



W

CLEARFIRE®

**HIGH EFFICIENCY, COMPACT HOT WATER BOILER
400 - 2,400 MBTU**

HIGH EFFICIENCY AND LOW-EMISSIONS TECHNOLOGY

The ClearFire-W near-condensing commercial hot water boiler satisfies demands for economy and environmental protection. This boiler is the logical choice where condensing performance is unlikely. The advanced heat exchange design is fundamental to the boiler achieving efficiencies up to 88% (non-condensing). The modulating premix burner delivers high turndown with NOx levels less than 20 ppm for natural gas. The CFW is designed for higher temperature central heating or process applications with working pressures up to 125 psig.

ClearFire®-W 400–2,400 MBTU/hr

Features

- Up to 88% efficiency
- Up to 5:1 turndown
- Low NOx Emissions to less than 20 PPM
- Patented AluFer® tubes for maximum heat transfer
- Advanced Falcon control seamlessly integrates up to 8 boilers
- Compact footprint
- Single pass design
- Thermal shock resistance
- ASME Section IV steel construction, 125# design



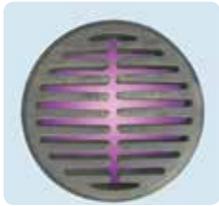
Designed for optimum efficiency

- 1 Modulating low NOx burner assembly for maximum operating efficiency
- 2 Metal fiber premix burner designed for optimal combustion and lowest emissions
- 3 Thermal Insulation with steel casing
- 4 Single power point for electrical and controls
- 5 Patented Alufer® tubes for maximum heat transfer
- 6 Handholes for easy maintenance



Superior product design

Patented AluFer® heat transfer technology



Patented AluFer® Tubes

The internationally patented AluFer® tube is the technology behind the advanced heat transfer design. The tube is constructed from an inner (fireside) aluminum alloy finned surface, die-fitted within an outer steel tube, providing exceptional heat exchange characteristics.

- Thermal conductivity of the AluFer insert is significantly greater than that of carbon steel.
- Internal finned surface of the AluFer tube enlarges the heat exchange surface are three-fold.
- Inner surface of the tube is divided into ten flow channels to create maximum turbulence and heat transfer.

Heat exchanger and burner

The ClearFire-W boiler has a high-quality, stainless steel combustion chamber with single-pass AluFer tubes. The insulated boiler is encased within powder coated steel panels. A hinged cover provides easy access to the burner and heat exchanger. The counterflow design ensures the maximum heat exchanger effectiveness.

Thermal shock resistance

The single-pass arrangement is designed to inherently minimize thermal stress in the heat exchanger.

Premix modulating burner operation

The premix burner controls automatically adjust the air and gas mixture to the correct proportions before it enters the burner. A symmetrical, 360° even-temperature heat output is achieved from the burner, providing clean combustion with low NOx emissions. Turndown up to 5:1 with standard emissions of less than 20 ppm.

Burner Gas Train

Standard components meet the requirements of cULus, ASME CSD-1, XL-GAP and FM. These items include:

- Low gas pressure manual reset
 - High gas pressure manual reset
 - CSD-1 test cocks
 - Manual test valve
 - Dual safety shutoff valve
 - Optional dual gas train (natural and propane gas)
- Gas train is factory piped and wired on the burner.

Boiler Trim and Controls

Boiler trim is in accordance with cULus and ASME CSD-1.

- High limit temperature control — manual reset
- Combustion air proving switch
- Manual reset probe type low water cutoff
- ASME safety relief valve set @ 125 psig (60 psig optional).

Intelligent integrated controls

It's not just boiler sequencing, it's intelligent heating system management.

The Cleaver-Brooks Falcon is a proven boiler/burner management control that provides an intuitive operator interface featuring integrated burner sequencing, trending, flame safety, modulation, alarms, lockout, and much more, ensuring your boiler system operates at peak efficiency, while providing necessary safety and reliability.

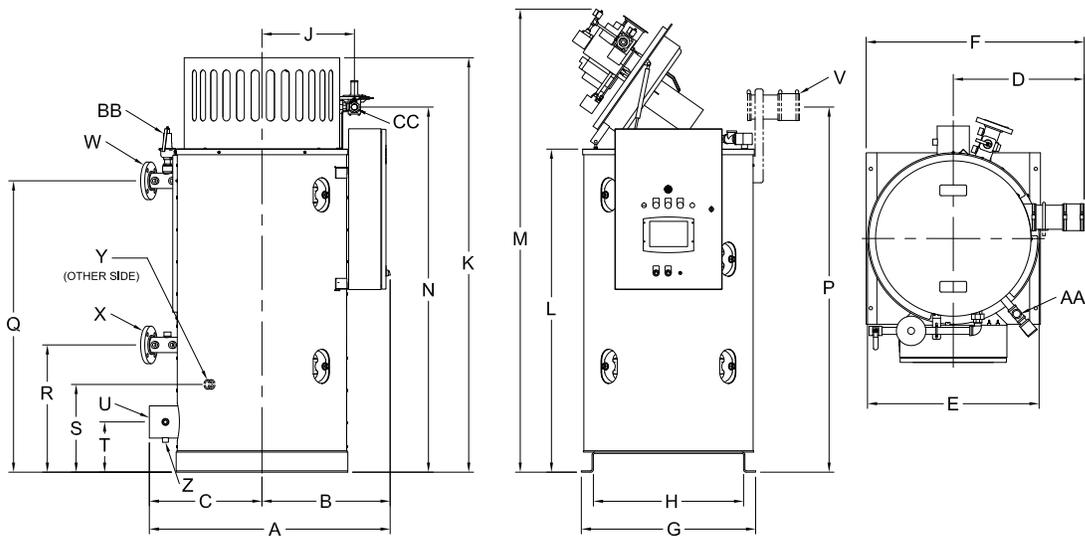
The Cleaver-Brooks Falcon control with integrated lead/lag optimizes the boiler room's operational efficiency while delivering precise temperature control to meet heating demands. The Cleaver-Brooks Falcon can communicate with your building's Energy Management System (EMS), which helps maximize overall system efficiency.

Features

- Touch-screen graphics with trending
- Multiple loop PID set point control (central heat, domestic hot water and lead/lag)
- Configurable lead lag boiler control for pumps, valves and dampers up to 8 boilers
- Outdoor temperature reset
- Post shutdown pump delay
- Remote enable and set point
- ModBus (RS485) Communications



User-friendly Interface



ClearFire®-W Boiler Dimensions and Ratings

ITEM	DIMENSIONS	BOILER MODEL						
		400	500	750	1000	1500	2000	2400
	BTU/HR MAXIMUM INPUT @ SEA LEVEL TO 2000'	400,000	500,000	750,000	1,000,000	1,500,000	2,000,000	2,400,000
A	OVERALL LENGTH	45"	45"	52 1/2"	52 1/2"	54"	60 1/2"	60 1/2"
B	CENTERLINE TO BOILER FRONT	24"	24"	27 3/4"	27 3/4"	29"	32"	32"
C	CENTERLINE TO STACK OUTLET	21"	21"	24 3/4"	24 3/4"	25 1/2"	28 1/2"	28 1/2"
D	CENTERLINE COMBUSTION AIR INLET	24 1/2"	24 1/2"	24 1/2"	24 1/2"	27"	37 1/4"	37 1/4"
E	BOILER O.D.	32"	32"	39"	39"	41"	47"	47"
F	OVERALL WIDTH	40 1/2"	40 1/2"	44"	44"	47 1/2"	60 3/4"	60 3/4"
G	OUTSIDE WIDTH OF BASE	32 1/2"	32 1/2"	39 1/2"	39 1/2"	41 1/2"	48"	48"
H	INSIDE WIDTH OF BASE	28"	28"	35"	35"	37"	43 1/2"	43 1/2"
J	CENTERLINE TO GAS INLET	17 1/4"	17 1/4"	19 1/4"	19 1/4"	20 1/4"	22"	22"
K	OVERALL HEIGHT	77"	83"	77"	83"	89"	89"	95"
L	VESSEL HEIGHT	60"	66"	60"	66"	71"	68"	74"
M	BURNER DOOR CLEARANCE (OPEN)	85 1/2"	92"	85 1/2"	91 1/2"	101"	102"	108"
N	FLOOR TO GAS INLET	68"	74"	68"	74"	80 1/2"	80"	86"
P	FLOOR TO AIR INLET	68"	74"	68"	74"	80 1/2"	80"	86"
Q	FLOOR TO SUPPLY CONNECTION	54"	60"	55"	61"	66"	62"	68"
R	FLOOR TO RETURN CONNECTION	24"	31"	26"	26"	33"	32 1/2"	35 1/2"
S	FLOOR TO DRAIN	16"	16"	15"	15"	18"	20 1/2"	20 1/2"
T	FLOOR TO STACK OUTLET	9"	9"	9"	9"	10"	11"	11"
CONNECTIONS								
U	FLUE/STACK, NOMINAL OD	6"	6"	6"	6"	8"	10"	10"
V	SEALED COMBUSTION, AIR	4"	4"	4"	4"	6"	8"	8"
W	SUPPLY WATER, FLANGE	2 1/2"	2 1/2"	2 1/2"	2 1/2"	3"	4"	4"
X	RETURN WATER, FLANGE	2 1/2"	2 1/2"	2 1/2"	2 1/2"	3"	4"	4"
Y	BOILER DRAIN	1"	1"	1"	1"	1"	1 1/4"	1 1/4"
Z	CONDENSATE DRAIN	1/2"	1/2"	1/2"	1/2"	1/2"	1/2"	1/2"
AA	AIR VENT	1"	1"	1"	1"	1"	1"	1"
BB	SAFETY VALVE, 125 PSIG	1"	1"	1"	1"	1"	1"	1"
CC	GAS TRAIN	1"	1"	1"	1"	1 1/2"	1 1/2"	1 1/2"
WEIGHTS-LBS								
	SHIPPING WEIGHT (125#)	1550	1700	2100	2300	2900	3400	3800
	OPERATING WEIGHT (125#)	2205	2460	3260	3630	4330	5105	5780
RATINGS								
	*BTU/HR OUTPUT @ SEA LEVEL TO 2000'	344,000	430,000	645,000	860,000	1,290,000	1,720,000	2,064,000
	MAX. AMP DRAW FAN @ 115/1/60	4.0	4.0	4.0	4.0	8.5	12.0	12.0
	BLOWER MOTOR SIZE (WATTS)	335	335	335	335	750	1,200	1,200
	FIRESIDE HEATING SURFACE (FT ²)	86	105	133	164	263	319	395

Notes:

* Output based on return water temperature at 80°F

** AMP draw @ 230V/3PH



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