



# Model CHG™

Condensing High Efficiency Gas-fired Water Boiler



- 94+% AFUE - ENERGY STAR® Certified
- Condensing Water Boiler
- Natural or LP Gas  
150 - 225 MBH (2 sizes)
- Cast Aluminum Heat Exchanger
- Direct Vent Sealed Combustion
- Fully Modulating Firing Rates

 **Burnham**®  
Hydronics

## Burnham CHG™ Condensing Boilers



94+% AFUE

### What is a "Condensing" Boiler?

When a condensing boiler is working at its peak efficiency, the water vapor produced in the gas combustion process condenses back into water – hence the name "condensing" boiler. This condensation of exhaust gases releases the latent heat that is given off whenever the vaporization of water takes place. Together these two processes create the high efficiencies associated with Burnham condensing boilers.

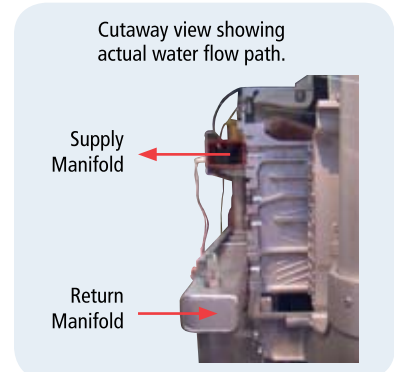
Burnham CHG condensing boilers achieve 94+% efficiency through the ruggedly designed heat exchanger. These sectional, cast aluminum designs use the heat in the exhaust gases from the boiler's combustion process to preheat the water as it enters the boiler, thus capturing energy that otherwise would be lost. In addition, CHG boilers have fully modulating controls that allow the boiler to operate with up to a 5-to-1 turn down ratio. Thus a CHG boiler continuously adjusts its output to more efficiently and effectively provide the right amount of heat that helps conserve fuel and reduce heating costs.

CHG boilers come in two sizes and are available for either natural gas or propane installations. Each CHG boiler's fully modulating control system has a variety of sensors including indoor/outdoor reset that are standard on each boiler and provide the input to the control system to maximize operating efficiencies.

Through its advanced design, packaging, and unique combustion process, a CHG boiler operates so quietly that it may not even be heard firing, but the sequence of operation is visible on the digital display mounted on top of the boiler.

### CHG Boiler Operation

The CHG castings incorporate a multi-pass water flow with the return water entering the lower manifold and progressing upward to the supply manifold. This counterflow from bottom to top provides for maximum heat transfer while the serpentine pattern offers low pressure drop. Each section's water flow is independent with no port connections between sections. The supply and return manifolds are designed to balance the flow across all sections.



### Safety with Increased Efficiency

CHG boilers use a sealed combustion system that isolates the combustion process in the boiler from the air inside a home. This design helps save energy dollars by using outside air rather than room air in the home that has already been heated, and thus assures that exhaust gases are vented directly to the outside. For further safety, CHG boilers incorporate AL29-4C® stainless steel material for a proven and safe sealed venting system designed to work well in condensing applications. Also each CHG boiler includes a low water cutoff control with a dedicated transformer as additional protection for the boiler's heat exchanger.

### 15-Year Limited Warranty

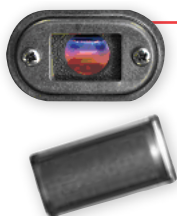
The aluminum heat exchanger in CHG boilers is covered by a 15-year limited factory warranty. The purchase of an optional Winter Warmth Assurance Plan from Burnham can extend the standard factory warranty protection to include parts and labor for the entire boiler for either 5 or 10 years.



## CHG™ Boiler

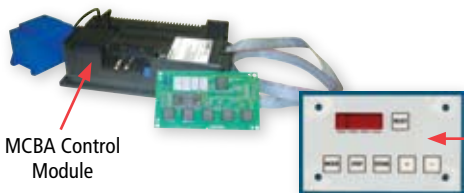
### Site Glass & Burner

The site glass is used to see the flame in operation which can be continuously modulated from an orange glow to a full blue flame. The burner is located on the top of the heat exchanger forcing the heat down while the boiler water is flowing upward. This allows the condensation to drain down and away from the boiler.



### Boiler Control Module & Outdoor Reset

The boiler uses a microprocessor control to manage the combustion process. It stores boiler set points and continuously monitors supply/return water temperatures, flue gas temperature, flame sensor and the standard indoor/outdoor reset. The control provides continuous modulation (firing rates) by varying the combustion fan speed. A digital display provides detailed boiler data and is a useful service and troubleshooting tool.



MCBA Control Module

Digital display mounted on top of boiler

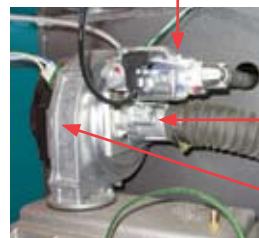
### CHG Venting

The CHG incorporates a sealed system that uses outside air for combustion and the safe and proven AL29-4C® stainless steel material for venting the exhaust in condensing applications. Both horizontal ("sidewall") and vertical ("through-the-roof") venting options are available.

### Premix Technology

CHG boilers utilize a pre-mix combustion assembly that includes a modulating gas valve, variable speed blower and a venturi to provide an optimal fuel/air mixture to a stainless steel mesh burner. Together these components accurately and efficiently help control the fully modulating combustion process which automatically adjusts the boiler's firing rate to match your heating needs.

Negative regulated gas valve with factory set outlet pressure



Venturi

Variable Speed Blower

## Burnham Alliance SL™ Indirect-fired Water Heaters

For an abundant supply of domestic hot water, be sure to use an Burnham Alliance SL indirect-fired water heater with every boiler application.




The Alliance SL water heaters are designed with an effective hydrastone lining that offers superior corrosion resistance and outstanding performance in a wide variety of water conditions.

Water heaters are available in five sizes and come with a unique 10/2/1 warranty – 10 years on the tank and coil, 2 years labor and 1 year on parts. An optional lifetime warranty is also available.



# Ratings and Specifications



Boiler Model	Maximum Input (MBH)	Minimum Input (MBH)	DOE Heating Capacity (MBH)	I=B=R Net Rating (MBH)	 AFUE (%)
CHG150	150,000	30,000	135,000	117,000	93.10
CHG225	225,000	56,250	202,000	176,000	94.20

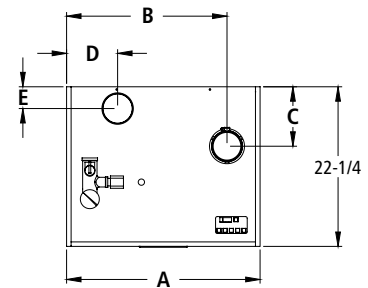
## Specifications

Boiler Model	Vent Diameter (inches)	Air Inlet Diameter (inches)	Horizontal Venting		Vertical Venting		Water Volume (gal.)	Approx. Shipping Weight (lbs.)
			Maximum Vent Length (Equiv. Ft.)	Maximum Air Inlet Length (Equiv. Ft.)	Maximum Vent Length (Equiv. Ft.)	Maximum Air Inlet Length (Equiv. Ft.)		
CHG150	3	4	55	60	49.5	52	1.3	258
CHG225	4	4	55	60	47	52	1.1	323

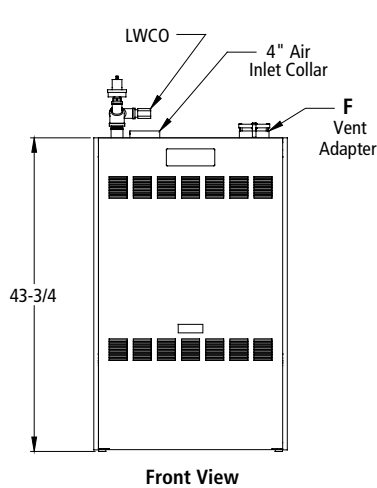
## Dimensions

Boiler Model	'A'	'B'	'C'	'D'	'E'
CHG150	23-3/8	18-3/4	8-1/8	13	3-1/2
CHG225	27	22-3/8	8-1/4	7-1/8	3

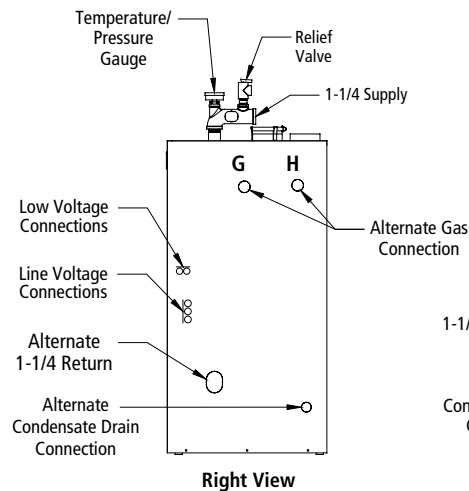
\* All dimensions in inches



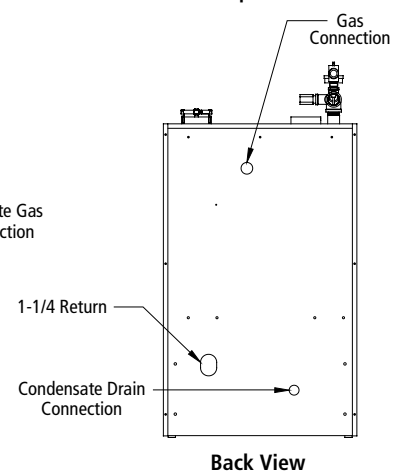
Top View



Front View



Right View



Back View



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