delay/Freeze Protection
- Remote Tank Thermostat
- Glass-Lined Water Surfaces
- Loch-Heat Ceramic Tile Combustion Chamber
- ASME Temperature & Pressure Relief Valve
- Automatic Reset High Limit
- Manual Reset High Limit

- Self Diagnostic Indicator Lights
- Terminal Strip
- 24 Volt Control System
- CSA Design Certified for Alcove Installation
- CSA Design Certified for Installation on Combustible Floors
- 3 Year Limited Warranty on Heat Exchanger

Firing Controls

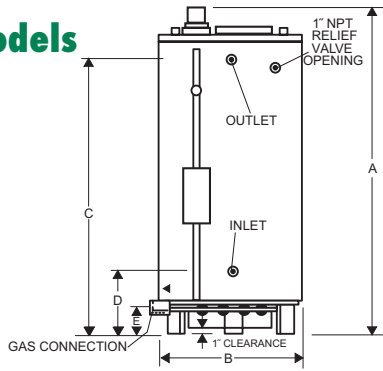
- F1 - Standing Pilot (Standard CW 90-270)
- F9 - Intermittent Spark Ignition (Standard CW 315-500)
- F13 - GE GAP/FM/IRI
- F7 - California Code (CW 225-500)

Optional Equipment

- Adjustable High Limit w/ Manual Reset
- Contacts on any Failure (CW 315-500)
- Contacts for Air Louvers (CW 315-500)
- Cupro-Nickel Heat Exchanger
- Flow Switch
- Low Water Cut-Off
- Multi-Stack Frame
- PVC Venting Kit (CW 90-135)

Low NOx Charger & Ultra Low NOx Charger & Gas Models

Low NOx Models



Model Number	Btu/hr Input	Capacity Gallons	GPH @ 100°F Rise	A	B	C	D	E	Vent Size	Gas Conn	Water Conn	Shipping Weight
CXN120 070	120,000	71	115	63"	27-3/4"	52"	19-11/16"	4-1/4"	5"	3/4"	1-1/2"	520
CXN155 080	154,000	81	148	68"	27-3/4"	54-3/4"	20-1/2"	4-1/2"	6"	3/4"	1-1/2"	550
CXN180 100	180,000	99	173	72"	27-3/4"	61"	20-1/2"	4-1/2"	6"	3/4"	1-1/2"	550
CXN199 100 (A)	199,000	100	191	72"	27-3/4"	61"	20-1/2"	4-1/2"	6"	3/4"	1-1/2"	660
CXN250 100 (A)	250,000	100	240	72"	27-3/4"	61"	20-1/2"	4-1/2"	6"	3/4"	1-1/2"	660
CXN275 100 (A)	275,000	100	264	72"	27-3/4"	61"	20-1/2"	4-1/2"	6"	3/4"	1-1/2"	660
CXN310 085 (A)	310,000	85	297	73"	27-3/4"	63"	22-1/2"	4-1/2"	6"	3/4"	1-1/2"	720
CXN365 085 (A)	366,000	85	351	73"	27-3/4"	63"	22-1/2"	4-1/2"	6"	1"	1-1/2"	830
CXN400 085 (A)	390,000	85	374	73"	27-3/4"	63"	22-1/2"	4-1/2"	6"	1"	1-1/2"	830

A = ASME Construction See the installation manual for dimensional information on Top and Back Tappings

Standard Features:

- 80% Thermal Efficiency
- Low NOx Operation
- Multi-Flue Design
- Glass Lined Tank
- 150 PSI Working Pressure
- Tank Saver Anode

- ASME Temperature & Pressure Relief Valve
- Automatic Reset High Limit
- Spark Ignition
- 180°F Operation Approved
- Combustible Floor Approved
- Steel Jacket with Foam Insulation
- Hand Hole Cleanout

- Slide Out Burner Tray
- 3 Year Limited Warranty on Tank
- 1 Year Limited Warranty on Parts

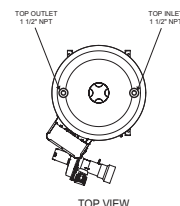
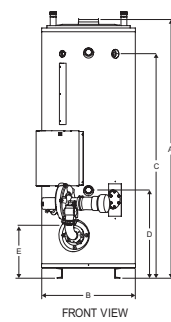
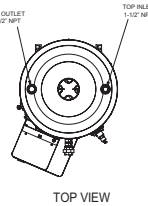
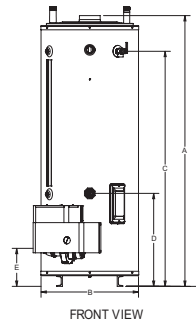
Optional Equipment:

- UL Sanitation
- High Altitude (2,000 to 8,000 feet)

Ultra Low NOx Models

Models CLN120 080 - CLN199 100

Models CLN250 100 - CLN400 085



Model Number	Btu/hr Input	Capacity Gallons	GPH @ 100°F Rise	A	B	C	D	E	Vent Size	Gas Conn	Water Conn	Shipping Weight	Shipping Weight (ASME)
CLN120 080	120,000	81	119	68-1/4"	27-3/4"	58-1/4"	26-1/4"	9-1/2"	6"	3/4"	1-1/2"	750	-
CLN155 080	154,000	81	153	68-1/4"	27-3/4"	58-1/4"	26-1/4"	9-1/2"	6"	3/4"	1-1/2"	750	-
CLN180 100	180,000	93	179	76"	27-3/4"	65-3/4"	25-3/4"	9-1/2"	6"	3/4"	1-1/2"	835	-
CLN199 100	199,000	93	198	76"	27-3/4"	65-3/4"	25-3/4"	9-1/2"	6"	3/4"	1-1/2"	835	-
CLN250 100(A)	250,000	93	248	76"	27-3/4"	65-3/4"	25-3/4"	9-1/2"	6"	3/4"	1-1/2"	835	880
CLN275 085(A)	275,000	85	271	76"	27-3/4"	65-3/4"	25-3/4"	16-1/4"	6"	3/4"	1-1/2"	850	900
CLN310 085(A)	310,000	85	306	76"	27-3/4"	65-3/4"	25-3/4"	16-1/4"	6"	3/4"	1-1/2"	850	900
CLN366 085(A)	366,000	85	361	76"	27-3/4"	65-3/4"	25-3/4"	16-1/4"	6"	3/4"	1-1/2"	850	900
CLN400 085(A)	390,000	85	385	76"	27-3/4"	65-3/4"	25-3/4"	16-1/4"	6"	3/4"	1-1/2"	850	900

A = ASME Construction See the installation manual for dimensional information on Top and Back Tappings

Standard Features:

- 82% Thermal Efficiency
- Meets SCAQMD Rule 1146.2
- Multi-Flue Design
- Glass Lined Tank
- 150 PSI Working Pressure

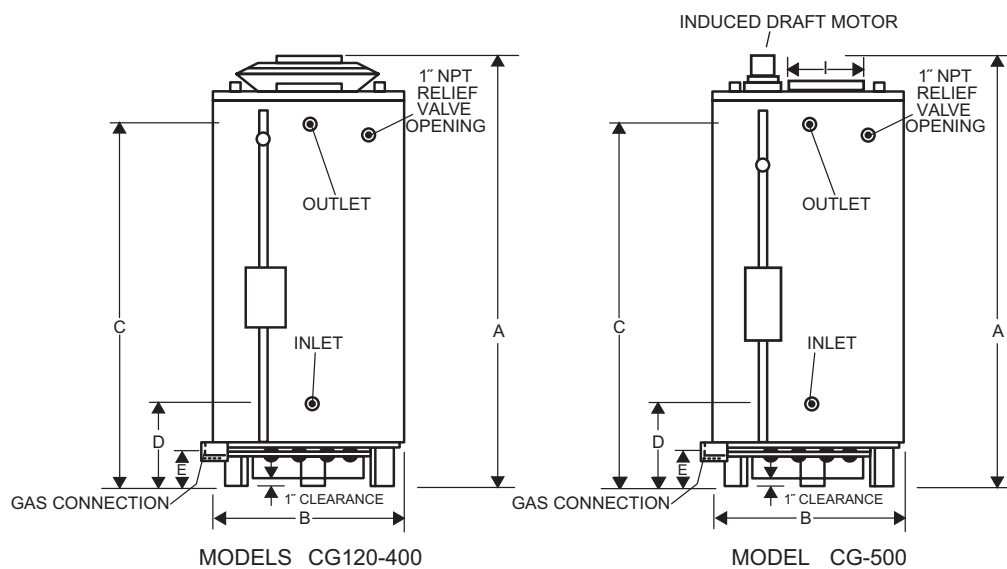
- Tank Saver Anode
- ASME Temperature & Pressure Relief Valve
- Automatic Reset High Limit
- Spark Ignition
- 180°F Operation Approved
- Combustible Floor Approved
- Steel Jacket with Foam Insulation

- Hand Hole Cleanout
- Slide Out Burner Tray
- 3 Year Limited Warranty on Tank
- 1 Year Limited Warranty on Parts

Optional Equipment:

- UL Sanitation

Multi-Flue Charger Gas Models



Model Number	Btu/hr Input	Capacity Gallons	GPH @ 100°F Rise	A	B	C	D	E	Vent Size	Gas Conn	Water Conn	Shipping Weight
CGN120 070	120,000	71	116	69-3/4"	27-3/4"	52"	19-3/4"	4-1/4"	6"	1/2"	1-1/2"	400
CGN150 032	150,000	32	145	45"	27-3/4"	42-1/2"	15-3/4"	5"	6"	3/4"	1-1/2"	460
CGN155 080	154,000	81	149	73"	27-3/4"	59"	19-3/4"	4-1/4"	6"	1/2"	1-1/2"	470
CGN180 080	180,000	81	175	67-1/2"	27-3/4"	54-3/4"	20-1/2"	4-1/2"	6"	1/2"	1-1/2"	470
CGN200 032	199,000	32	194	45"	27-3/4"	42-1/2"	15-3/4"	5"	6"	3/4"	1-1/2"	460
CGN200 080	199,000	81	193	67-1/2"	27-3/4"	54-3/4"	20-1/2"	4-1/2"	6"	1/2"	1-1/2"	470
CGN200 100	199,000	100	193	75"	27-3/4"	62-3/4"	20-1/2"	4-1/2"	6"	1/2"	1-1/2"	603
CGN199 100 (A)	199,000	100	193	72"	30-1/4"	56-1/2"	19-3/4"	4-1/2"	6"	1/2"	2"	630
CGN250 100 (A)	250,000	100	242	72"	30-1/4"	56-1/2"	19-3/4"	4-1/2"	8"	1/2"	2"	630
CGN250 065 (A)	251,000	65	243	75"	27-3/4"	58-3/4"	20"	4-1/2"	8"	1/2"	1-1/2"	750
CGN275 100 (A)	275,000	100	267	72"	30-1/4"	56-1/2"	19-3/4"	4-1/2"	8"	1/2"	2"	630
CGN305 065 (A)	305,000	65	296	75"	27-3/4"	58-3/4"	20"	4-1/2"	8"	1/2"	1-1/2"	750
CGN365 085 (A)	365,000	85	354	79-1/2"	27-3/4"	63"	22-1/2"	4-1/2"	8"	3/4"	1-1/2"	725
CGN400 100 (A)	390,000	100	378	75-1/2"	30-1/4"	59"	26-3/4"	4-1/2"	8"	3/4"	2"	760
CGN500 085 (A)	500,000	85	485	82-1/4"	27-3/4"	65-3/4"	25-1/2"	4-1/2"	8"	1"	1-1/2"	820

A = ASME construction

See the installation manual for dimensional information on Top and Back Tappings

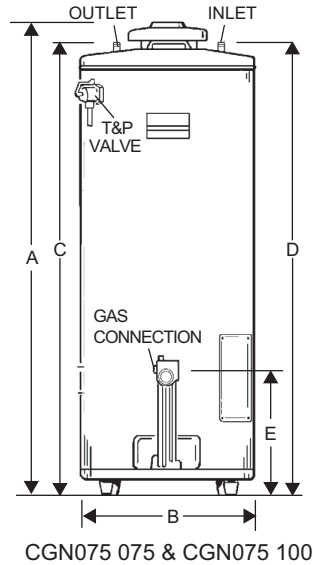
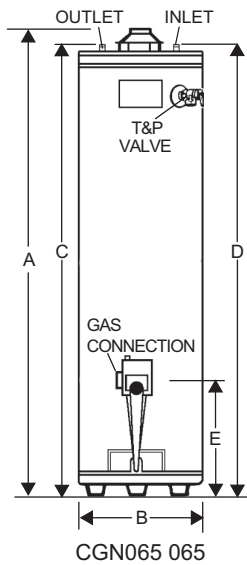
Standard Features:

- 80% Thermal Efficiency
- Multi-Flue Design
- Glass Lined Tank
- 150 PSI Working Pressure
- Tank Saver Anode
- ASME Temperature & Pressure Relief Valve
- Automatic Reset High Limit
- Spark Ignition
- 180°F Operation Approved
- Combustible Floor Approved
- Steel Jacket with Foam Insulation
- Hand Hole Cleanout
- Slide Out Burner Tray
- 3 Year Limited Warranty on Tank
- 1 Year Limited Warranty on Parts

Optional Equipment:

- UL Sanitation
- High Altitude (2,000 to 8,000 feet)

Light Duty Charger Gas Models



Model Number	Btu/hr Input	Capacity Gallons	GPH @ 100°F Rise	A	B	C	D	E	Vent Size	Gas Conn	Water Conn	Shipping Weight
CGN065 065	65,000*	65	60	65"	24"	61-1/2"	61-1/2"	15-1/2"	4"	1/2"	3/4"	240
CGN075 075	75,100	74	73	61"	26-1/2"	59-1/2"	59-1/2"	15-1/4"	4"	1/2"	1"	271
CGN075 100	75,100	98	73	68-1/2"	26-1/2"	67-1/2"	67-1/2"	15-1/4"	4"	1/2"	1-1/4"	350

* Propane model rated at 55,000 Btu/hr

Standard Features:

- 80% Thermal Efficiency
- Low NOx operation
- Single Flue Design
- Glass Lined Tank
- 150 PSI Working Pressure
- Tank Saver Anode
- ASME Temperature & Pressure Relief Valve
- Automatic Reset High Limit
- Standing Pilot
- 180°F Operation Approved
- Combustible Floor Approved
- Steel Jacket with Foam Insulation
- Automatic Flue Damper
- Hand Hole Cleanout
- Rated up to 7,700 Feet Altitude
- 3 Year Limited Warranty on Tank
- 1 Year Limited Warranty on Parts

Custom Hi-Power®

Vertical And Horizontal Models



VOLTAGE SCHEDULE

J — 208V 1Ø	Y — 380V 3Ø
K — 208V 3Ø	Z — 415V 3Ø
A — 240V 1Ø	X — 480V 3Ø
B — 240V 3Ø	N — 600V 3Ø
W — 277V 1Ø	

* = Voltage
kW = Kilowatt

Model	Max. KW	Gal. Cap.	A	B	C	D	Water Conn.		Shipping Weight (.lbs)
							Inlet	Outlet	
<i>Vertical Round</i>									
HV*kW-150	135	150	65-1/2"	32"	38-3/4"	7-3/4"	1-1/2"	1-1/2"	650
HV*kW-200	180	200	78"	32"	38-3/4"	7-3/4"	1-1/2"	1-1/2"	750
HV*kW-250	216	250	92"	34"	40-3/4"	19-1/2"	1-1/2"	1-1/2"	1,165
HV*kW-300	270	300	80"	40"	46-3/4"	21"	2"	2"	1,350
HV*kW-400	360	400	80"	46"	52-3/4"	22-1/2"	2"	2"	1,590
HV*kW-500	396	500	92"	46"	52-3/4"	22-1/2"	2"	2"	1,700
HV*kW-600	396	600	92"	52"	60-3/4"	24-1/2"	2-1/2"	2-1/2"	2,010
HV*kW-800	396	750	104"	52"	60-3/4"	24-1/2"	2-1/2"	2-1/2"	2,450
HV*kW-1000	396	950	128"	52"	60-3/4"	24-1/2"	2-1/2"	2-1/2"	3,160

NOTES: Vertical Round models above 90 kW at 208V, 240V or 380V, and 162 kW at 415V, 480V, or 600V exceed the capacity of a single control box and may require multiple control panels. Consult the factory for specific details and optional construction.

Vertical Square construction is available as an option for models that exceed the listed kW limits.

Control panel height on Vertical Round models may exceed tank height – consult factory for specific heights on models with inputs above 72 kW.

<i>Vertical Square</i>									
HV*kW-1250	900	1,250	132-1/2"	64-1/2"	64-1/2"	23-1/4"	3"	3"	3,560
HV*kW-1500	900	1,500	128-1/2"	70-1/2"	70-1/2"	25-1/4"	3"	3"	4,120
HV*kW-2000	900	2,000	140-1/2"	76-1/2"	76-1/2"	27-1/4"	3"	3"	4,350
HV*kW-2500	900	2,500	146-1/2"	82-1/2"	82-1/2"	29"	3"	3"	5,750

<i>Horizontal Square</i>									
HH*kW-150	135	150	37"	68-1/2"	34-1/4"	12"	2"	2"	1,180
HH*kW-200	180	200	37"	78"	34-1/4"	12"	2"	2"	1,370
HH*kW-250	225	250	39"	90-1/4"	36-1/4"	13"	2"	2"	1,450
HH*kW-300	270	300	45"	78-1/4"	42-1/4"	14-3/4"	2"	2"	1,530
HH*kW-400	360	400	52"	78-1/4"	48-1/4"	16"	2"	2"	1,750
HH*kW-500	450	500	52"	90-3/4"	48-1/4"	16"	2"	2"	1,860
HH*kW-600	540	600	58"	90-3/4"	54-1/4"	13-1/2"	2-1/2"	2"	2,340
HH*kW-800	720	750	58"	102-1/4"	54-1/4"	13-1/2"	2-1/2"	2"	2,850
HH*kW-1000	900	950	58"	126-1/4"	54-1/4"	13-1/2"	2-1/2"	2"	3,040
HH*kW-1250	900	1,250	64"	130-1/4"	60-1/4"	15"	3"	3"	3,750
HH*kW-1500	900	1,500	70"	126-1/4"	66-1/4"	16"	3"	3"	4,340
HH*kW-2000	900	2,000	76"	137-1/4"	72-1/4"	17-1/2"	3"	3"	4,580
HH*kW-2500	900	2,500	82"	144-1/4"	78-1/4"	16-1/2"	3"	3"	6,060

Custom Hi-Power[®] Commercial Electric Models

Standard Features

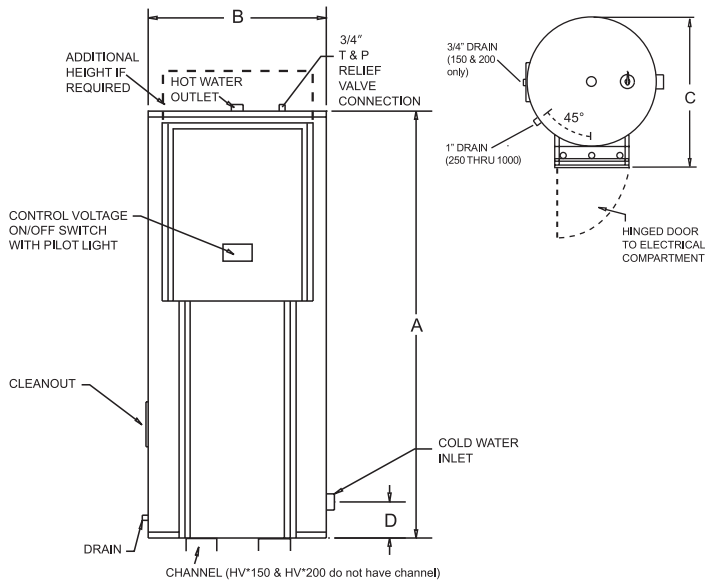
- Glass Lined Steel Tank
- Incoloy Heating Elements
- Internal Fusing (above 120 amps)
- Enamel Finished Galvanized Steel Jacket
- Magnesium Tank Saver Anodes
- Immersion Thermostat
- Manual Reset High Limit
- Full Length Hinged Doors with Key Lock
- Terminal Block Connections
- ASME Temperature and Pressure Relief Valve (Supplied, not installed)
- Channel Iron Skid Base (except 150 & 200 gallon round or larger)
- Approved for 180°F Temperature Operation
- ASME Construction and National Board Listed
- All models meet or exceed ASHRAE energy efficiency standards
- 125 psi Working Pressure
- Handhole or Cleanout
- UL Listed (U.S. & Canada)
- Safety Drain Pan (Square Models)
- Control Voltage on/off Switch w/ Light
- 3 Year Limited Tank Warranty
- 1 Year Limited Parts Warranty

Optional Equipment

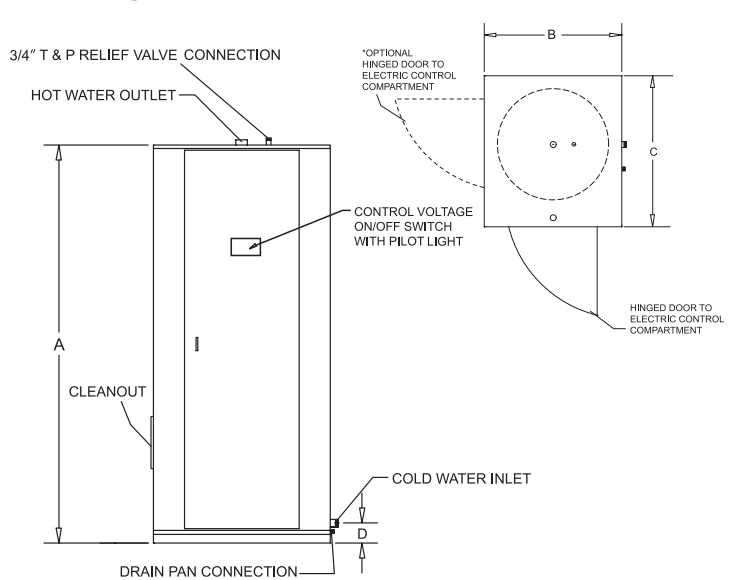
- Low Water Cut-Off
- Pilot Lights
- Manual Limiting Switches
- Alarm Bell
- Shunt Trip Disconnect*
- Low or High Water Pressure Switch
- Lifting Lugs
- Time Clock (7 day or 24 hour)
- Safety Door Interlock
- BMS Enable/Disable Contacts
- Temperature and Pressure Gauges
- Manway (125 Gallon and Larger Only)
- 150 psi or 160 psi Working Pressure
- Electronic Step Controller
- Seismic attachment points (Must have seismic zone or city and state of install)

*Field Installed

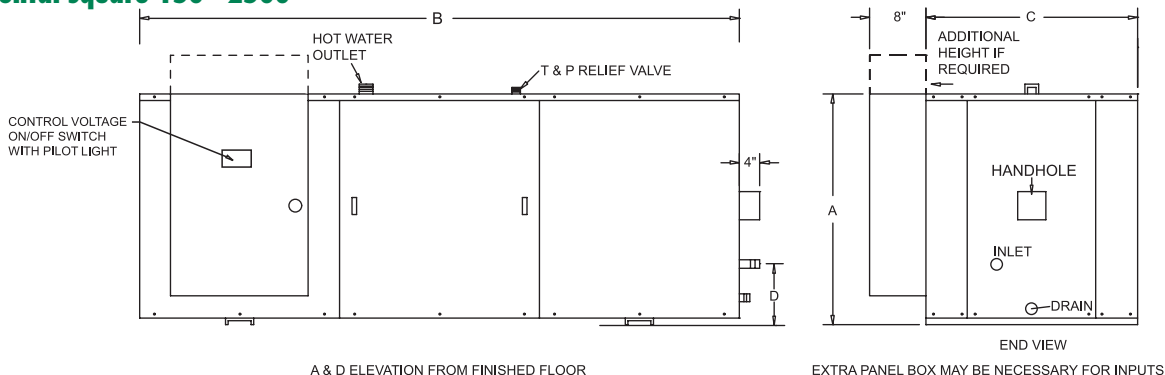
Vertical Round 150-1000



Vertical Square 1250-2500



Horizontal Square 150 - 2500



Standard Hi-Power[®] Thermostat and Immersion Electric Models

Outstanding Features

- **Immersion Controls** - LCD readout displays operational and diagnostic information in words, not codes. Standard features include: Low Water Cutoff, Element Sensing and Night Setback.
- **Surface Controls** - Surface mounted thermostats on each heating element.
- **Glass-Lined Steel Tank**—The durable glass lining is fused to the tank at 1600°F to assure lasting protection against rust and corrosion while providing clean, clear hot water. 300 psi test pressure provides 150 psi working pressure.
- **Tank Saver Anode** – A large diameter, high capacity anode inhibits corrosion of the tank interior for long, trouble-free service.
- **Heating Elements** – Plated, incoloy immersion type heating elements provide long life and resistance to lime scale build-up. The low watt density elements have lower surface temperatures and more surface area.
- **Standard Voltages** – 208, 240 and 480 are wired from the factory for three phase. The three phase wiring can be field converted to single phase. (277 is configured as single phase only.)
- **Energy Cut-Off**—Shuts off electrical power to the elements should the water temperature in the tank exceeds 200°F.
- **Overcurrent Protection Fuses**—All elements and controls are fused in accordance with U.L. requirements when current exceeds 48 amps.
- **ASME Temperature and Pressure Relief Valve** - Factory provided.
- **Non-CFC Foam Insulation**— Superior material formulation provides uniform tank coverage with a thick blanket of insulating foam. This non-CFC polyurethane closed cell foam minimizes standby losses and maximizes heat retention.
- **Hinged Access Door**—Provides easy access from front of heater to electrical controls.
- **3 Year Limited Tank Warranty, 1-Year Limited Parts Warranty**
–See warranty for details



AMPERAGE TABLE

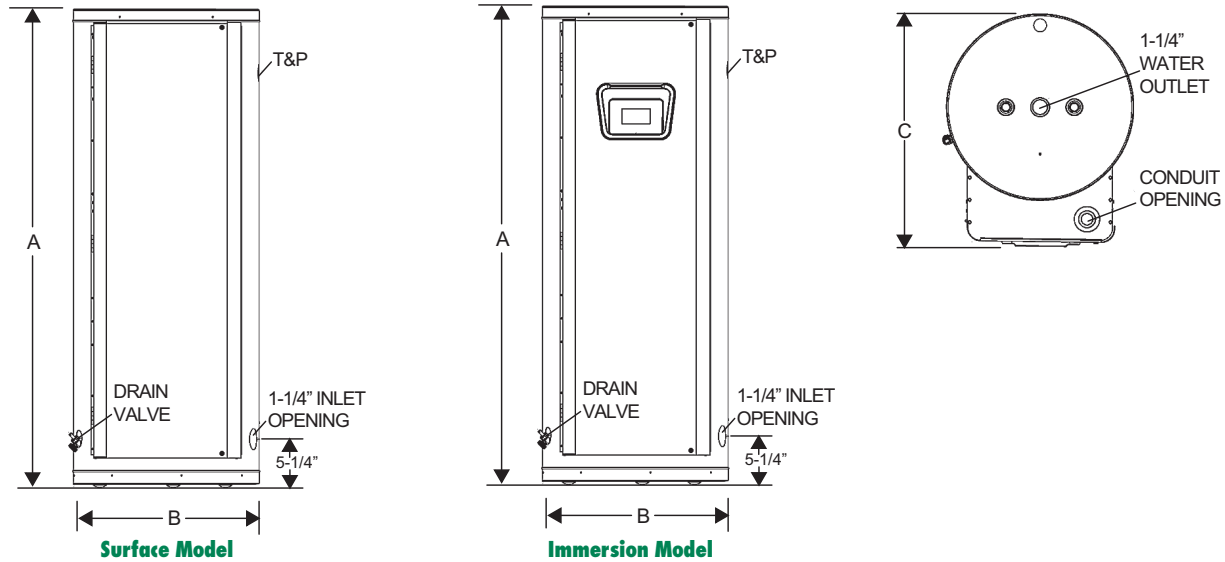
KW	Single Phase				Three Phase		
	208V	240V	277V	480V	208V	240V	480V
6	28.8	25.0	21.7	12.5	16.7	14.4	7.2
9	43.3	37.5	32.5	18.8	25.0	21.7	10.8
12	57.7	50.0	43.3	25.0	33.3	28.9	14.4
13.5	64.9	56.3	48.7	28.1	37.5	32.5	16.2
15	72.1	62.5	54.2	31.3	41.6	36.1	18.0
18	86.5	75.0	65.0	37.5	50.0	43.3	21.7
24	115.4	100.0	86.6	50.0	66.6	57.7	28.9
27	129.8	112.5	97.5	56.3	74.9	65.0	32.5
30	144.2	125.0	108.3	62.5	83.3	72.2	36.1
36	173.1	150.0	130.0	75.0	99.9	86.6	43.3
40.5	194.7	168.8	146.2	84.4	112.4	97.4	48.7
45	216.3	187.5	162.5	93.8	124.9	108.3	54.1
54	N/A	225.0	194.9	112.5	149.9	129.9	65.0

VOLTAGE SCHEDULE

T - 208V / 1 or 3 PH	W - 277V / 1 PH
P - 240V / 1 or 3 PH	X - 480V / 1 or 3 PH

Standard Hi-Power[®] Thermostat and Immersion Electric Models

Dimensions & Specifications



Model Number	KW	Gallon Capacity	GPH @ 100°F Rise	Number of Elements	A	B	C	Shipping Weight
HC(X)06 050	6	50	25	3	55-3/4"	21-3/4"	27"	265
HC(X)09 050	9	50	37	3	55-3/4"	21-3/4"	27"	265
HC(X)12 050	12	50	49	3	55-3/4"	21-3/4"	27"	265
HC(X)13 050	13.5	50	55	3	55-3/4"	21-3/4"	27"	265
HC(X)15 050	15	50	61	3	55-3/4"	21-3/4"	27"	265
HC(X)18 050	18	50	74	3*	55-3/4"	21-3/4"	27"	265
HC(X)24 050	24	50	98	6	55-3/4"	21-3/4"	27"	265
HC(X)27 050	27	50	111	6	55-3/4"	21-3/4"	27"	265
HC(X)30 050	30	50	123	6	55-3/4"	21-3/4"	27"	265
HC(X)36 050	36	50	148	6**	55-3/4"	21-3/4"	27"	265
HC(X)40 050	40.5	50	166	9	55-3/4"	21-3/4"	27"	265
HC(X)45 050	45	50	194	9	55-3/4"	21-3/4"	27"	265
HC(X)54 050	54	50	221	9	55-3/4"	21-3/4"	27"	265
HC(X)06 080	6	80	25	3	60-1/4"	25-1/2"	31"	280
HC(X)09 080	9	80	37	3	60-1/4"	25-1/2"	31"	280
HC(X)12 080	12	80	49	3	60-1/4"	25-1/2"	31"	280
HC(X)13 080	13.5	80	55	3	60-1/4"	25-1/2"	31"	280
HC(X)15 080	15	80	61	3	60-1/4"	25-1/2"	31"	280
HC(X)18 080	18	80	74	3*	60-1/4"	25-1/2"	31"	280
HC(X)24 080	24	80	98	6	60-1/4"	25-1/2"	31"	280
HC(X)27 080	27	80	111	6	60-1/4"	25-1/2"	31"	280
HC(X)30 080	30	80	123	6	60-1/4"	25-1/2"	31"	280
HC(X)36 080	36	80	148	6**	60-1/4"	25-1/2"	31"	280
HC(X)40 080	40.5	80	166	9	60-1/4"	25-1/2"	31"	280
HC(X)45 080	45	80	194	9	60-1/4"	25-1/2"	31"	280
HC(X)54 080	54	80	221	9	60-1/4"	25-1/2"	31"	280
HC(X)06 119	6	119	25	3	62-1/4"	29-1/2"	35"	390
HC(X)09 119	9	119	37	3	62-1/4"	29-1/2"	35"	390
HC(X)12 119	12	119	49	3	62-1/4"	29-1/2"	35"	390
HC(X)13 119	13.5	119	55	3	62-1/4"	29-1/2"	35"	390
HC(X)15 119	15	119	61	3	62-1/4"	29-1/2"	35"	390
HC(X)18 119	18	119	74	3*	62-1/4"	29-1/2"	35"	390
HC(X)24 119	24	119	98	6	62-1/4"	29-1/2"	35"	390
HC(X)27 119	27	119	111	6	62-1/4"	29-1/2"	35"	390
HC(X)30 119	30	119	123	6	62-1/4"	29-1/2"	35"	390
HC(X)36 119	36	119	148	6**	62-1/4"	29-1/2"	35"	390
HC(X)40 119	40.5	119	166	9	62-1/4"	29-1/2"	35"	390
HC(X)45 119	45	119	194	9	62-1/4"	29-1/2"	35"	390
HC(X)54 119	54	119	221	9	62-1/4"	29-1/2"	35"	390

Immersion thermostat model numbers shown above. Change "C" to "S" for surface thermostat models.

* 208V models equipped with 6 elements. ** 208V models equipped with 9 elements.

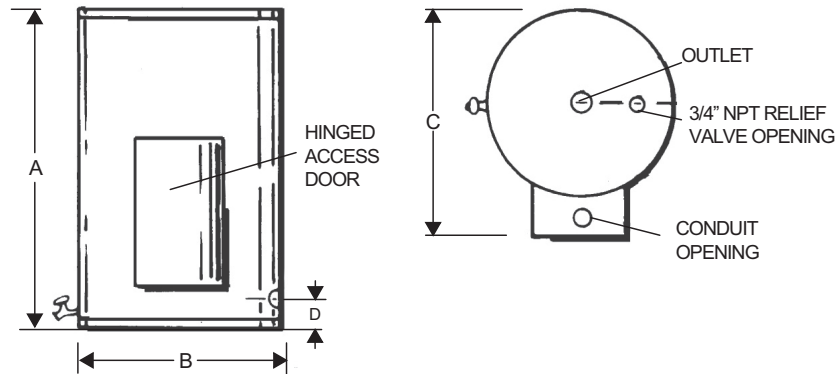
Compact ASME Hi-Power Electric Models

Outstanding Features

- Advanced Electronic Controls
- Glass-Lined Steel Tank
- Powered Anode
- Heating Element
- Energy Cut-Off
- ASME Temperature and Pressure Relief Valve
- Non-CFC Foam Insulation
- Hinged Access Door
- Immersion Thermostats with Contactors
- 3 Year Limited Tank Warranty,
1-Year Limited Parts Warranty
– See warranty for details

Optional Equipment

- 150 PSI Working Pressure
- High and/or Low Water Pressure Limit Switches
- Alarm Horn
- Temperature & Pressure Gauge
- 4" x 6" Handhole Cleanout
- Pilot Lights & Switches
- Modulating Control



VOLTAGE SCHEDULE	
A - 240V / 1 PH	Z - 415V / 3 PH
J - 280V / 1 PH	V - 480V / 1 PH
K - 208V / 3 PH	X - 480V / 3 PH
B - 240V / 3 PH	M - 575V / 3 PH
W - 277V / 1 PH	N - 600V / 3 PH
Y - 380V / 3 PH	

Model Number	Gal. Cap.	Max. kW	A	B	C	D	Water Conn.	Shipping Weight
CH(X)kW 005A	5	3	20-1/2"	16-1/4"	22-1/2"	5-1/4"	3/4"	100
CH(X)kW 010A	10	6	26-1/4"	18-3/4"	25"	5-1/4"	3/4"	116
CH(X)kW 020A	20	18	27-1/4"	20-1/2"	26-1/2"	5-3/4"	3/4"	145
CH(X)kW 030A	30	24	35-3/4"	20-1/2"	26-1/2"	5-3/4"	3/4"	168
CH(X)kW 040A	40	36	45-3/4"	20-1/2"	26-1/2"	5-3/4"	3/4"	206
CH(X)kW 050A	50	90	54-3/4"	20-1/2"	26-1/2"	5-3/4"	3/4"	235
CH(X)kW 065A	65	90	54"	26-1/2"	33-1/2"	7"	1-1/4"	280
CH(X)kW 080A	80	90	52-1/4"	28"	35"	7"	1-1/4"	300
CH(X)kW 100A	100	90	60-1/2"	28"	35"	7"	1-1/4"	354
CH(X)kW 120A	120	90	65-1/2"	30"	37"	7-1/2"	1-1/4"	430

NOTE: Allow 24" clearance from front access panel for service and maintenance.

Note: Outlet connection for 5 thru 50 models 3/4" NPT.
Outlet connection for 65 thru 120 models 1-1/4" NPT.

Amperage Table

kW	SINGLE PHASE				THREE PHASE		
	208V	240V	277V	480V	208V	240V	480V
3	14.4	12.5	10.8	6.3	8.3	7.2	3.6
6	28.8	25.0	21.7	12.5	16.7	14.4	7.2
9	43.3	37.5	32.5	18.8	25.0	21.7	10.8
12	57.7	50.0	43.3	25.0	33.3	28.9	14.4
15	72.1	62.5	54.2	31.3	41.6	36.1	18.0
18	86.5	75.0	65.0	37.5	50.0	43.3	21.7
24	115.4	100.0	86.6	50.0	66.6	57.7	28.9
30	144.2	125.0	108.3	62.5	83.3	72.2	36.1
36	173.1	150.0	130.0	75.0	99.9	86.6	43.3
45	216.3	187.5	162.5	93.8	124.9	108.3	54.1
54	N/A	225.0	194.9	112.5	149.9	129.9	65.0
60	N/A	250.0	216.6	125.0	166.5	144.3	72.2
75	N/A	N/A	N/A	156.3	208.2	180.4	90.2
90	N/A	N/A	N/A	187.5	249.8	216.5	108.3

Note: All ASME models with an amp draw in excess of 120 amps receive factory installed internal fusing.

GPH Recovery Rate

INPUT kW	Btu/hr	Recovery Rate (GPH @ °F Rise)												
		30°F	40°F	50°F	60°F	70°F	80°F	90°F	100°F	110°F	120°F	130°F	140°F	
3	10,239	41	31	34	20	17	15	13	12	11	10	10	9	
6	20,478	82	62	49	41	35	31	27	25	22	21	19	18	
9	30,717	123	92	74	62	53	46	41	37	34	31	28	26	
12	40,956	164	123	98	82	70	61	55	49	45	41	38	35	
15	51,195	205	154	123	102	88	77	68	61	56	51	47	44	
18	61,434	246	184	148	123	105	92	82	74	67	62	57	53	
24	81,912	328	246	197	164	140	123	109	98	90	82	76	70	
30	102,390	410	308	246	205	176	154	137	123	112	103	95	88	
36	122,868	492	369	295	246	211	184	164	148	134	123	113	105	
45	153,585	615	461	369	307	263	230	205	184	168	154	142	132	
54	184,302	738	554	443	359	316	277	246	221	201	185	170	158	
60	204,780	819	615	492	410	351	307	273	246	223	205	189	176	
75	255,975	1,025	768	615	512	439	384	341	307	279	256	236	219	
90	307,710	1,229	922	738	615	527	461	410	369	335	307	284	263	

Light Duty Commercial Electric Models

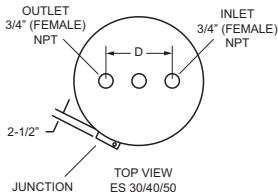
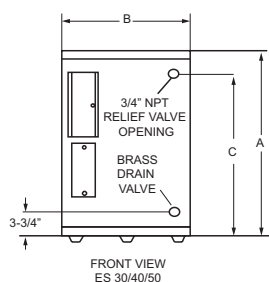
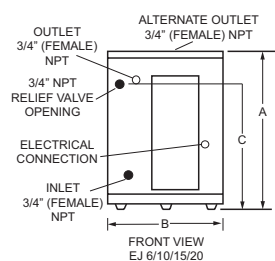


Standard Features

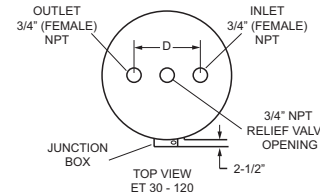
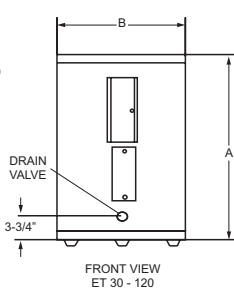
- Non-Simultaneous or Simultaneous Wiring
- Glass-Lined Steel Tank
- Non-CFC Foam Insulation
- Adjustable Thermostats
- Automatic Overheat Protection
- Tank Saver Anode
- Single or Three Phase Wiring
- ASME Temperature & Pressure Relief Valve
- 3- Year Limited Tank Warranty, 1-Year Limited Parts

Warranty – See warranty for details.

Point-of-Use models Short models



Tall models



Light Duty Commercial Models

Model	Gallon Number Capacity	A	B	C	D	Shipping Weight
Point-of-Use Models						
EJW006CS	6	15-1/2"	14-1/4"	11"	-	35
EJW010CS	10	18-1/4"	18"	12-1/2"	-	54
EJW015CS	15	26"	18"	20-1/2"	-	58
EJW020CS	20	22-1/4"	21-3/4"	15-1/2"	-	73
Short Models						
ESX030KD	30	31"	21-3/4"	24-1/4"	8"	100
ESX040KD	40	32-1/4"	24"	25-1/2"	8"	125
ESX050KD	50	32-1/4"	26-1/2"	25-1/4"	8"	166
Tall Models						
ETX030KD	30	34-1/2"	20-1/2"	-	8"	98
ETX040KD	40	45-1/4"	20-1/2"	-	8"	113
ETX050KD	50	55"	20-1/2"	-	8"	131
ETX065KD	66	60-3/4"	21-3/4"	-	8"	176
ETX080KD	80	59-1/2"	24"	-	8"	211
ETX120KD	119	62-1/2"	29-1/2"	-	8"	326

Voltage Schedule (EJ Models)		
C	120V	1 PH
J	208V	1 PH
A	240V	1 PH
W	277V	1 PH
V	480V	1 PH
(ES & ET Models)		
T	208V	3 PH
P	240V	3 PH
W	277V	1 PH
X	480V	3 PH

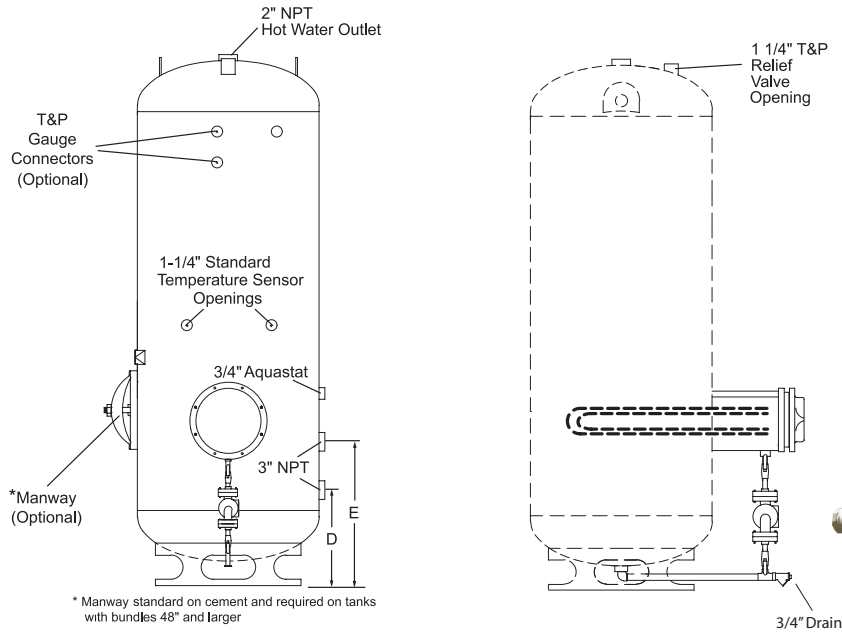
Wattage Limits w/ Simultaneous Operation
208V - 10,000W (5,000W/5,000W)
240V - 11,000W (5,500W/5,500W)
277V - 12,000W (6,000W/6,000W)
480V - 12,000W (6,000W/6,000W)

Element Availability Schedule	Wattage					Recovery Rate (GPH @ °F RISE)			
	120V	208V	240V	277V	480V	40°F	70°F	100°F	130°F
C - 1500	Yes	Yes	Yes	Yes	N/A	16	9	6	5
D - 1650	N/A	N/A	N/A	N/A	N/A	17	10	7	5
E - 2000	Yes	Yes	Yes	Yes	N/A	21	12	8	6
F - 2500	Yes	Yes	Yes	Yes	Yes	26	15	10	8
G - 3000	Yes	Yes	Yes	Yes	Yes	31	18	12	10
H - 3500	N/A	Yes	Yes	N/A	N/A	36	21	14	11
J - 4000	N/A	Yes	Yes	Yes	Yes	41	24	17	13
K - 4500	N/A	Yes	Yes	Yes	Yes	47	27	19	14
M - 5000	N/A	Yes*	Yes*	N/A	Yes*	52	30	21	16
N - 5500	N/A	N/A	Yes*	N/A	N/A	57	32	23	17
P - 6000	N/A	Yes	Yes	Yes	Yes	62	35	25	19

Notes: Max Wattage for EJ-006 is 3000W * Indicates Not Available for EJ-010 and EJ-015

Hot Water Generators *Water to Water & Steam to Water*

Vertical Tanks

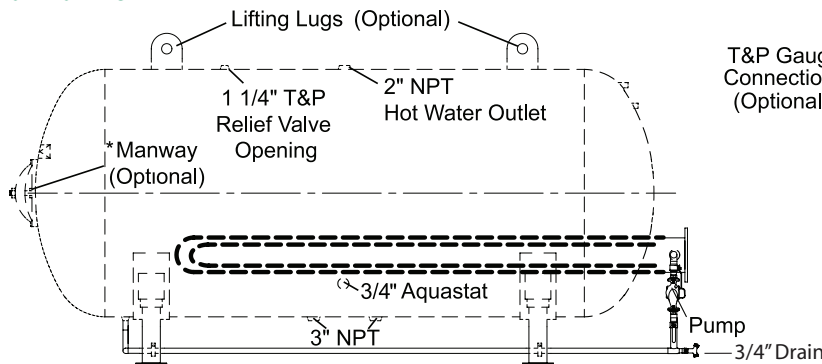


* Manway standard on cement and required on tanks with bundles 48\" and larger



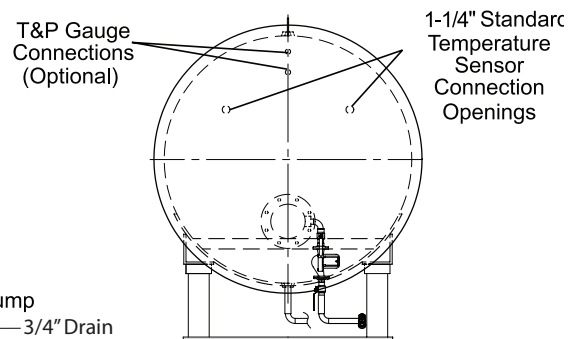
NOTE: Unit shown with optional water-to-water control package

Horizontal Tanks



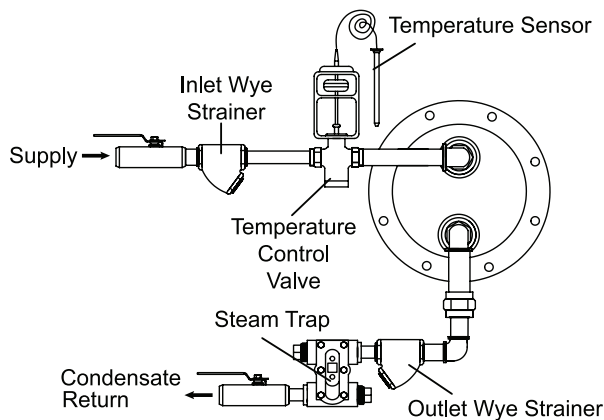
* Manway Standard on Cement, and required on tanks with bundles 48\" and longer

Side View



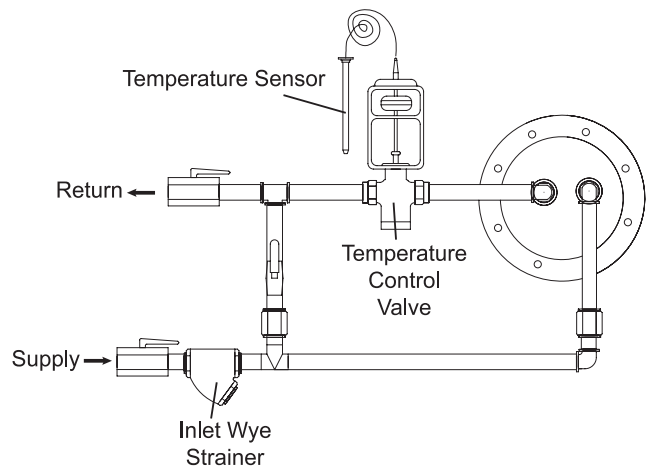
End View

Steam to Water Optional Control Package



Left hand or right hand configurations available.

Water to Water Optional Control Package



Hot Water Generators Vertical and Horizontal Models

Vertical Tanks Round Jacketed

Model Number	Gallon Capacity	A	C	D	E	Maximum Coil Length	Shipping Weight
GV*0200JR	200	77-1/4"	32"	11-1/4"	17-1/4"	30"	600
GV*0257JR	257	92"	34"	18"	26"	36"	902
GV*0318JR	318	82"	40"	19-1/2"	27-1/2"	42"	993
GV*0432JR	432	82"	46"	21"	29"	48"	1269
GV*0504JR	504	92"	46"	21"	29"	48"	1373
GV*0650JR	650	93"	54-1/2"	23-1/2"	31-1/2"	54"	1966
GV*0752JR	752	105"	54-1/2"	23-1/2"	31-1/2"	54"	2030
GV*0940JR	940	129"	54-1/2"	23-1/2"	31-1/2"	54"	2376

* Indicates Tank Lining – G=Glass C=Cement

Horizontal Tanks Round Jacketed

Model Number	Gallon Capacity	A	B	C	Maximum Coil Length	Minimum Coil Length	Shipping Weight
GH*250JR	250	41"	88"	34"	90"	54"	1,600
GH*300JR	300	47"	76"	40"	78"	48"	1,800
GH*400JR	400	53"	76"	46"	78"	48"	2,250
GH*500JR	500	53"	88"	46"	90"	54"	2,500
GH*600JR	600	59"	88"	52"	90"	54"	3,600
GH*700JR	700	59"	100"	52"	102"	66"	4,200
GH*1000JR	1000	59"	124"	52"	126"	78"	5,000

NOTE: Manway required on tanks with tube bundles 48" and longer.

* Indicates Tank Lining – G=Glass C=Cement

Non-Jacketed Tanks

Model	Gallon Capacity	Length** (Height)	Diameter (Width)	D	E	Maximum Coil Length (Horizontal)	Minimum Coil Length (Horizontal)	Maximum Coil Length (Vertical)	Shipping Weight
GV*147	147	48"	30"	15 3/4"	23 3/4"	36"	30"	36"	400
GV*184	184	60"	30"	15 3/4"	23 3/4"	48"	42"	36"	468
GV*220	220	72"	30"	15 3/4"	23 3/4"	60"	48"	36"	548
GV*257	257	84"	30"	15 3/4"	23 3/4"	72"	54"	36"	628
GV*294	294	96"	30"	15 3/4"	23 3/4"	84"	66"	36"	701
GV*367	367	120"	30"	15 3/4"	23 3/4"	108"	78"	36"	868
GV*265	265	60"	36"	17 1/2"	25 1/2"	48"	42"	42"	577
GV*318	318	72"	36"	17 1/2"	25 1/2"	60"	48"	42"	673
GV*370	370	84"	36"	17 1/2"	25 1/2"	72"	54"	42"	770
GV*423	423	96"	36"	17 1/2"	25 1/2"	84"	66"	42"	866
GV*528	528	120"	36"	17 1/2"	25 1/2"	108"	78"	42"	1,058
GV*432	432	72"	42"	18 3/4"	26 3/4"	60"	48"	48"	909
GV*504	504	84"	42"	18 3/4"	26 3/4"	72"	54"	48"	1,050
GV*576	576	96"	42"	18 3/4"	26 3/4"	84"	66"	48"	1,190
GV*720	720	120"	42"	18 3/4"	26 3/4"	108"	78"	48"	1,470
GV*864	864	144"	42"	18 3/4"	26 3/4"	120"	96"	48"	1,751
GV*658	658	84"	48"	20 3/4"	28 3/4"	72"	54"	54"	1,346
GV*752	752	96"	48"	20 3/4"	28 3/4"	84"	66"	54"	1,507
GV*940	940	120"	48"	20 3/4"	28 3/4"	108"	78"	54"	1,828
GV*1128	1,128	144"	48"	20 3/4"	28 3/4"	120"	96"	54"	2,150
GV*951	951	96"	54"	22 3/4"	30 3/4"	84"	66"	60"	1,972
GV*1189	1,189	120"	54"	22 3/4"	30 3/4"	108"	78"	60"	2,423
GV*1427	1,427	144"	54"	22 3/4"	30 3/4"	120"	96"	60"	2,881
GV*1469	1,469	120"	60"	24 3/4"	32 3/4"	108"	78"	66"	3,221
GV*1763	1,763	144"	60"	24 3/4"	32 3/4"	120"	96"	66"	3,823
GV*2115	2,115	120"	72"	27 3/4"	35 3/4"	108"	78"	78"	3,904
GV*2538	2,538	144"	72"	27 3/4"	35 3/4"	120"	96"	78"	4,627

Note: Change "V" to "H" for Horizontal Configuration

* Indicates Tank Lining G= Glass C=Cement

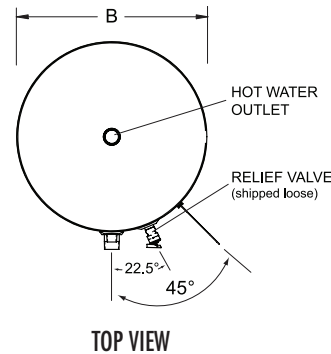
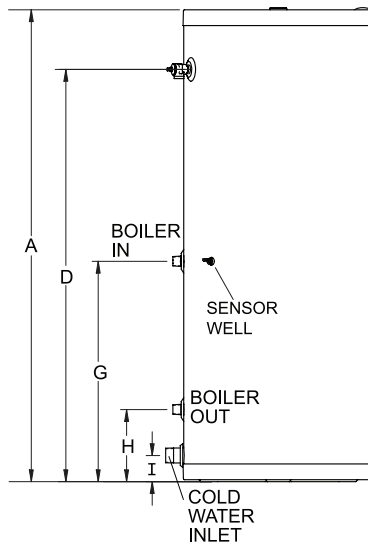
**Add 4" to Length (Height) for Vertical Configuration

Squire® Indirect Water Heater Models

The Squire Stainless Steel Indirect Water Heater - with 12 models to choose from in capacities from 30-119 gallons, we are sure to have the right size indirect water heater to fit your application. Squire features important enhancements that our customers will recognize and benefit from such as a welded and passivated stainless steel tank and heat exchanger, two-inch thick, high-density insulating foam, and best of all an American made product built in Lebanon, Tennessee.

Outstanding Features

- 12 Squire Models to Choose From
 - 6 Standard Models from 30 to 119 Gallons
 - 6 Solar Models from 65 to 119 Gallons
- 316L Passivated Stainless Steel Tank
- 316L High Capacity Stainless Steel Coil
- Fully Welded Construction



The "Hot Water Outlet Connection" is female NPT.
All other connections are male.

Dimensions

Model Number	A	B	D	G	H	I	Domestic Water Conn.	Coil Connection Size	Shipping Wt. (lbs.)
SIT030	39-1/2"	20"	32-1/4"	21-3/4"	8-1/4"	3"	1"	1"	79
SIT040	55-1/2"	20"	48-1/2"	25-1/4"	8-1/4"	3"	1"	1"	105
SIT050	47"	24"	39-3/4"	24-1/2"	9-1/4"	3-3/4"	1"	1"	131
SIT065	60"	24"	52-1/4"	28"	9-1/4"	3-1/4"	1-1/2"	1"	147
SIT080	69-1/2"	24"	61-3/4"	28"	9-1/4"	3-1/4"	1-1/2"	1"	177
SIT119	68-1/4"	28"	60-1/4"	31-3/4"	9-1/4"	3-1/4"	1-1/2"	1"	213

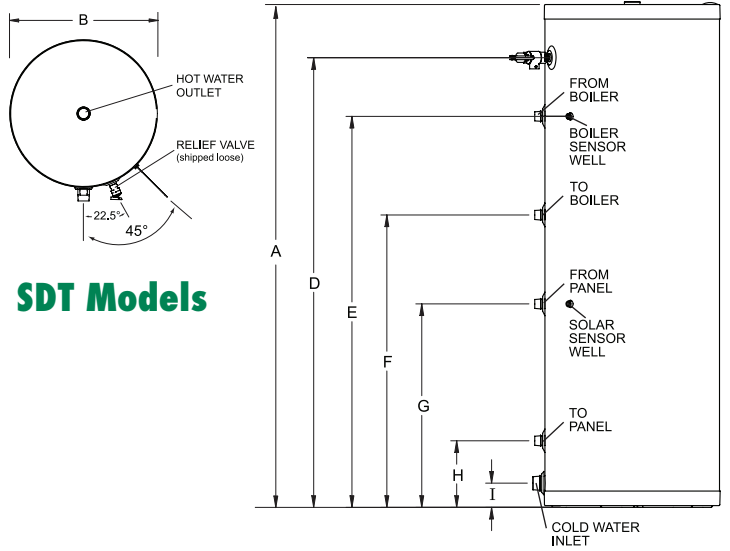
Model Number	Capacity (Gallons)	Heat Source Water Volume (Gallons)	Standby Loss (°F/Hr)	First Draw Gals.	Continuous Delivery (GPH)	1st Hour Delivery (Gallons)	Min. Coil Load (Btu/Hr)	Flow Rate (GPM)	Friction Loss (Ft. Hd.)
SIT030	27	1.1	1.5	24	160	183	99,000	14.0	3.9
SIT040	40	1.6	0.9	27	181	208	115,000	14.0	4.5
SIT050	52	1.7	0.9	47	209	255	133,000	14.0	5.3
SIT065	67	1.9	0.7	65	263	327	154,000	14.0	5.7
SIT080	82	2.1	0.6	74	266	347	160,000	14.0	5.7
SIT119	114	3.2	0.5	109	349	459	200,000	14.0	6.5

Performance data is based on I=B=R test results. All ratings are based on 180°F boiler water temperature with incoming cold water at 50°F and a Delta T of 77°F.

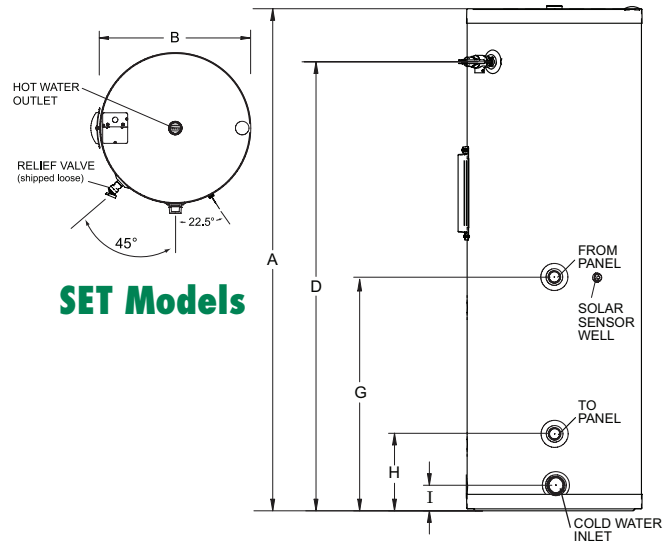
Includes tank sensor for use with KNIGHT Heating Boiler. **Optional thermostat available for use with other boiler models.**

Solar Stainless Steel Indirect Water Heater Models

Solar Stainless Steel Indirect Dimensions and Specifications



SDT Models



SET Models

SDT Models Dimensions and Specifications

Model Number	A	B	D	E	F	G	H	I	Domestic Water Conn.	Coil Connection Size	Shipping Wt. (lbs.)
SDT065	60"	24"	52-1/4"	47-1/4"	33-3/4"	28"	9-1/4"	3-1/4"	1-1/2"	1"	158
SDT080	69-1/4"	24"	61-3/4"	53-3/4"	40-1/4"	28"	9-1/4"	3-1/4"	1-1/2"	1"	188
SDT119	68"	28"	60-1/4"	54-1/2"	37-1/2"	31-3/4"	9-1/4"	3-1/4"	1-1/2"	1"	224

Model Number	Capacity (Gallons)	Heat Source Water (Gallons)	Boiler Heat Source Water (Gallons)	Standby Loss (°F/Hr)	Continuous Delivery (GPH)	1st Hour Delivery (Gallons)	Min. Coil Load (Btu/Hr)	Flow Rate (GPM)	Friction Loss (Ft. Hd.)
SDT065	66	2.1	1.7	0.7	175	205	128,000	14.0	3.4
SDT080	79	2.1	1.7	0.6	175	208	128,000	14.0	3.4
SDT119	110	3.2	2.6	0.5	251	301	181,000	14.0	4.9

Performance data based on incoming cold water at 50°F and a Delta T of 77°F. Delivery ratings for boiler coil only. Includes tank sensor for use w/ KNIGHT Heating Boiler.

SET Models Dimensions and Specifications

Model Number	A	B	D	F	H	I	Domestic Water Conn.	Coil Connection Size	Shipping Wt. (lbs.)
SET065	60"	24"	52-1/4"	28"	9-1/4"	3-1/4"	1-1/2"	1"	149
SET080	69-1/2"	24"	61-3/4"	28"	9-1/4"	3-1/4"	1-1/2"	1"	179
SET119	68-1/4"	28"	60-1/4"	31-3/4"	9-1/4"	3-1/4"	1-1/2"	1"	215

Model Number	Capacity (Gallons)	Heat Source Water (Gallons)	Standby Loss (°F/Hr)	Electric Continuous Delivery (GPH)	Electric 1st Hour Delivery (Gallons)
SET065	67	1.9	0.7	24	54
SET080	81	2.1	0.6	24	57
SET119	113	3.2	0.5	24	75

All SET models: 4500w 240v 1 phase.

Lock-Temp® Round Jacketed Storage Tanks

Standard Features

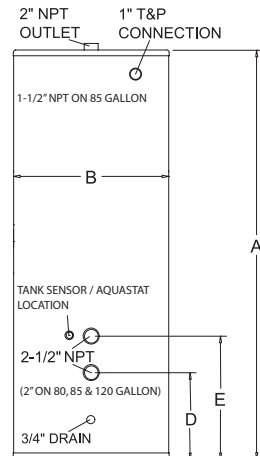
- **Energy Saving Performance** - meet the requirements of the latest ASHRAE Energy Efficiency Standards.
- **Five-Year Limited Warranty** - against tank failure resulting from defects in materials or workmanship.
- **Lock-Temp Baffle** - creates nearly perfect stratification.
- **Magnesium Anode** - provide additional protection against corrosion.
- **ASME Construction** - in accordance with ASME standards and labeled for 125 psi working pressure (standard) or 150 psi working pressure (optional). (RJS080 & RJS120 are non-ASME construction)
- **Galvanized Jacket** - Heavy gauge jacket is and finished in durable acrylic enamel combining attractive appearance with maximum protection.

Vertical Round Jacketed Glass Lined Tanks

Model Number	Gal. Cap.	A	B	D	E	Shipping Weight	
						125 psi	150 psi
RJS080M	80	63"	25-1/4"	9-1/4"	14-1/4"	-	240
RJS085M	85	49-1/2"	28"	9-1/2"	14-1/2"	-	255
RJS120M	119	62"	29-1/2"	9-1/2"	14-1/2"	-	352
RJA120*	119	62-1/2"	28"	9-1/2"	14-1/2"	-	365
RJA175*	175	66-1/4"	32"	11-1/4"	17-1/4"	-	578
RJA200*	200	77-1/4"	32"	11-1/4"	17-1/4"	-	634

Glass Lined only

*A = ASME Construction / S = Standard Construction

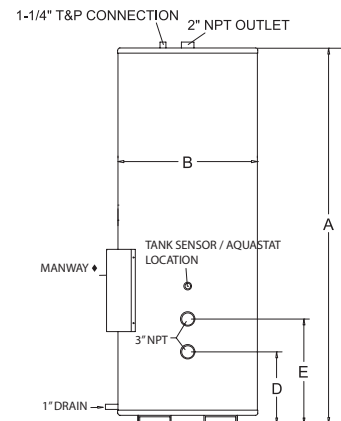


Vertical Round Jacketed ASME Tanks

Model Number	Gal. Cap.	A	B	D	E	Shipping Weight	
						125 psi	150 psi
R*A0257	257	91"	34"	18"	26"	904	904
R*A0318	318	80"	40"	19-1/2"	27-1/2"	987	987
R*A0432	432	80"	46"	21"	29"	1,188	1,188
R*A0504	504	92"	46"	21"	29"	1,329	1,329
R*A0650	650	92"	52"	23-1/2"	31-1/2"	1,817	1,817
R*A0752	752	104"	52"	23-1/2"	31-1/2"	2,030	2,030
R*A0940	940	128"	52"	23-1/2"	31-1/2"	2,710	2,710

* Indicates tank lining. G=Glass Lined C=Cement lined

◆ The manway is optional on 257 and 318 gallon glass-lined tanks. The manway is standard on 432 gallon glass lined tanks and larger. The manway is standard on all cement lined tanks.



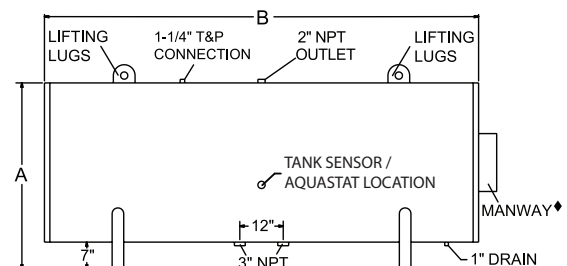
MANWAY IS STANDARD ON CEMENT TANKS.

Horizontal Round Jacketed ASME Tanks

Model Number	Gallon Capacity	A	B	Diameter	Shipping Weight	
					125 psi	150 psi
R*A0250H	250	41"	87"	34"	1,157	1,157
R*A0300H	300	47"	76"	40"	1,355	1,355
R*A0400H	400	53"	76"	46"	1,587	1,701
R*A0500H	500	53"	88"	46"	1,711	1,853
R*A0600H	600	59"	88"	52"	2,053	2,053
R*A0700H	700	59"	100"	52"	2,399	2,399
R*A1000H	1,000	59"	124"	52"	3,114	3,114

*Indicates Tank Linings G=Glass lined C=Cement lined

◆ The manway is optional on 250 and 300 gallon glass-lined tanks. The manway is standard on 432 gallon glass lined tanks and larger. The manway is standard on all cement lined tanks.



MANWAY IS STANDARD ON CEMENT TANKS.

Lock-Temp® Square Jacketed Storage Tanks

Standard Features

- **Energy Saving Performance** - meet the requirements of the latest ASHRAE Energy Efficiency Standards.
- **Five-Year Limited Warranty** - against tank failure resulting from defects in materials or workmanship.
- **Lock-Temp Baffle** - creates nearly perfect stratification.
- **Magnesium Anode** - provide additional protection against corrosion.
- **ASME Construction** - in accordance with ASME standards and labeled for 125 psi working pressure (standard) or 150 psi working pressure (optional).
- **Galvanized Jacket** - Heavy gauge jacket is and finished in durable acrylic enamel combining attractive appearance with maximum protection.
- **Built-In Safety Drain Pan System** - Sealed base assembly with 3/4" drain connection to protect against water damage from gasket or component leakage.
- **Channel Iron Skid** - Square jacket models furnished with skid for easy handling and installation.



Vertical Square Jacketed ASME Tanks

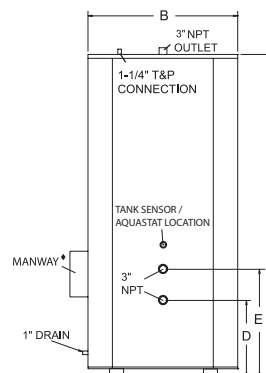
Model Number	Gal. Cap.	A	B	D	E	Shipping Weight (lbs.)	
						125 psi	150 psi
TV*1250J	1,250	132-1/2"	64-1/2"	29-1/4"	21-1/4"	4,660	5,000
TV*1500J	1,500	128-1/2"	70-1/2"	31-3/4"	25-3/4"	6,200	6,637
TV*2000J	2,000	139"	76-1/2"	33-1/2"	25-1/2"	7,400	7,910
TV*2500J	2,500	146-1/2"	82-1/2"	35-1/4"	28"	9,000	9,632

* Indicates tank lining.

G=Glass Lined

C=Cement line

◆ The manway is standard on these models.



MANWAY IS STANDARD ON CEMENT TANKS.

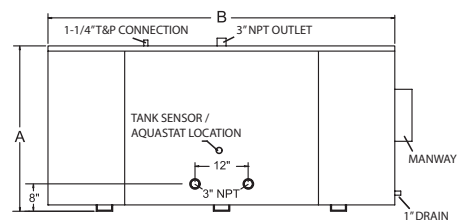
Horizontal Square Jacketed ASME Tanks

Model Number	Gallon Capacity	A	B	Depth	Shipping Weight (lbs.)	
					125 psi	150 psi
TH*1250J	1,250	68-1/2"	130-1/4"	60-1/4"	5,126	5,466
TH*1500J	1,500	74 1/2"	126-1/4"	66-1/4"	6,820	7,257
TH*2000J	2,000	80-1/2"	137"	72-1/4"	8,140	8,650
TH*2500J	2,500	86-1/2"	144-1/4"	78-1/4"	9,900	10,532

*Indicates Tank Linings G=Glass lined

C=Cement lined

◆ The manway is standard on these models.

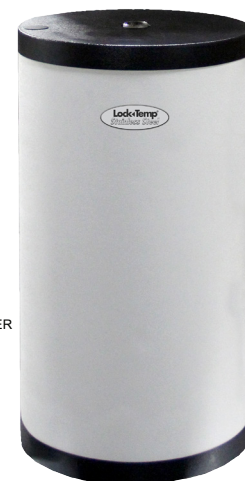
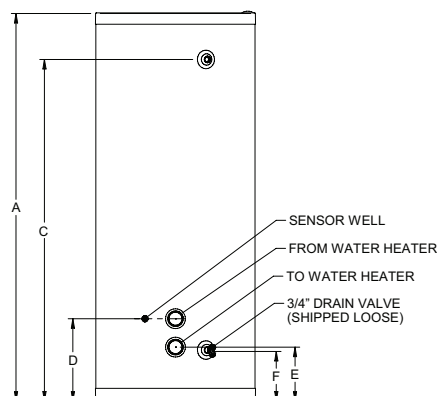
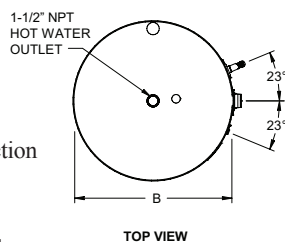


MANWAY IS STANDARD ON CEMENT TANKS.

Lock-Temp® Stainless Steel Storage Tanks

Standard Features

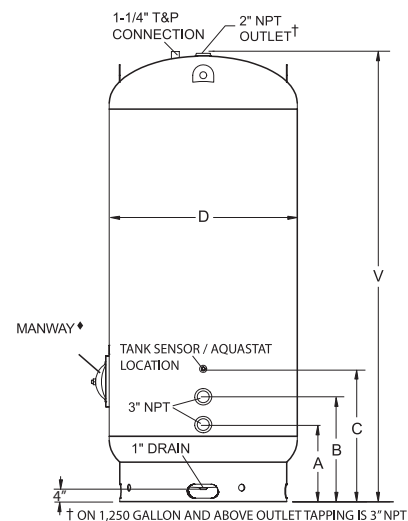
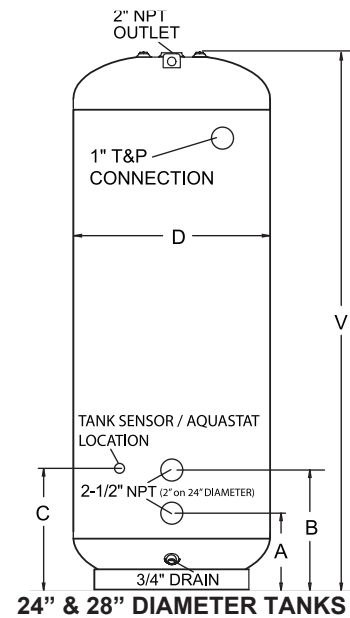
- Light-weight 316L stainless steel tank construction
- Diffuser tube to eliminate turbulence
- 150 PSI working pressure
- Exceeds ASHRAE Energy Efficiency Standards
- Textured, impact resistant polypropylene jacket
- Bulbwell for control sensor
- 3/4" brass drain valve
- 10 year limited tank warranty



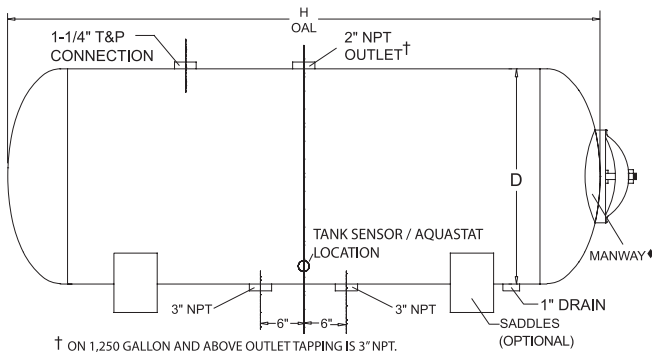
Model Number	Gallon Capacity	A	B	C	D	E	F	Recirculation Tappings	Shipping Wt. (lbs.)
SJS060	60	36"	28"	28"	14-1/4"	9-1/4"	9"	1-1/2"	138
SJS080	80	69-1/2"	24"	61-3/4"	14-1/4"	9-1/4"	9"	2"	153
SJS119	119	68-1/4"	28"	60-1/4"	14-1/2"	9-1/2"	9"	2"	198

Lock-Temp[®] Bare Storage Tanks

Gal. Cap.	Dimensions			Weights			Tappings		
	D Dia.	V Ht.	H Lgth.	Glass-Lined 125 psi	Cement Lined 150 psi		A	B	C
118	24"	64"	-	368	368	-	13-1/2"	21-1/2"	29-1/2"
141	24"	76"	-	428	428	-	13-1/2"	21-1/2"	29-1/2"
188	24"	100"	-	556	556	-	13-1/2"	21-1/2"	29-1/2"
235	24"	124"	-	684	684	-	13-1/2"	21-1/2"	29-1/2"
175	28"	65"	-	-	353	-	11"	17"	16"
200	28"	76"	-	-	488	-	11"	17-1/2"	16"
147	30"	52"	48"	400	400	695	15-3/4"	23-3/4"	31-3/4"
184	30"	64"	60"	468	468	812	15-3/4"	23-3/4"	31-3/4"
220	30"	76"	72"	548	548	958	15-3/4"	23-3/4"	31-3/4"
257	30"	87"	83"	628	628	1,103	15-3/4"	23-3/4"	31-3/4"
294	30"	100"	96"	701	701	1,242	15-3/4"	23-3/4"	31-3/4"
367	30"	124"	120"	868	868	1,540	15-3/4"	23-3/4"	31-3/4"
265	36"	64"	60"	577	577	995	17-1/2"	25-1/2"	33-1/2"
318	36"	76"	72"	673	673	1,173	17-1/2"	25-1/2"	33-1/2"
370	36"	87"	83"	770	770	1,343	17-1/2"	25-1/2"	33-1/2"
423	36"	100"	96"	866	866	1,513	17-1/2"	25-1/2"	33-1/2"
528	36"	124"	120"	1,058	1,058	1,861	17-1/2"	25-1/2"	33-1/2"
432	42"	76"	72"	795	909	1,385	18-3/4"	26-3/4"	34-3/4"
504	42"	88"	84"	908	1,050	1,587	18-3/4"	26-3/4"	34-3/4"
576	42"	100"	96"	1,020	1,190	1,790	18-3/4"	26-3/4"	34-3/4"
720	42"	124"	120"	1,245	1,470	2,195	18-3/4"	26-3/4"	34-3/4"
864	42"	148"	144"	1,470	1,751	2,601	18-3/4"	26-3/4"	34-3/4"
1,008	42"	172"	168"	1,695	2,031	3,006	18-3/4"	26-3/4"	34-3/4"
658	48"	88"	84"	1,346	1,346	2,124	20-3/4"	28-3/4"	36-3/4"
752	48"	100"	96"	1,507	1,507	2,392	20-3/4"	28-3/4"	36-3/4"
940	48"	124"	120"	1,828	1,828	2,918	20-3/4"	28-3/4"	36-3/4"
1,128	48"	148"	144"	2,150	2,150	3,444	20-3/4"	28-3/4"	36-3/4"
1,315	48"	172"	168"	2,471	2,471	3,970	20-3/4"	28-3/4"	36-3/4"
1,503	48"	196"	192"	2,793	2,793	4,505	20-3/4"	28-3/4"	36-3/4"
951	54"	100"	96"	1,721	1,972	2,729	22-3/4"	30-3/4"	38-3/4"
1,189	54"	124"	120"	2,083	2,423	3,320	22-3/4"	30-3/4"	38-3/4"
1,427	54"	148"	144"	2,451	2,881	3,919	22-3/4"	30-3/4"	38-3/4"
1,665	54"	172"	168"	2,807	3,326	4,511	22-3/4"	30-3/4"	38-3/4"
1,903	54"	196"	192"	3,168	3,777	5,102	22-3/4"	30-3/4"	38-3/4"
2,141	54"	220"	216"	3,530	4,228	5,701	22-3/4"	30-3/4"	38-3/4"
1,469	60"	124"	120"	2,784	3,221	4,177	24-3/4"	32-3/4"	40-3/4"
1,763	60"	148"	144"	3,267	3,823	4,913	24-3/4"	32-3/4"	40-3/4"
2,056	60"	172"	168"	3,749	4,425	5,658	24-3/4"	32-3/4"	40-3/4"
2,350	60"	196"	192"	4,231	5,026	6,394	24-3/4"	32-3/4"	40-3/4"
2,644	60"	220"	216"	4,713	5,628	7,130	24-3/4"	32-3/4"	40-3/4"
2,115	72"	124"	120"	3,416	3,904	5,104	27-3/4"	35-3/4"	43-3/4"
2,538	72"	148"	144"	3,995	4,627	5,995	27-3/4"	35-3/4"	43-3/4"
2,961	72"	172"	168"	4,575	5,350	6,885	27-3/4"	35-3/4"	43-3/4"
3,384	72"	196"	192"	5,154	6,073	7,767	27-3/4"	35-3/4"	43-3/4"
3,807	72"	220"	216"	5,733	6,795	8,658	27-3/4"	35-3/4"	43-3/4"

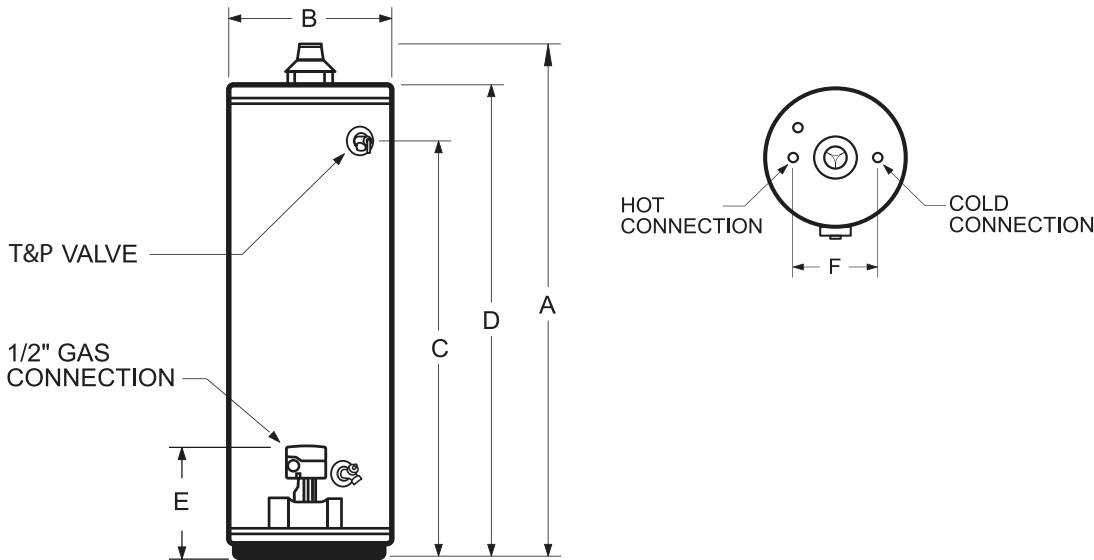


30" DIAMETER AND LARGER TANKS



† ON 1,250 GALLON AND ABOVE OUTLET TAPPING IS 3" NPT.

Energy Saver Residential Gas Models



Model Number	Nat. Gas		LP Gas		1st Hour Rating	GPH@ 90° Rise	Energy Factor	A	B	C	D	E	F	Gas Conn.	Vent Size	Water Conn.	Ship. Wt.
	Gal. Cap.	Btu/Hr Input	Btu/Hr Input	Hour													
Energy Saver Series - Short Models																	
LSN030 35	30	35,500	32,000	60	36	0.61	50"	18"	40"	46-1/2"	13-1/2"	8"	1/2"	3" or 4"	3/4"	112	
LSN040 40	40	40,000	36,000	66	41	0.59	51-1/2"	20"	41"	47-3/4"	13"	8"	1/2"	3" or 4"	3/4"	135	
LSN050 40	50	40,000	37,000	80	41	0.58	53-1/4"	24"	42-1/2"	48-3/4"	13-1/2"	8"	1/2"	3" or 4"	3/4"	175	
Energy Saver Series - Tall Models																	
LTN030 35	30	35,500	32,000	67	36	0.61	61-1/2"	16"	52"	58"	13"	8"	1/2"	3" or 4"	3/4"	112	
LTN040 40	40	40,000	32,000	70	41	0.59	61-3/4"	18"	51-3/4"	58-1/4"	13"	8"	1/2"	3" or 4"	3/4"	138	
LTN050 40	50	40,000	32,000	88	41	0.58	60-3/4"	20"	50-1/4"	57"	13"	8"	1/2"	3" or 4"	3/4"	153	

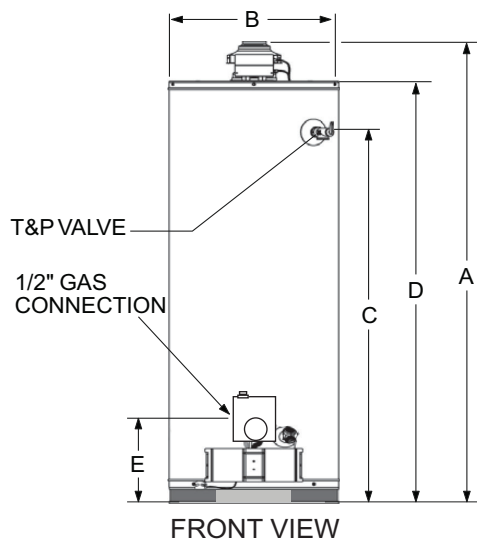
Notes: "N" indicates Natural gas, replace "N" with "L" to indicate LP gas model.

Standard Features

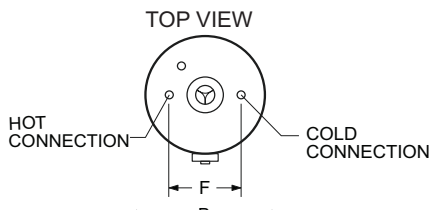
- Flammable Vapor Ignition Resistant Compliant** - The corrosion resistant chamber redirects air through a stainless steel flame arrestor plate to prevent flame rollout and flammable vapor ignition. A resettable thermal switch shuts down the burner and pilot operation in the event of a flammable vapor ignition and also protects against lint, dust and oil buildup by shutting down when it detects significant air restriction.
- Electronic Gas Control** - The gas control features advanced electronic and thermopile standing pilot for precise water temperature control with indicator lights for simplified diagnostics.
- Sight Glass** - Provides unobstructed view into the combustion chamber for observation of burner and pilot flames.
- Low NOx Burner** - The patented burner design reduces NOx emissions by up to 33% with less than 40 ng/j of NOx.
- Non-CFC Foam Insulation** - Superior material formulation proved uniform tank coverage with a thick blanket of insulating foam. This non-CFC polyurethane closed cell foam minimizes standby losses and maximizes heat retention.
- Glass-Lined Steel Tank** - The durable glass lining is fused to the tank at 1600°F to assure lasting protection against rust and corrosion while providing clean, clear hot water. 300 psi test pressure provides 150 psi working pressure.
- Tank Saver Anode** - A large diameter, high capacity anode inhibits corrosion of the tank interior for long, trouble-free service.
- Heat Trap** - The heat trap protects from heat loss through the water piping.
- Temperature & Pressure Relief Valve** - (Factory installed)
- Brass Drain Valve**
- 6-Year Limited Tank & Parts Warranty*** - See warranty for details.
- 10-Year Extended Warranty Available** - Residential applications only.

*1-year limited tank & parts warranty when installed in a commercial application.

Specialty Residential Gas Models



High Efficiency Model Shown



Energy Star Model

High Recovery and High Efficiency Models

Model Number	Gal. Cap.	Nat. Gas Btu/Hr Input	LP Gas Btu/Hr Input	1st Hr. Rating	GPH@ 90° Rise	Energy Factor	A	B	C	D	E	F	Gas Conn.	Vent Size	Water Conn.	Ship. Wt.
High Recovery Models																
LTN040 50	40	50,000	45,000	75	51	0.60	61-3/4"	20"	51-3/4"	58-1/4"	13-1/4"	8"	1/2"	4"	3/4"	138
LTN050 50	48	50,000	45,000	90	51	0.58	61"	20"	50-1/2"	56-1/2"	13-1/2"	8"	1/2"	4"	3/4"	172
LTN050 65	50	65,000	62,500	93	67	0.58	64"	22"	54-1/4"	59-1/2"	15-1/2"	8"	1/2"	4"	3/4"	195
LTN065 65	65	65,000	55,000	116	67	0.57	65"	24"	54-1/4"	60"	15-1/2"	8"	1/2"	4"	3/4"	215
LTN075 75	74	75,100	75,100	N/A	81	N/A	61"	26-1/2"	50-1/4"	57"	14-3/4"	16"	1/2"	4"	1"	275
LTN100 75	98	75,100	75,100	N/A	81	N/A	68-1/2"	27-3/4"	57-1/2"	65"	15-1/4"	16"	1/2"	4"	1-1/4"	350
High Efficiency Models																
LSN040 40EF	40	40,000	36,000	67	41	0.62	51-1/2"	22"	41"	47-3/4"	13"	8"	1/2"	3" or 4"	3/4"	147
LTN030 35EF	30	35,500	32,000	67	36	0.62	61-1/2"	18"	52"	58"	13"	8"	1/2"	3" or 4"	3/4"	126
LTN040 40EF	40	40,000	36,000	70	41	0.62	61-3/4"	20"	51-3/4"	58-1/4"	13"	8"	1/2"	3" or 4"	3/4"	150
LTN050 40EF	50	40,000	37,000	88	41	0.62	61"	22"	50-1/4"	57-1/4"	13"	8"	1/2"	3" or 4"	3/4"	165
Energy Star Models																
LSN040 40ES	40	40,000	36,000	67	42	0.67	54"	22"	41"	47-3/4"	13"	8"	1/2"	3" or 4"	3/4"	149
LTN040 40ES	40	40,000	36,000	67	42	0.67	64-1/4"	20"	51-3/4"	58-1/4"	13"	8"	1/2"	3" or 4"	3/4"	152
LTN050 40ES	50	40,000	37,000	81	42	0.67	63-1/2"	22"	50-1/4"	57-1/4"	13"	8"	1/2"	3" or 4"	3/4"	167

Notes: "N" indicates Natural gas, replace "N" with "L" to indicate LP gas model.

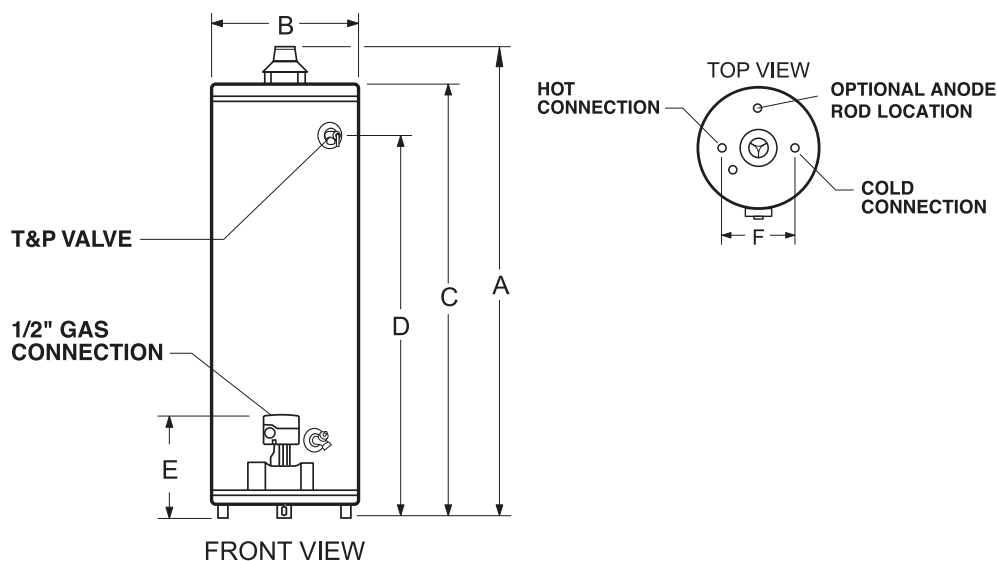
Energy Star models receive an interlocking Flue Damper for higher Energy Factor.

Standard Features

- Flammable Vapor Ignition Resistant Compliant
- Electronic Gas Control
- Sight Glass
- Low NOx Burner
- Non-CFC Foam Insulation
- Glass-Lined Steel Tank
- Tank Saver Anode
- Heat Trap
- Temperature & Pressure Relief Valve - (Factory installed)
- Brass Drain Valve
- 6-Year Limited Tank & Parts Warranty* – See warranty for details.
- 10-Year Extended Warranty Available – Residential applications only.

*1-year limited tank & parts warranty when installed in a commercial application.

Ultra Low NOx Residential Gas Models



Model Number	Gal. Cap.	Input Btu/Hr	GPH @ 90°F Rise	1st HR. Rating	Energy Factor	A	B	C	D	E	F	Gas Conn.	Vent Size	Water Conn.	Ship. Wt.
Ultra Low NOx Models - 6 Year Limited Warranty															
UTN030 30	30	30,000	31	50	0.61	60"	16"	56-1/2"	48-1/2"	13"	8"	1/2"	3" or 4"	3/4"	105
UTN040 40	40	40,000	41	65	0.59	62-1/4"	18"	58-3/4"	50-3/4"	13"	8"	1/2"	3" or 4"	3/4"	129
UTN050 40	50	40,000	41	75	0.58	61"	20"	57-1/2"	49-1/2"	13"	8"	1/2"	3" or 4"	3/4"	151
High Efficiency Ultra Low NOx Models															
UTN040 40EF	40	40,000	41	70	0.62	62"	20"	58-1/2"	50-3/4"	13"	8"	1/2"	3" or 4"	3/4"	138
UTN050 40EF	50	40,000	41	75	0.62	61"	22"	57-1/2"	49-1/2"	13"	8"	1/2"	3" or 4"	3/4"	160
High Efficiency Ultra Low NOx Power Vented Models															
UPN040 40ES	40	42,000	42.6	-	0.68	66-7/8"	20"	58-5/8"	51-1/2"	25"	12-1/4"	1/2"	-	3/4"	170
UPN050 40ES	50	42,000	42.6	-	0.68	65-7/8"	20"	57-1/2"	51"	27"	12-1/4"	1/2"	-	3/4"	207

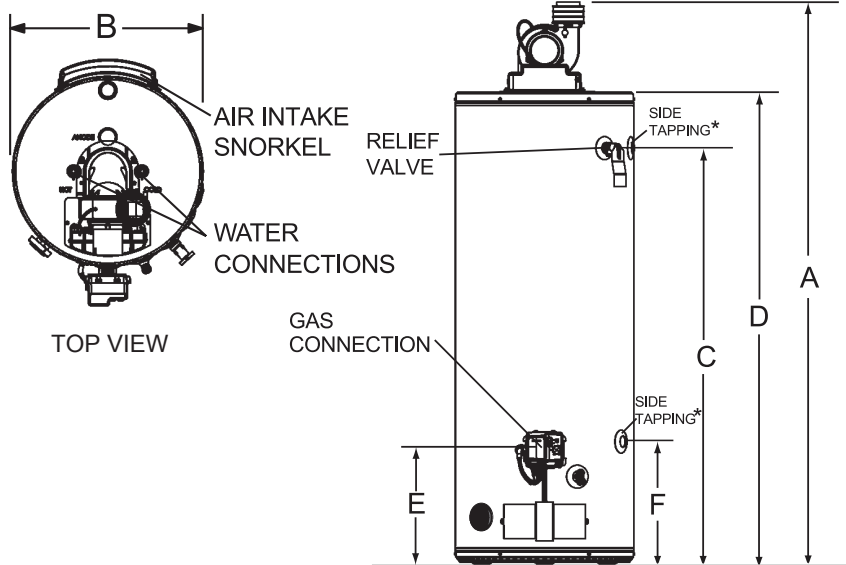
Notes: All Ultra Low NOx models certified at 10 ng/J or less.
Ultra Low NOx models available in Natural Gas ONLY.

Standard Features

- Flammable Vapor Ignition Resistant Compliant
- Electronic Control Valve
- Ultra Low NOx Burner
- Non-CFC Foam Insulation
- Glass-Lined Steel Tank
- Tank Saver Anode
- Heat Trap
- Temperature & Pressure Relief Valve - Factory installed.
- Brass Drain Valve
- 6-Year Limited Tank & Parts Warranty* – See warranty for details.
- 10-Year Extended Warranty Available – Residential applications only.

* 1-year limited tank & parts warranty when installed in a commercial application.

Power Vented Residential Gas Models



Model Number	Gal. Cap.	Btu/hr Input	GPH @ 90°F Rise	1st Hr. Rating	Energy Factor	A	B	C	D	E	F	Gas Conn.	Blower Diam.	Water Conn.	Ship. Wt.
Power Vented Models															
PVN040 40	40	40,000	45	73	0.70	59"	22"	42-1/2"	49-3/4"	14-1/4"	N/A	1/2"	2", 3" or 4"	3/4"	174
PVN040 50	40	50,000	56	90	0.70	68-1/2"	20"	53-1/8"	59-1/4"	14-1/4"	15-1/4"	1/2"	2", 3" or 4"	3/4"	176
PVN050 40	50	40,000	45	90	0.70	60-1/4"	24"	43-3/4"	50-3/4"	14-1/4"	N/A	1/2"	2", 3" or 4"	3/4"	198
PVN050 50	50	50,000	56	96	0.70	68-1/4"	22"	51-3/4"	58-3/4"	14-1/4"	15-1/4"	1/2"	2", 3" or 4"	3/4"	192
PVN050 65ST	50	62,000	70	110	0.70	61-1/4"	24"	44-1/2"	52"	14-1/4"	15-1/4"	1/2"	3" or 4"	3/4"	212
PVN075 75ST	75	72,000	81	155	0.68	70-3/4"	26"	53"	61-1/4"	14-1/4"	15-1/4"	1/2"	3" or 4"	3/4"	277

Notes: Replace "N" with "L" to indicate LP gas model

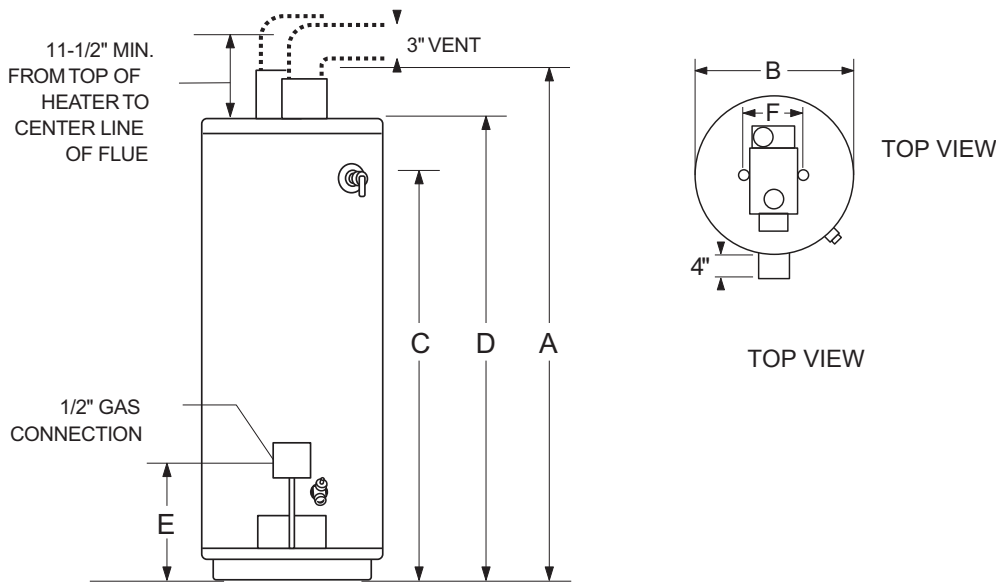
For the 50,000 Btu models, add "ST" to the model number for optional Side Tappings. Example, PVN050 50ST

*Side Tappings are standard on 62,000 and 72,000 Btu models. (Plugs supplied, not installed)

Standard Features

- ENERGY STAR® Qualified
 - Flammable Vapor Ignition Resistant Compliant
 - Power Vented Exhaust System w/ PVC/CPVC/ or Polypropylene
 - Side Wall or Vertical Venting w/ PVC/CPVC/ or Polypropylene
 - Non-CFC Foam Insulation
 - Glass-Lined Steel Tank
 - Tank Saver Anode
 - Electronic Gas Control
 - Heat Trap
 - Temperature & Pressure Relief Valve - Factory installed.
 - Brass Drain Valve - Factory installed.
 - 6 - Year Limited Tank & Parts Warranty* – See warranty for details.
 - 10 -Year Extended Warranty Available – Residential applications only
- * 1-year limited tank & parts warranty when installed in a commercial application.

Power Direct Vent Residential Gas Models



Model Number	Gal. Cap.	Btu/hr Input	GPH @ 90°F Rise	1st Hr. Energy Rating	Energy Factor	A	B	C	D	E	F	Gas Conn.	Blower Diam.	Water Conn.	Ship. Wt.
Power Direct Vented Models															
PRN040	40	40,000	41	70	0.60	57"	21"	42"	48-1/2"	15"	8"	1/2"	3"	3/4"	224
PRN050	40	40,000	41	87	0.59	66"	21"	51"	57-1/2"	15"	8"	1/2"	3"	3/4"	232
PRN050	65	65,000	64	105	0.58	69-1/2"	21"	54-1/2"	61"	15"	8"	1/2"	3"	3/4"	232
PRN075	70	70,000	72	130	0.58	71-1/2"	26-1/4"	54-3/4"	61-1/2"	15-1/2"	8"	1/2"	3"	3/4"	300

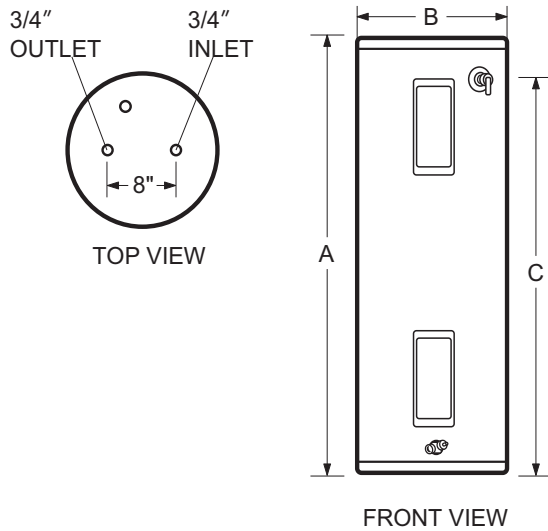
Notes: All LP heaters are equipped with a cast iron burner. Replace "N" with "L" to indicate LP gas model.

Standard Features

- Power Direct Venting System
- Flammable Vapor Ignition Resistant Compliant
- Electronic Gas Control
- Non-CFC Foam Insulation
- Glass-Lined Steel Tank
- Heat Trap
- Concentric Vent Termination (optional)
- Temperature & Pressure Relief Valve - Factory installed.
- Brass Drain Valve
- 6-Year Limited Tank & Parts Warranty* – See warranty for details.
- 10-Year Extended Warranty Available – Residential applications only

* 1-year limited tank & parts warranty when installed in a commercial application.

Residential Electric Models



Model Number	Gal. Cap.	Input Watts	1st Hour Rating	Energy Factor	A	B	C	Shipping Weight
Short Models								
LSA030KD	30	4500	41	.93	30"	22"	22-1/2"	91
LSA040KD	40	4500	38	.92	31-1/4"	23"	24-3/4"	113
LSA050KD	50	4500	55	.91	34"	26-1/2"	25"	164
Medium Models								
LMA030KD	30	4500	43	.93	36-1/2"	20-1/2"	28"	90
LMA040KD	40	4500	52	.92	44"	20-1/2"	37-3/4"	103
LMA050KD	50	4500	60	.90	48"	21-1/2"	40-1/2"	121
Tall Models								
LTA030KD	30	4500	43	.93	46-1/2"	18"	39-1/2"	90
LTA040KD	40	4500	52	.92	59-1/2"	18"	53-1/2"	106
LTA052KD	50	4500	60	.91	54"	20"	47-1/2"	116
LTA066KD	66	4500	72	.88	60-1/4"	20-1/2"	53"	178
LTA082KD	80	4500	81	.86	60-1/2"	22-1/2"	52"	208
LTA120KD	119	4500	112	.81	64-1/4"	28"	54-1/4"	336
High Efficiency Models								
LMA050KDEF	50	4500	62	.93	49"	23"	40-1/2"	155
LTA040KDEF	40	4500	54	.93	60"	19"	53-1/2"	120
LTA052KDEF	50	4500	60	.93	56-1/2"	21-1/2"	47-1/2"	135
LTA066KDEF	66	4500	76	.92	61"	23"	53"	180
LTA082KDEF	80	4500	87	.93	61-1/2"	25"	52"	210

Notes: Standard Voltage and Wattage: 240v – 4500w.

Wattage	ELEMENT AVAILABILITY SCHEDULE		
	C - 120V	J - 208V	A - 240V
C - 1500	N/A	Yes	Yes
D - 1650	Yes	N/A	N/A
E - 2000	Yes	Yes	Yes
F - 2500	Yes	Yes	Yes
G - 3000	Yes	Yes	Yes
H - 3500	N/A	Yes	Yes
J - 4000	N/A	Yes	Yes
K - 4500	N/A	Yes	Yes
P - 6000	N/A	Yes	Yes

Recovery Rate (GPH @ °F)	RECOVERY RATE (GPH @ °F)		
	40°F	70°F	100°F
C - 1500	16	9	6
D - 1650	17	10	7
E - 2000	21	12	8
F - 2500	26	15	10
G - 3000	31	18	12
H - 3500	36	21	14
J - 4000	41	24	17
K - 4500	47	27	19
P - 6000	62	35	25

Standard Features

- Non-CFC Foam Insulation
- Immersion Type Heating Elements
- Screw-In Element Mounting
- Adjustable Thermostat
- Glass-lined Steel Tank
- Tank Saver Anode
- Heat Trap
- Temperature & Pressure Relief Valve - Factory installed.
- Brass Drain Valve
- 6-Year Limited Tank & Parts Warranty* – See warranty for details.
- 10-Year Extended Warranty Available – Residential applications only
* 1-year limited tank & parts warranty when installed in a commercial application.

VOLTAGE SCHEDULE

C - 120V	1ø
J - 208V	1ø
A - 240V	1ø

Junior Electric Models

Standard Features

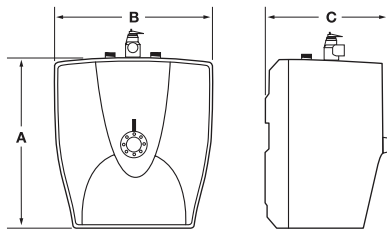
- Adjustable Thermostat Control
- Manual Reset High Limit Safety Control
- Glass-lined Steel Tank
- Temperature & Pressure Relief Valve - Factory installed.
- Non-CFC Foam Insulation
- Heat Trap
- Tank Saver Anode
- 6- Year Limited Tank & Parts Warranty* -
See warranty for details.
- 10-Year Extended Warranty Available -
Residential applications only.
* 1-year limited tank & parts warranty when installed in a commercial application.

Optional Equipment

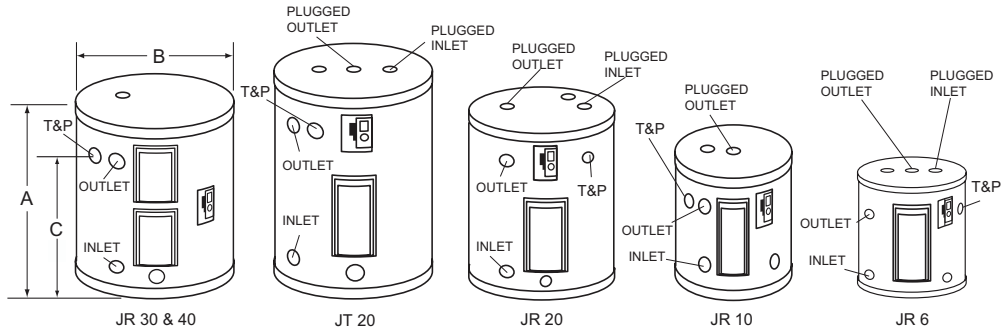
- Adjustable Water Heater Shelf - Heavy gauge steel shelves assemble six different ways for convenient wall mounting.



2.5 gallon model



6 - 40 gallon models



Model Number	Gallon Capacity	Input Watts	Standard Voltage	1st Hour Rating	Energy Factor	A	B	C	Shipping Weight
JRC002CS	2.5	1500	120V	N/A	N/A	13-3/4"	13-3/4"	11"	18
JRC006DS	6	1650	120V	N/A	N/A	15-1/4"	14-1/4"	10-3/4"	31
JRC010DS	10	1650	120V	N/A	N/A	18-1/4"	16"	12-1/4"	45
JRC020DS	20	1650	120V	N/A	N/A	24-3/4"	18"	18-3/4"	65
JTC020DS	20	1650	120V	N/A	N/A	31-3/4"	16"	25-3/4"	62
JRA030KS	30	4500	240V	37	.93	30"	22"	22-3/4"	100
JRA040KS	40	4500	240V	43	.92	31-1/4"	23"	24-3/4"	131

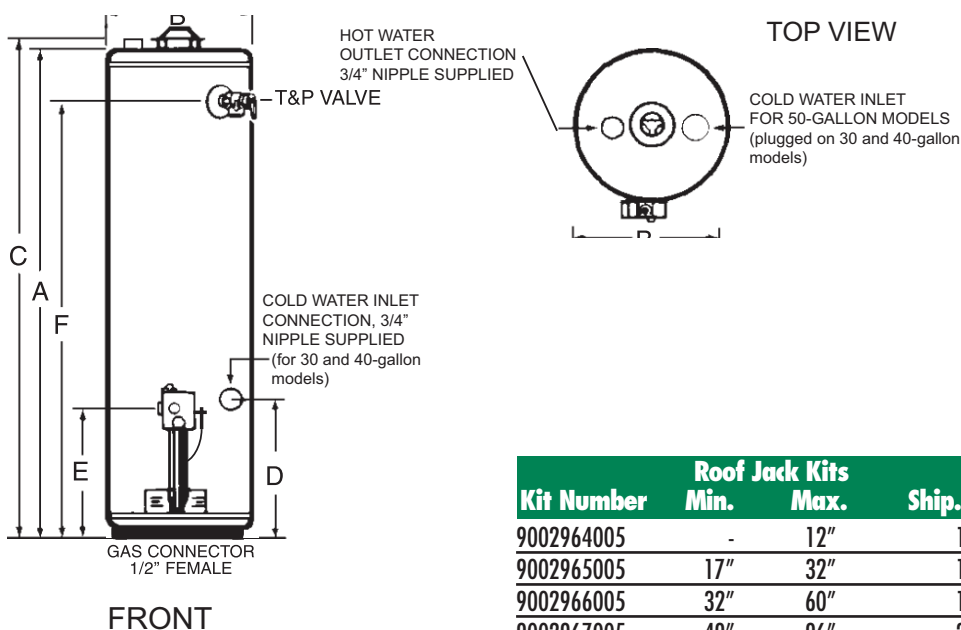
Notes: The 2.5 gallon is available in 120 volt / 1500 watts only.
Maximum wattage for 6 gallon is 3000 watts.
Water connections are 3/4" NPT.

Element Availability Schedule	Wattage		
	C - 120V	J - 208V	A - 240V
C - 1500	N/A	Yes	Yes
D - 1650	Yes	N/A	N/A
E - 2000	Yes	Yes	Yes
F - 2500	Yes	Yes	Yes
G - 3000	Yes	Yes	Yes
H - 3500	N/A	Yes	Yes
J - 4000	N/A	Yes	Yes
K - 4500	N/A	Yes	Yes
P - 6000	N/A	Yes	Yes

Recovery Rate (GPH @ °F Rise)	40°F		
	70°F	100°F	
16	9	6	
17	10	7	
21	12	8	
26	15	10	
31	18	12	
36	21	14	
41	24	17	
47	27	19	
62	35	25	

VOLTAGE SCHEDULE
C - 120V 1ø
J - 208V 1ø
A - 240V 1ø

Manufactured Home Gas Models



Kit Number	Roof Jack Kits		Ship. Wt.
	Min.	Max.	
9002964005	-	12"	10
9002965005	17"	32"	13
9002966005	32"	60"	17
9002967005	49"	96"	22

Model Number	Gal. Cap.	Input Btu/Hr	GPH @ 90°F Rise	1st Hr. Rating	Energy Factor	A	B	C	D	E	F	Gas Conn.	Water Conn.	Ship. Wt
Direct Vent Models														
MDN030	30	30,000	31	54	0.61	56"	18"	57"	16-3/4"	15-1/4"	51-1/2"	1/2"	3/4"	115
MDN040	30	32,000	33	64	0.59	56-1/2"	20"	57-1/2"	20-3/4"	15-1/4"	51"	1/2"	3/4"	134
MDN050	40	38,000	39	77	0.58	56"	22"	57"	23-1/4"	15-1/4"	50-1/2"	1/2"	3/4"	170
Atmospheric Vent Models														
MHN030	35	35,500*	36	69	0.61	58"	16"	59"	14-1/4"	13-1/4"	51-3/4"	1/2"	3/4"	125
MHN040	35	40	35,500*	37	66	58-1/4"	18-1/2"	60-1/4"	17-3/4"	13-1/4"	48-1/2"	1/2"	3/4"	134

Notes: * Propane model rated at 32,000 Btu/hr

Standard Features

- Flammable Vapor Ignition Resistant Compliant
- Non-CFC Foam Insulation
- Natural Gas to LP Gas Conversion Kit
- Adjustable Thermostat
- Glass-Lined Steel Tank
- Low NOx Burner
- Piezo Ignitor
- Tank Saver Anode
- Heat Trap
- Temperature & Pressure Relief Valve - Factory installed.
- Brass Drain Valve
- 6 Year Limited Tank Warranty*,
2 Year Limited Parts Warranty
See warranty for details
- 10 Year Extended Warranty Available -
In residential applications

* 1-year limited tank & parts warranty when installed in a commercial application.

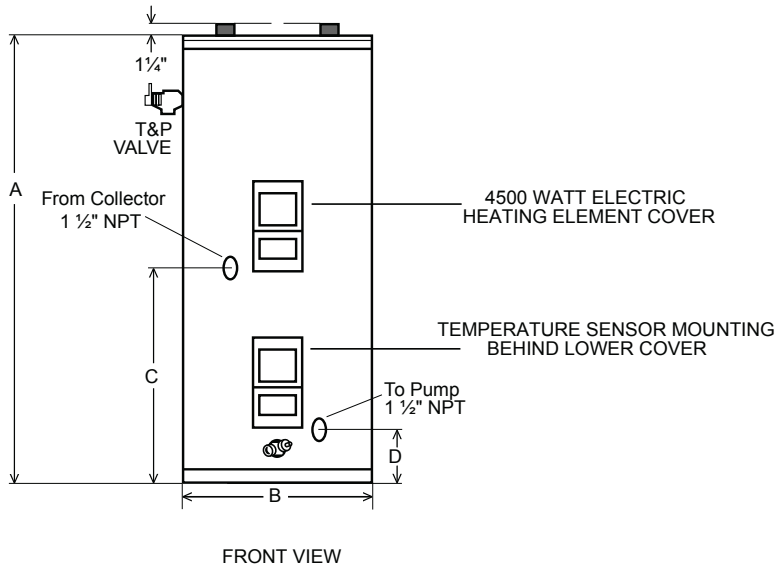
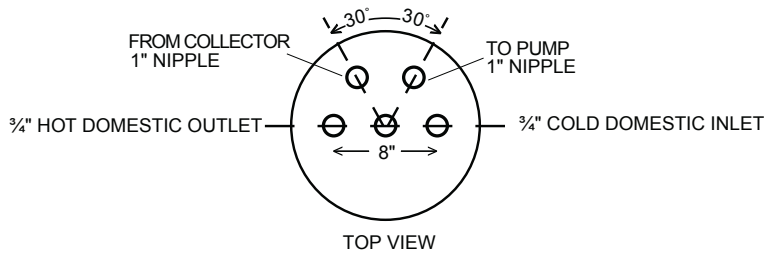
Optional Equipment

Roof Jack Kit – Manufactured Home water heaters must be installed with one of the approved Roof Jack Kits listed on the table. This kit is ordered separately and must be installed per the installation instructions. *Specify roof jack kit size when ordering.*

Air Inlet Kit – An optional Air Inlet kit is available for Direct Vent models installed over open subfloor spaces. The kit allows for horizontal air intake piping up to 30 feet with Schedule 40 PVC pipe.

*Order kit number 9002986005 for 30 and 40 gallon models.
Order kit number 9002987005 for 50 gallon models.*

Sun Saver Models



Model Number	Gallon Capacity	Element Wattage	GPH@ 90°F Rise	A	B	C	D	Shipping Weight
FTA066KS	65	4500	21	60-1/4"	22"	20-1/2"	7-1/2"	152
FTA082KS	80	4500	21	63-1/4"	24"	35-3/4"	5-1/4"	204
FTA120KS	119	4500	21	63-1/4"	28"	35-3/4"	5-1/4"	311

Notes: Voltage and wattage; 240V 1Ø - 4500W.

Standard Features

- Non-CFC Foam Insulation
- Glass-Lined Tank
- Tank Saver Anode
- Water Connections
- Temperature & Pressure Relief Valve – (Factory Installed)
- Tank Sensor
- Heating Element
- Brass Drain Valve – Factory installed.
- 6- Year Limited Tank & Parts Warranty* – See warranty for details.
- 10-Year Extended Warranty Available – Residential applications only.

Stack Frame

Pre-Assembled
Heavy Duty
Factory Welded
Construction

**STACK
FRAME**



Two Lochinvar 990,000 Btu/hr Copper-Fin II models stacked for a total capacity of almost 2 million Btu/hr.

Another Innovation from Lochinvar

Lochinvar's Copper-Fin technology not only makes our water heaters and boilers more efficient, it means they also have a smaller footprint. So they save space as well as operating costs.

And now there is a way to get greater flexibility and reliability, save even more space, and get a system that is perfectly matched to a facility — thanks to the use of a Stack Frame from Lochinvar.

Match Load and Capacity

With this versatile stand, you can stack almost any combination of our Copper-Fin, Copper-Fin II, and Efficiency+ water heaters and boilers. So you can achieve the perfect Btu/hr capacity for each application.

For example, a facility needs a Copper-Fin II boiler with a total capacity of 1.6 million Btu/hr. Instead of installing an oversized CHN1802 unit or a smaller CHN1442 model, now you can combine two units – CHN992 and CHN652 models– to exactly match the facility's needs.

Plus, the total footprint of this combined system is just over 10 inches wider than the 652 unit alone, making it smaller than either the 1802 or 1442 model. All thanks to the Lochinvar Stack Frame.

Added System Benefits

This modular design provides two other important benefits. First, it allows for system turndown for greater efficiency when demand is lower. And second, it ensures against system failure by utilizing two independent but complementary units.

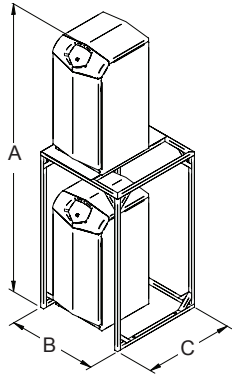
For indoor residential and light commercial needs or commercial applications up to 4 million Btu/hr, the Stack Frame gives greater flexibility without a significant increase in stack size or overall system dimensions.

Once you have determined a facility's requirements and the exact models needed, utilize the charts provided to calculate total system dimensions.

Note: Indoor Installation Only

Stack Frame

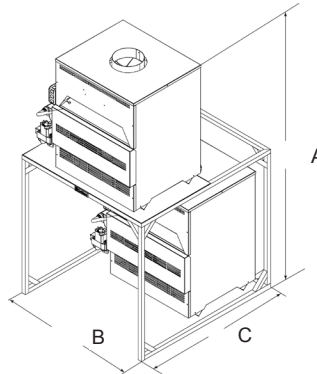
ARMOR® Water Heaters (Models 151-801)



MODEL #	PART #	A*	B**	C	Wt. (.lbs)
AW 151-200	MSF3043	90-1/2"	26"	26"	60
AW 286-501	MSF3044	109"	26"	34"	72
AW 601-801	MSF30002	109"	26"	49"	94

Note:
 Heater height is 33-1/4" on AW 151-200 models.
 Heater height is 42-1/2" on AW 286-801 models.

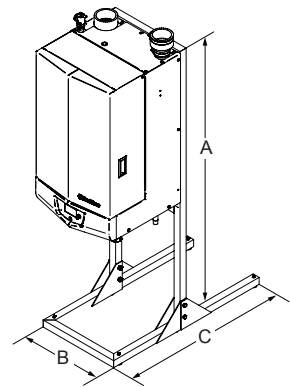
Copper-Fin® Water Heaters



MODEL #	PART #	A*	B**	C	Wt. (.lbs)
CW 090	MSF 3034	65-1/2"	36"	39"	73
CW 135	MSF 3034	65-1/2"	36"	39"	73
CW 180	MSF 3034	65-1/2"	36"	39"	73
CW 199	MSF 3035	65-1/2"	48"	39"	84
CB 215	MSF 3035	65-1/2"	48"	39"	84
CW 225	MSF 3035	65-1/2"	48"	39"	84
CW 270	MSF 3035	65-1/2"	48"	39"	84
CW 315	MSF 3035	65-1/2"	48"	39"	84
CW 360	MSF 3035	65-1/2"	48"	39"	84
CW 399	MSF 3036	65-1/2"	65"	39"	147
CW 500	MSF 3036	70-1/2"	65"	39"	147

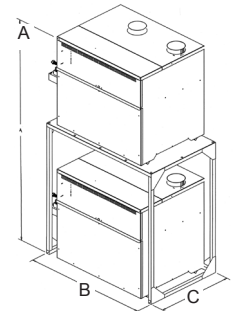
Note: Heater height is 29-1/2" (45 - 399) and 34-1/2" (500).

ARMOR® Wall Mount (Models 125-150)



PART #	A*	B**	C	Wt. (.lbs)
MSF30018	60-1/4"	17-1/2"	36"	50

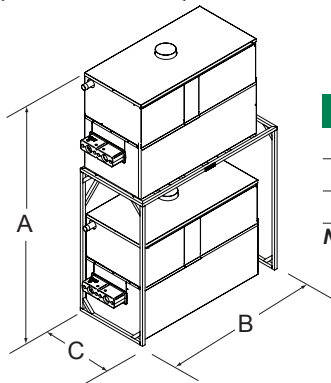
Efficiency+® Water Heaters (Models 150-300)



PART #	A*	B**	C	Wt. (.lbs)
MSF3021	71-1/4"	37"	24"	72

Note: Heater height is 28" on all models.

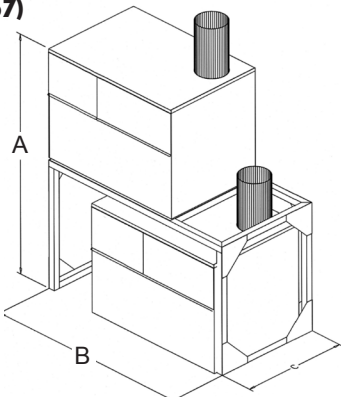
Copper-Fin® Water Heaters (Models 497-747)



MODEL #	PART #	A*	B**	C	Wt. (.lbs)
CW 497	MSF3002	81-1/2"	51"	24-1/2"	70
CW 647	MSF3003	84-1/2"	70"	26"	128
CW 747	MSF3003	84-1/2"	70"	26"	128

Note: Heater Height is 33-1/4" (497-747)

Copper-Fin II® Water Heaters (Models 987-2067)



MODEL #	PART #	A*	B**	C	Wt. (.lbs)
CF 402	MSF3022	67-1/2"	59"	24-1/2"	83
CF 502	MSF3022	67-1/2"	59"	24-1/2"	83
CF 652	MSF3023	67-1/2"	80"	24-1/2"	132
CF 752	MSF3023	67-1/2"	80"	24-1/2"	132
CW/CF 987/992	MSF3007	80"	68"	36"	170
CW/CF 1257/1262	MSF3008	80"	88"	36"	214
CW/CF 1437/1442	MSF3008	80"	88"	36"	214
CW/CF 1797/1802	MSF3009	80"	114"	36"	251
CW/CF 2067/2072	MSF3009	80"	114"	36"	251

Note: Heater height is 31-1/2" (402-752) & 36" (987-2072)

* To vent connection
 ** Allow space for plumbing connections



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