CBCW

Pre-Engineered, Fired Watertube Boiler

The highest-quality, customizable systems.
A simple, streamlined process.

Just the boiler system you need, sooner than you'd expect.

With almost 90 years of industry knowledge, Cleaver-Brooks can provide truly customized Industrial Watertube boiler solutions quickly without the costs typically associated with a fast-track customized order. We've pre-engineered 17 different configurations based on the most popular customer requirements and applications. All you need to do is identify key performance parameters and choose options on your CBCW boiler system. Because of the work we've already done, Cleaver-Brooks can deliver a solution tailored to your specifications faster than ever before.

Cleaver-Brooks makes all the components.

The watertube boiler, burner, state-of-the-art combustion controls and all of the accessories are designed, engineered and manufactured by Cleaver-Brooks, guaranteeing the highest quality and superior total cost of ownership.

Seamless integration of components.

Because Cleaver-Brooks designs and manufactures every part, they work together seamlessly for maximum efficiency and minimum emissions.

A complete boiler package and still customizable.

From the air inlet to the stack outlet and the feedwater inlet to the steam nozzle outlet, Cleaver-Brooks conveniently provides everything you need to effectively operate the boiler system.

Layout and configuration drawings make planning easier.

Cleaver-Brooks is committed to maximizing efficiency. With the CBCW, a complete package of technical documents is now available at the time of quote. With drawings accessible so quickly, you can plan and manage your work up to 8-12 weeks faster than with a traditional system.

Documents Available at the Time of the Quote:

- **Project Schedule**
- **Calculations** of expected boiler performance for fuel consumption and emissions
- **Diagram** of piping and instrumentation
- **Drawing** of general arrangement and foundation loading
- **Utility Consumption**
- **Costs**
- **Transportation Details**

One size does not fit all

17 pre-engineered options

CBCW Steam Boiler Ratings																	
		10,000 – 60,000 lb/hr						70,000 – 120,000 lb/hr						135,000 – 225,000 lb/hr				
Boiler Capacity [A]	kpph	10	20	30	40	50	60	70	80	90	100	110	120	135	150	175	200	225
Ratings																		
Furnace Volume	ft^3	279	394	452	718	809	901	1,069	1,266	1,365	1,466	1,664	1,763	2,075	2,406	2,516	2,801	2,918
Furnace Area	ft^2	258	336	375	497	546	596	676	779	830	883	986	1,038	1,166	1,331	1,386	1,486	1,542
Evaporator Surface Area	ft^2	891	1,279	1,473	1,814	2,053	2,291	2,974	3,535	3,816	4,104	4,666	4,947	5,528	6,420	6,717	6,421	6,693
Total Heating Surface	ft^2	1,150	1,615	1,848	2,311	2,599	2,887	3,650	4,314	4,646	4,987	5,652	5,984	6,694	7,751	8,103	7,907	8,235
Approximate Fuel Consumption at Rated Capacity																		
Light Oil Input – 150# Steam [B]	GPH	86	172	258	344	430	516	602	688	774	860	946	1032	1,161	1,290	1,505	1,720	1,935
Natural Gas Input – 150# Steam [C]	SCFH	12,040	24,080	36,120	48,161	60,201	72,241	84,281	96,321	108,361	120,401	132,441	144,481	162,542	180,602	210,702	240,802	270,903
Power Requirements – 60 Hz, 3-Phase																		
Blower Motor Size: Uncontrolled	HP	7.5	15	30	40	60	75	100	125	200	200	200	200	200	250	300	400	500
30 ppm	HP	7.5	25	40	50	75	125	125	150	200	200	250	300	250	300	500	600	800
9 ppm	HP	Consult Factory						Consult Factory						Consult Factory				

Note: Above information, while sufficiently accurate for preliminary purposes, must be confirmed for construction by submittals.

A. Boiler capacity provided in kpph.

B. Input calculated at nominal 83% efficiency based on 140,000 Btu/gal.

C. Input calculated at nominal 83% efficiency for 1,000 Btu/scf gas content

High Quality Boiler Construction

Years of industry knowledge have taught us what pressure vessel configurations are most often needed. With the CBCW's 17 pre-engineered options, we will have your boiler package ready for fast delivery and optimal performance. It all starts with a D-style Industrial Watertube pressure vessel – ideal for almost any steam need.

Key Features:

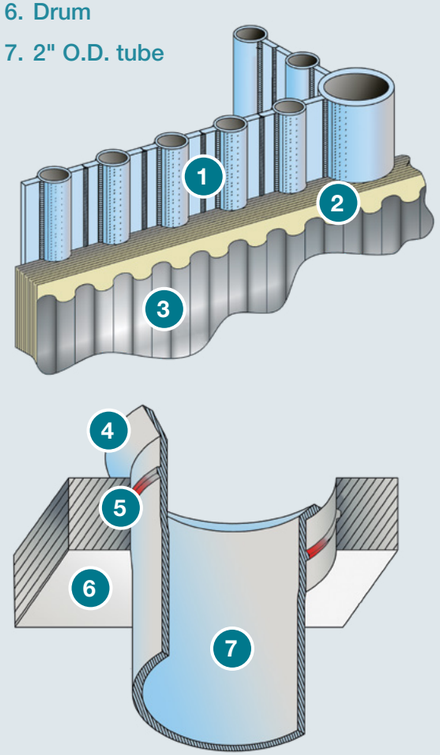
- Completely drainable 2.0-inch O.D. tubes
- Grooved tube seats for improved tube-to-drum seal
- Fully welded gas seals are used throughout to ensure gas-tight operation
- Boiler wall construction is 100 percent water-cooled
- Furnace construction utilizes a welded-membrane wall design
- Virtually no refractory
- Conservatively designed tube layouts, coupled with large drums, provide superior natural circulation and operational benefits
- Complete access to boiler water side is provided through manways at both ends of each drum

Capacity
10,000-225,000 lb/hr
Pressure
250, 399 and 600 psig
Available Fuels
Natural gas only, oil only or natural gas and oil
Emissions
NOx and CO

Membrane Wall Construction

Adjacent fins of all furnace and outside convection tubes are continuous-seal-welded to form a pressure-tight, water-cooled panel

1. Fins are dual-welded to tubes
2. Header membrane wall construction
3. Corrugated pebble grain aluminum lagging or steel casing
4. Tube flare
5. Drum serration
6. Drum
7. 2" O.D. tube



System-matched burner

Seamless integration is a hallmark of Cleaver-Brooks products, and the CBCW is a prime example. The boiler and burner are married together by Computational Fluid Dynamics (CFD), eliminating traditional refractory throat blocks. Meanwhile, center-core technology provides ultra-stable load following and remarkably reliable performance.

Maintaining high efficiency is key. It impacts both your financial bottom line and your carbon footprint. The CBCW boiler delivers low excess air and low flue gas recirculation (FGR), all while keeping emissions low for safe, efficient, and optimal combustion. Its traditional layout with a full windbox design is ideal for industrial, commercial, and institutional applications. So Super-low NOx, CO, VOC and PM emissions are easily obtainable.

Optimized control system

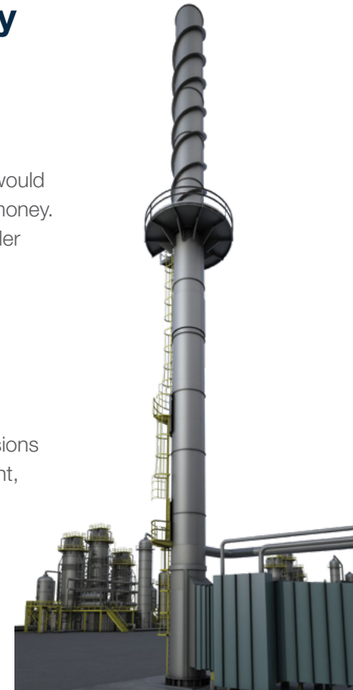
The Cleaver-Brooks Hawk control system offers precise boiler/burner management and safety with logic-based ancillary devices and functions. The state-of-the-art HAWK 4500 burner management and combustion control system provides an intuitive human-to-machine interface that allows you to get the reliability, safety and efficiency you'd expect from your Cleaver-Brooks system.

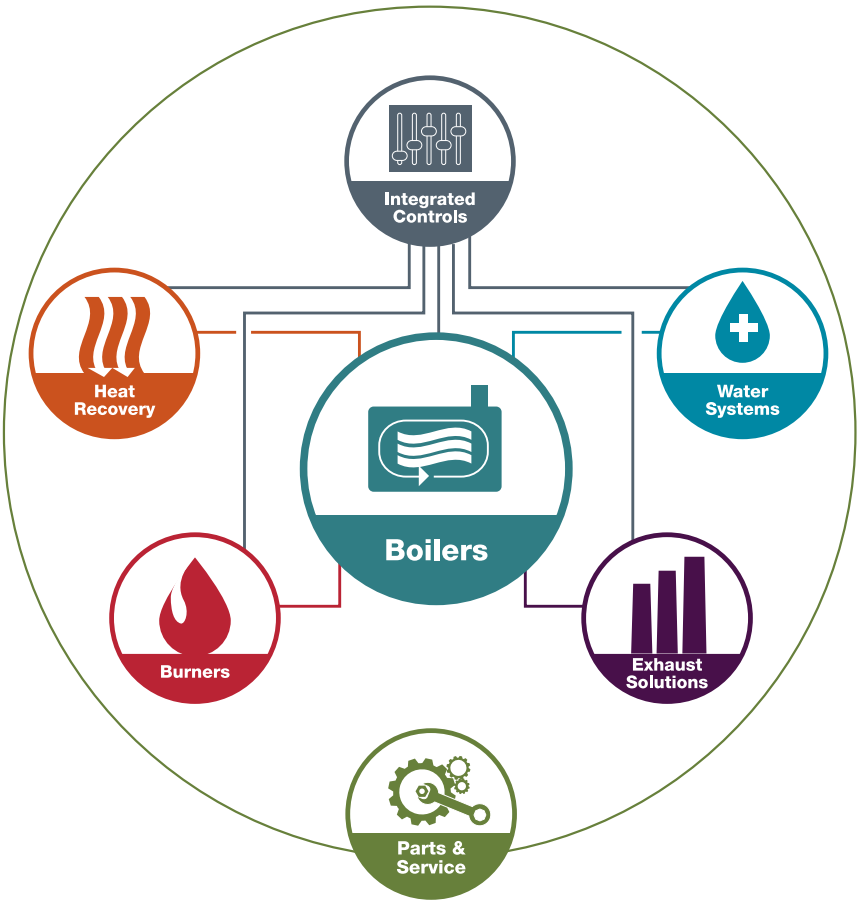
Advanced heat recovery

The CBCW's custom economizer captures the waste heat to increase the temperature of the feedwater entering the boiler drum, reducing fuel consumption, overall energy costs and environmental impact. This takes energy that would otherwise be wasted and uses it to save you money. It also increase the life and efficiency of the boiler system while reducing your carbon footprint.

Fully integrated freestanding stack

To develop the most efficient exhaust systems capable of meeting the most stringent emissions requirements, we employ the latest technology and techniques in research and development, quality control and manufacturing. Like every component of a Cleaver-Brooks boiler, we manufacture every part of the exhaust system, so it fits together seamlessly to work more efficiently and reliably. With minor customization, the CBCW can accommodate selective catalytic reduction (SCR) and CO catalyst.





Providing energy-efficient, environmentally friendly boiler room solutions.

Cleaver-Brooks is one of only a few boiler room solution providers in the world to operate a dedicated research and development facility. Having pioneered several industry-leading technologies, we remain just as committed today to introducing technology and products that enable a more energy-efficient and environmentally friendly generation of steam and hot water.

We distribute our products through the Cleaver-Brooks Representatives Association, or CBRA, an alliance of independently owned and operated companies that provide boiler room products and service. CBRA companies can be counted on to provide Cleaver-Brooks products and parts, engineering support, customer training, technical service and system maintenance.

CleaverBrooks®

221 Law Street • Thomasville, GA 31792 USA
229-226-3024 • 800-250-5883 • info@cleaverbrooks.com
cleaverbrooks.com

Printed in the USA

CB-8562
11/18