



PULSE

Condensing Hydronic Boilers

300,000 - 2,000,000 BTU/HR



- Ultra High Efficiencies
- Low Electrical Consumption
- Modulation with a 5:1 Turndown
- Low Maintenance Cost
- Low NOx Emissions
- Simplified System Designs
- Engineered Systems

Pulse Combustion • Hydronic Boilers

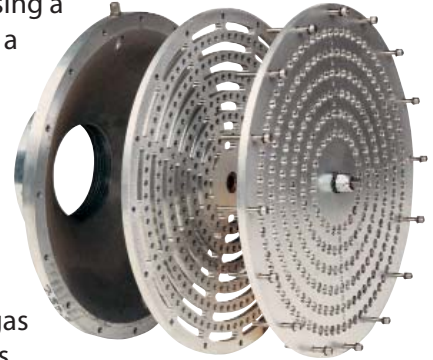
Features

- Ultra High Efficiencies
- Low Electrical Consumption
- Modulation with a 5:1 Turndown
- Low Maintenance Cost
- Low NOx Emissions
- Simplified System Designs
- Engineered Systems

Operating Principle

Fulton Pulse combustion boilers have been the leader in condensing technology for over 20 years. The acoustically engineered design behind Pulse combustion is unique and provides a number of advantages over traditional power burner configurations.

Pulse combustion is accomplished using a gas and an air metering valve. When a call for heat is sensed, the metering valves allow a controlled volume of air and gas to flow into the combustion chamber. An igniter is used to start the Pulse process. Combustion is maintained through a series of positive and negative pressures, which draw in additional gas and air as required. The Pulse process continues until the water temperature setpoint is reached. This self aspirating design prevents the need for a blower motor and decreases venting diameter requirements.

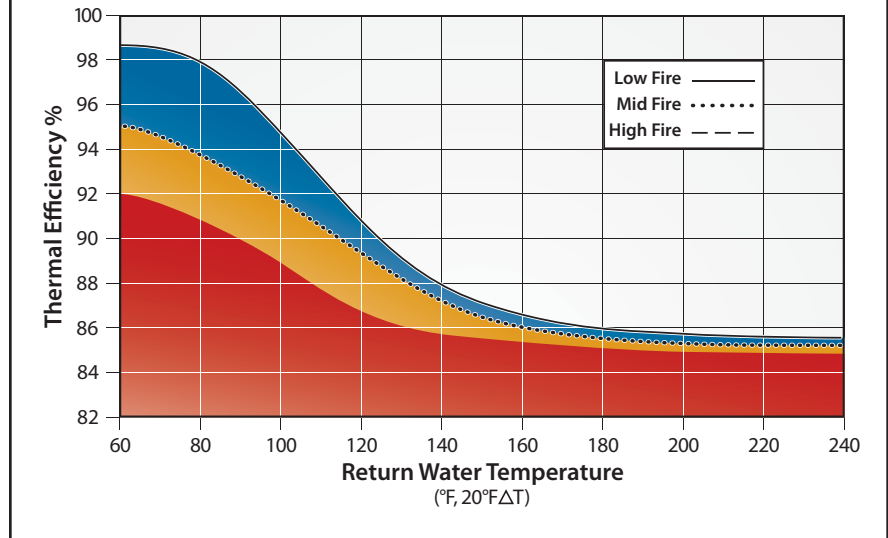


Pulse Boiler • Features and Benefits

Ultra High Efficiencies

The Pulse combustion process transfers more heat per square inch than traditional burners. The Pulse boiler's heat exchanger has been engineered to cool the flue gases low enough that condensing occurs. This extracts latent heat from the flue gases and generates ultra high efficiencies. Pulse boilers have been designed for condensing applications from the beginning. No secondary or bolt-on heat exchangers are required. The Pulse combustion method of burning fuel coupled with the Pulse boiler's condensing design provides the highest efficiencies possible and years of worry free operation.

Thermal Efficiency vs. Return Water Temperature



Low Electrical Consumption

The Pulse combustion process is naturally aspirated and does not require a blower motor for operation. An assist fan is used for pre/post purge only and turns off once combustion has been established. A Pulse boiler draws less than 1 amp during the run mode and can be powered from a standard 120V outlet. This results in a dramatic reduction of electrical power consumption and adds to the overall system efficiency.



Modulation with a 5:1 Turndown

Fulton Pulse combustion boilers utilize a modulation control system. The control system provides precise temperature control with infinite turndown capabilities throughout the entire firing rate range. Turndown capabilities of up to 5:1 are provided standard.

Low Maintenance Cost

A unique combustion process and no moving parts contribute to the lowest maintenance costs of any boiler on the market.

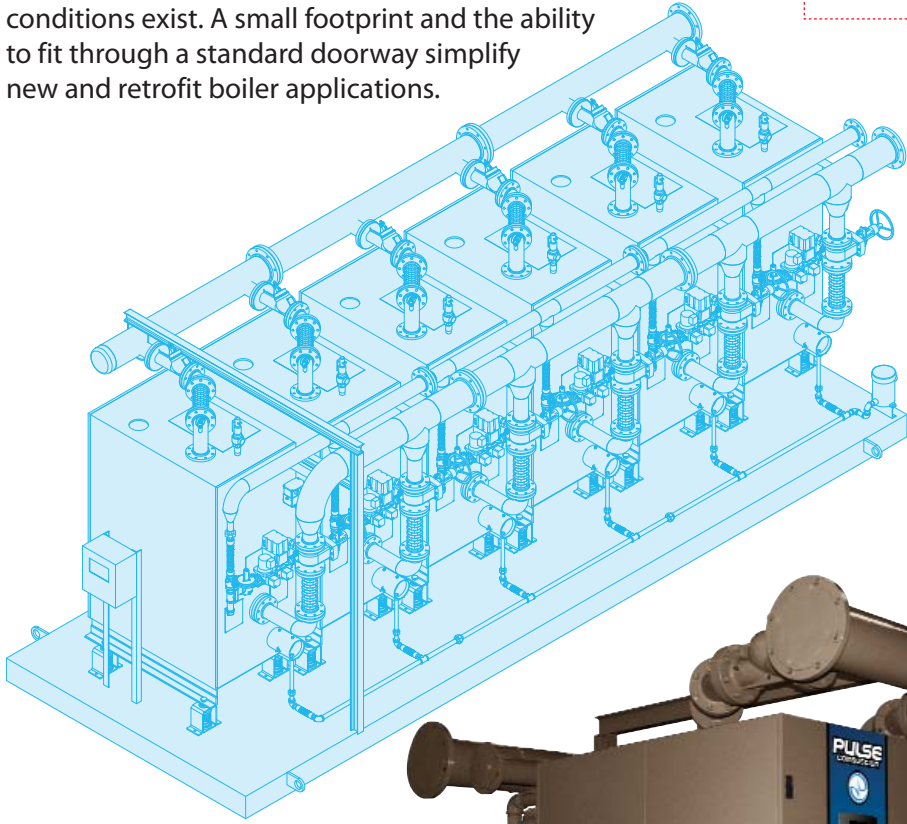
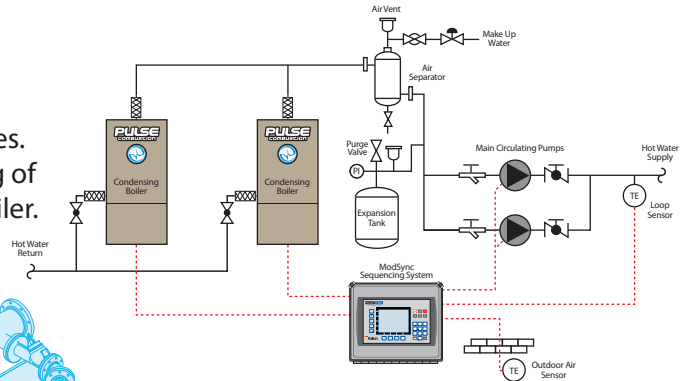
Low NOx Emissions

The Pulse boiler can also be configured to meet low emission requirements. A Low NOx injector creates the perfect mixture of gas and air providing consistent NOx emission levels of less than 30ppm throughout the complete firing rate range.

Pulse Boiler • Engineered Systems

Simplified System Designs

No minimum return water temperature requirements eliminate the need for boiler temperature control valves. Lower return water temperatures promote condensing of the flue gases and increase efficiencies of the Pulse boiler. The high mass heat exchanger design prevents any harm occurring to the Pulse boiler if low flow conditions exist. A small footprint and the ability to fit through a standard doorway simplify new and retrofit boiler applications.



Engineered Systems

Fulton specializes in custom designed hydronic systems to meet specific application requirements. Our team of engineers and project managers will assist in the specification and design of a "turnkey" system. Skid mounted hydronic systems provide simplified installation with single point water, fuel and electrical connections available.



The Pulse QT Boiler

The Pulse QT

Advancements in the Pulse boiler's design have been made which virtually eliminate any sound and vibration associated with the Pulse process. Mass barriers have been placed in key areas of the boiler resulting in overall sound reduction close to 75%.

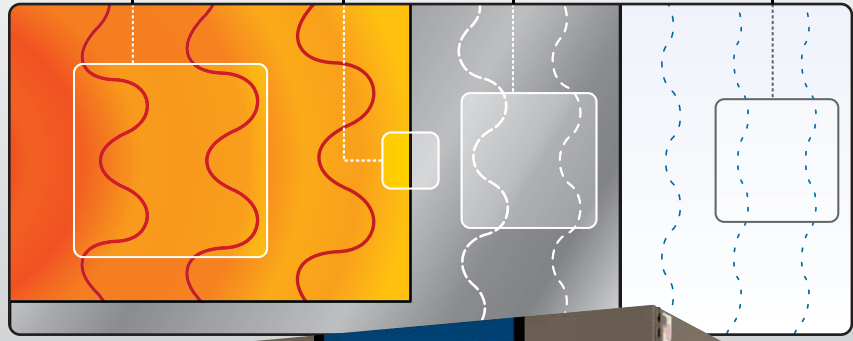
The air and exhaust decouplers efficiently break down the sound wave and prevent transmission into the building space.

Hot gases & sound waves created by Pulse combustion

The sound waves encounter a mass barrier

Sound and vibration energy is absorbed by the steel

Sound waves with a much lower magnitude leave the steel



A look inside the **Pulse Boiler**

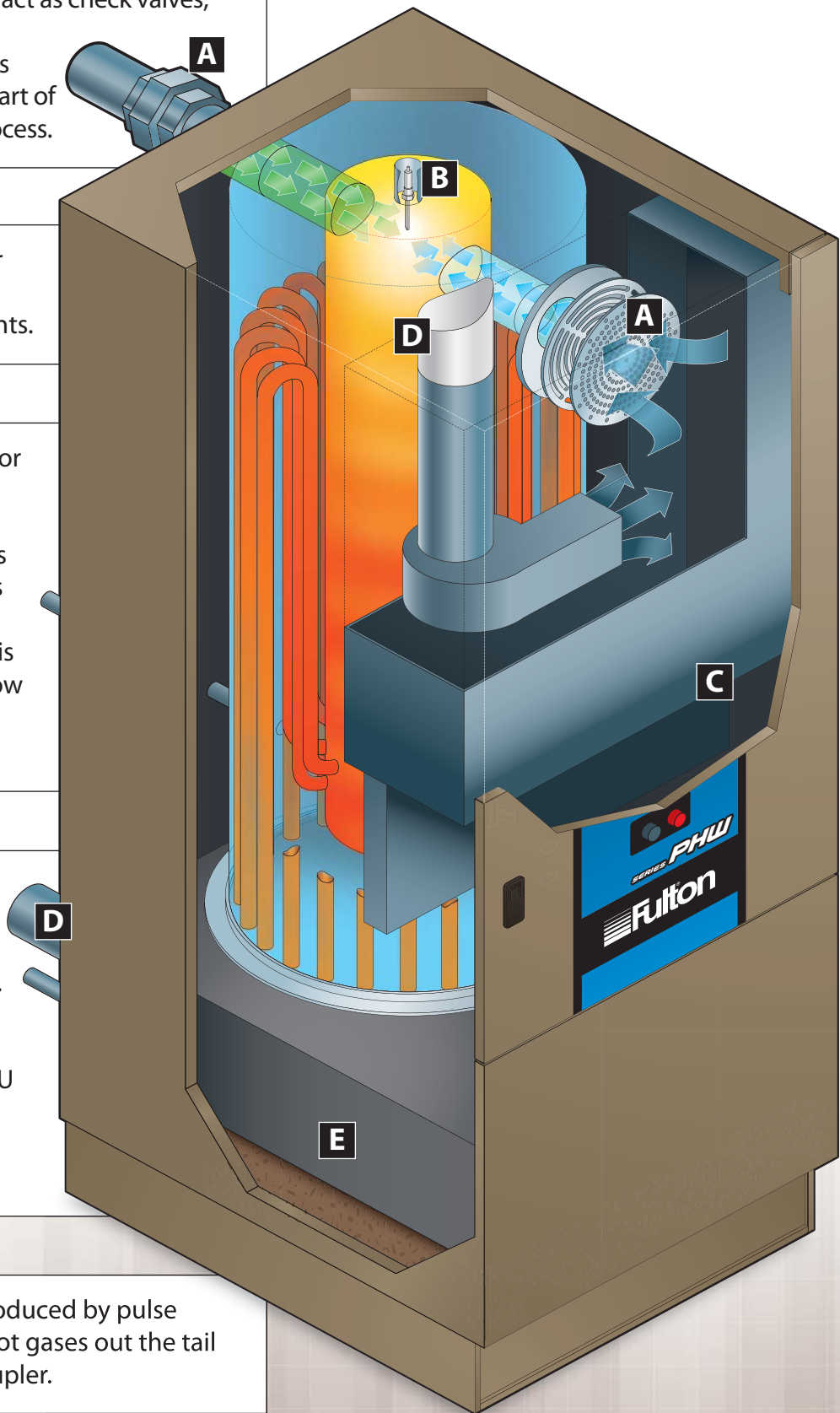
A Air & gas metering valves act as check valves; allowing flow into the combustion chamber. This patented design is the heart of the Pulse combustion process.

B The spark plug allows for direct ignition and lower maintenance requirements.

C The purge fan operates for pre and post purge only. Once the main flame is established, the fan turns off and the Pulse process naturally draws in the correct amount of air. This results in an extremely low level of electrical consumption.

D The air intake & exhaust are configured and rated for direct vent/sealed combustion. The Pulse combustion design also results in the smallest vent size per BTU as compared to conventional power burners.

E The positive pressure produced by pulse combustion forces the hot gases out the tail pipes and into the decoupler.



Pulse PHW • Specs and Dimensions

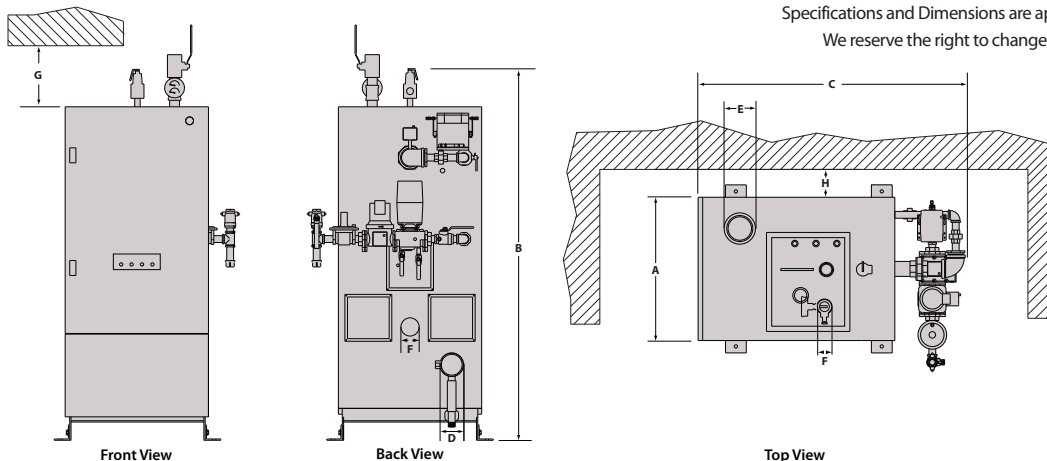
Specifications • Pulse PHW Hydronic Boiler

Models	PHW	300	500	750	1000	1400	2000
Input	BTU/Hr.	300,000	500,000	750,000	1,000,000	1,400,000	2,000,000
	KCAL/Hr.	75,600	126,000	189,000	252,000	353,000	503,992
Fuel Consumption @ rated capacity: (Natural Gas)	FT ³ /Hr.	300	500	750	1000	1400	2000
	M ³ /Hr.	8.5	14.2	21.2	29.3	39.6	56.6
Fuel Consumption @ rated capacity: (Propane)	FT ³ /Hr.	120	200	300	400	560	720
	M ³ /Hr.	3.4	5.7	8.5	11.4	15.9	20.4
Electrical Requirements (Amps: Max/Run)	120V/60/1	4.2/0.6	4.2/0.6	4.2/0.6	4.2/0.6	4.2/0.6	10/.75
	240V/60/1	2.1/0.3	2.1/0.3	2.1/0.3	2.1/0.3	2.1/0.3	5/4
MAWP	PSI	60/160	60/160	60/160	60/160	60/160	60/160
	BAR	4.1/11.0	4.1/11.0	4.1/11.0	4.1/11.0	4.1/11.0	4.1/11.0
Water Content	Gal	34	34	42	42	80	75
	Liters	129	129	159	159	303	284
Dry Weight	LB	1,395	1,395	1,800	1,800	2,230	2,900
	KG	633	633	816	816	1,148	1,315
Operating Weight	LB	1,680	1,680	2,150	2,150	3,195	3,500
	KG	737	737	975	975	1,450	1,588

Dimensions • Pulse PHW Hydronic Boiler

Models	PHW	300	500	750	1000	1400	2000
A. Boiler Width	IN	27.5	27.5	27.5	27.5	33.6	33.6
	MM	699	699	699	699	855	855
B. Overall Boiler Height	IN	71.25	71.25	83.2	83.2	88.1	89
	MM	1810	1810	2113	2113	2238	2261
C. Overall Boiler Depth	IN	53.25	53.25	51.3	51.3	62.6	70.1
	MM	1353	1353	1303	1303	1591	1781
D. Exhaust Outlet Diameter	IN	4	4	4	4	4	6
	MM	102	102	102	102	102	152
E. Air Inlet Diameter	IN	3	3	4	4	4	6
	MM	76.2	76.2	102	102	102	152
F. Water Inlet/Outlet Diameter	IN	2	2	2	2	2.5	4 Flanged
	MM	50.8	50.8	50.8	50.8	63.5	104
G. Min. Clearance to Ceiling	IN	24	24	24	24	24	24
	MM	610	610	610	610	610	610
H. Min. Clearance to either Side Wall	IN	1	1	1	1	1	1
	MM	26	26	26	26	26	26

Specifications and Dimensions are approximate and for reference only.
We reserve the right to change specifications and/or dimensions.





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Fulton is a global manufacturer of steam,
hot water & thermal fluid heat transfer systems



Contract Holder



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