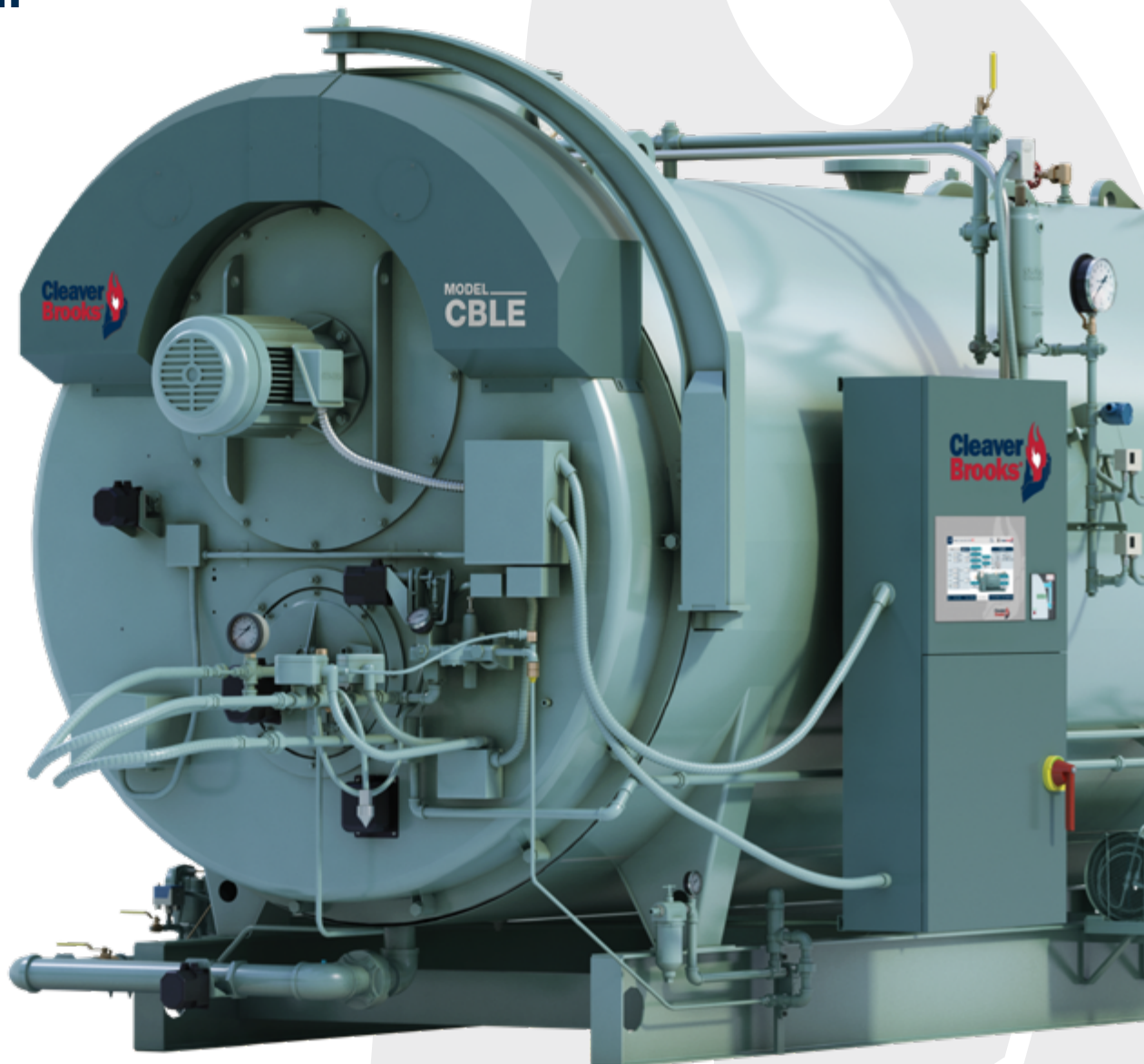


CBLE

**Steam or Hot Water
Firetube Boiler
50 to 800 HP**



Lowest Total Cost of Ownership

The total cost of owning any boiler is determined by more than the initial equipment cost. Total cost of ownership includes operating, maintenance, unplanned downtime, and years of service. When choosing the CBLE boiler, you are choosing the lowest total cost of ownership.

With 70 years of history, the CBLE offers the most reliable and safe operation, is easy to maintain and has a long operational life.

Cornerstones

Every piece of Cleaver-Brooks equipment is developed and manufactured with these in mind.



Safety



Efficiency



Reliability



Sustainability

Through a commitment to research and development, Cleaver-Brooks is the sole provider of integrated boiler, burner, controls solutions and is a leading manufacturer of boiler room equipment across commercial, institutional, and industrial markets. Many of our components are specifically engineered, ensuring that Cleaver-Brooks high-quality products deliver superior performance.

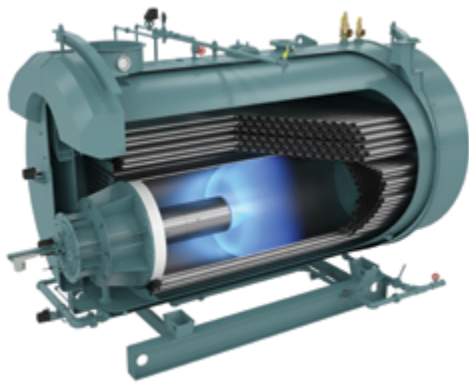


The Most Reliable Boiler Ever

Dependable Construction



The CBLE is the most robust and reliable pressure vessel on the market. A 4-Pass firetube boiler with 5 square feet of heating surface per boiler horsepower will provide years of efficient, trouble-free operation.



Fuel Flexibility



The combination of the bare tube design and the advanced technology of our integral head burner allows us to operate the CBLE with a wide variety of alternate fuels - more than other manufacturers.

Using years of experience, our pressure vessel design combined with the industry leading integral burner and advanced Hawk controls allows Cleaver-Brooks to deliver guaranteed performance while operating with the widest variety of alternate fuels.

Piece of Mind



Our complete packaged boiler design features the burner, boiler, and controls as a single engineered solution - all built on a design that Cleaver-Brooks has perfected and refined for more than 90 years. This allows your boiler to run at peak efficiency with the most reliable operation of any boiler.



“The quality, durability and serviceability of Cleaver-Brooks is unmatched.”

Scott Roman
HVAC Engineer
Rockville General Hospital

Hawk Integrated Controls System

The Hawk Control, which serves as the brain of the CBLE model, enables you to run your boiler safely and efficiently.



- ▶ Completely integrated boiler/burner control is fully tested during development
- ▶ Automatically tunes boiler for changes in environmental conditions
- ▶ Combustion air fan vibration monitoring
- ▶ Linkageless control eliminates single-point control hysteresis
- ▶ Optional VSD control reduces fan horsepower load
- ▶ Advanced emissions controls with NO_x trim option
- ▶ Unlimited options for system customization and optimization
- ▶ NFPA and UL[®] compliant for maximum safety
 - Return to Pilot functionality for immediate ignition
 - Hawk water level control, draft control, third fuel option
 - Integrated deaerator and Master Panel controls



Industry Leading Interface

The Hawk is the most powerful boiler control systems available in the industry. Its user-friendly interface features:

- ▶ Highest resolution screen on the market
- ▶ Intuitive navigation
- ▶ Built in maintenance manual
- ▶ E-mail and text alerts

Prometha[®] IoT-Connected Boiler Solutions

Prometha collects critical data and provides actionable insights, making boiler optimization and troubleshooting simple.

With Prometha, you can:

- ▶ Access boiler insights from anywhere, 24/7/365
- ▶ Increase operational efficiency
- ▶ Lower total cost of ownership
- ▶ Prevent or reduce unplanned downtime



Integral Burner Technology

Using their years of experience, Cleaver-Brooks team of highly qualified engineers developed the integral burner. The burner design leads to years of reliable operation with minimal moving parts, and is easy to retrofit if fuel or emission requirements change.



50-800 HP

Integral Burner

- ▶ High efficiency
- ▶ Quiet operation
- ▶ Small footprint
- ▶ Easy to maintain and install
- ▶ Retrofit options available
- ▶ Ability to burn a variety of fuels

Lowering Emissions

Minimizing emissions is entirely dependent upon proper burner design and compatible furnace geometry. The CBLE boiler offers NO_x reduction options of less than 70 ppm NO_x when burning #2 oil and 60, 30, 9 to less than 5 ppm NO_x when burning natural gas.

Cleaver-Brooks Integral burners are matched and tested with the boiler allowing us to guarantee the lowest possible NO_x performance.



A History of Innovation

Integral burner released with "CB" model firetube

1953

10:1 high turndown burner introduced

CBLE (low emissions) 30 and 60 ppm NO_x burners introduced

1988

1991

NTI 9 ppm NO_x burner launched

2003

HAWK launched with single-point positioning and display

2004

HAWK adds base and intermediate levels

2008

NTI 5 and 7 ppm NO_x burners available

2010

LNO burner, 5 ppm NO_x with 3% O₂, launched

2016

Waterback or Dryback Configurations

The CBLE is offered in either a 4-pass waterback or dryback design, both of which come with an integral burner.

It's a boiler package designed for:

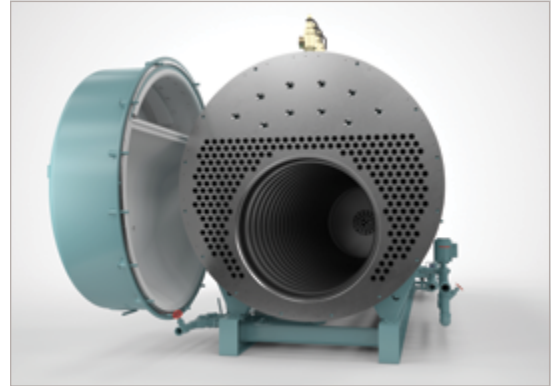
- ▶ Long life
- ▶ Highest fuel-to-steam/water efficiency
- ▶ Fuel flexibility
- ▶ Maximum safety
- ▶ Lowest emissions
- ▶ Quiet operation
- ▶ Ease of maintenance
- ▶ Flexibility to add desired options to further enhance the package

Waterback



- ▶ Longest service life
- ▶ Fully watercooled design reduces stress due to cycling
- ▶ Little to no refractory in rear door
- ▶ Requires front tube pull

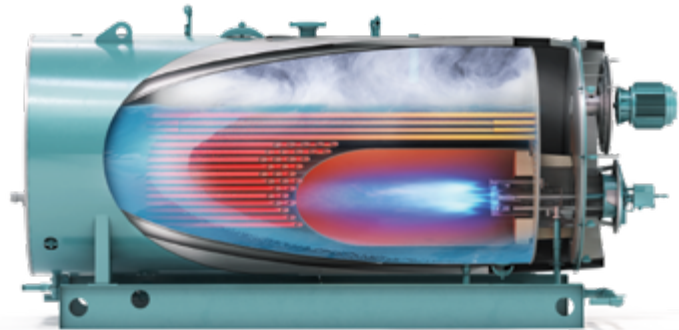
Dryback



- ▶ Simple vessel design
- ▶ Easy tube access for inspection, cleaning, plugging, re-rolling
- ▶ Tube pull front or back
- ▶ No confined space

Robust Vessel Design

The 5 sq. ft. design is engineered for long life. The furnace and tube design are ideal for alternative fuels.



Reliable and Consistent Manufacturing

As a single-source expert provider, we control the manufacturing process of the burner, boiler, and controls, delivering consistency, reliability, and repeatability in all products.

Proven Reliability and Performance

With 70 years of experience and evolving throughout the years

Design engineering and manufacturing excellence are key reasons for the extended life of a Cleaver-Brooks firetube boiler. With over 100,000 units in the field, the average life exceeds 25 years with many cases exceeding 50, or longer! Therefore, reliability should not be considered an intangible. Not when you consider a single downtime occurrence can result in a production loss that far exceeds the cost of the boiler. The CBLE is the most ruggedly designed, efficient and reliable boiler on the market today.



Industry Leading Boiler — Backed by Cleaver-Brooks

Only Cleaver-Brooks can offer the performance guarantees and enhanced warranties on every CBLE boiler because we design, manufacture, and test every part of every boiler to our exacting standards.

Performance Guarantee:

- ▶ Efficiency
- ▶ Emissions
- ▶ Steam Quality
- ▶ Turndown

Enhanced Warranties:

- ▶ Available Pressure Vessel
- ▶ Integral Burner

*See website or contact your local representative for detailed information

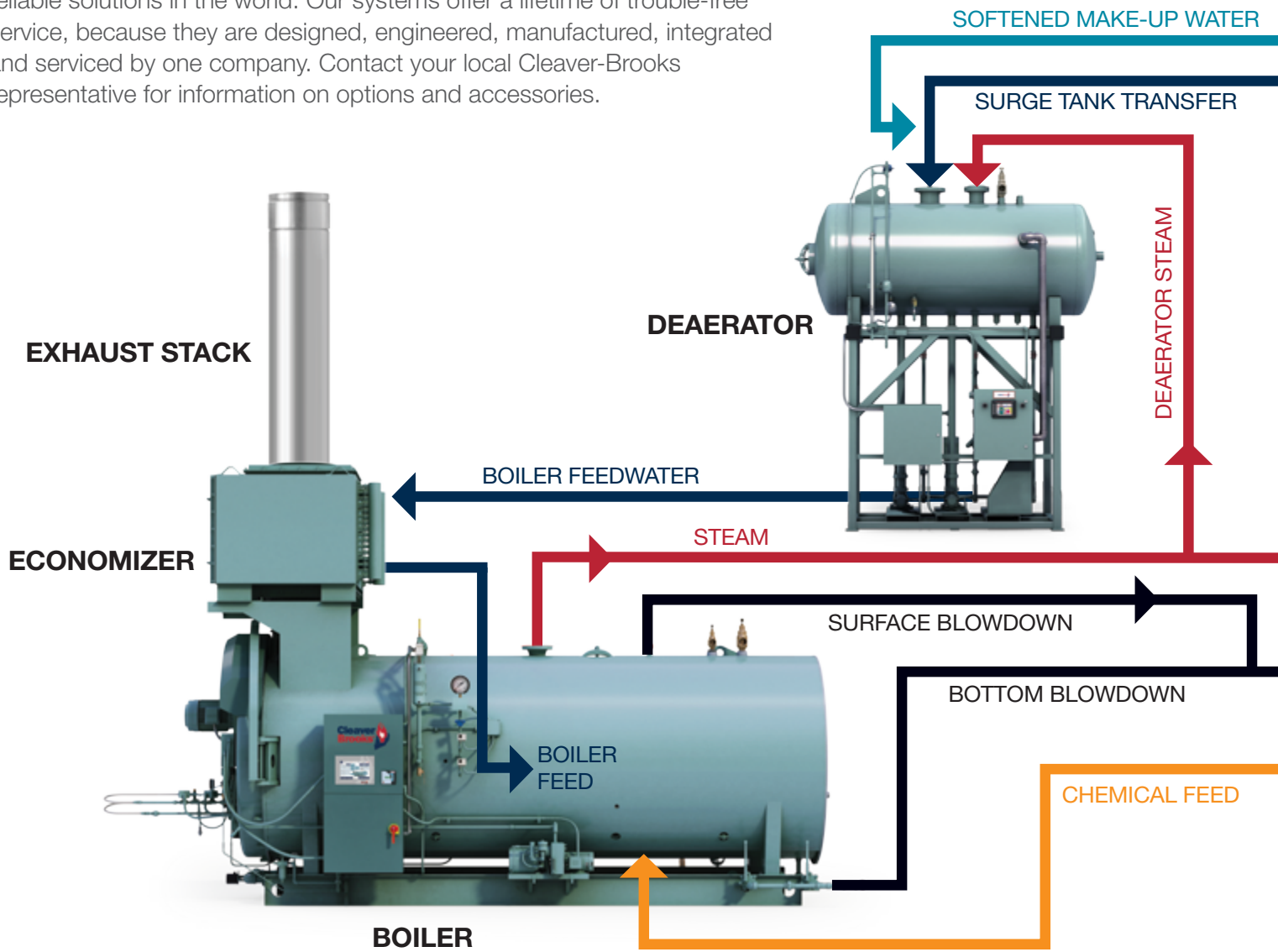


“We enjoy the fact that we have the most reliable and efficient boilers. We’re so pleased that we’re planning to add another.”

Jacob Nagib
Director of Engineering
and Construction
Halifax Medical Center

Take Optimization to the Limit

Cleaver-Brooks complete system integration produces the most efficient, reliable solutions in the world. Our systems offer a lifetime of trouble-free service, because they are designed, engineered, manufactured, integrated and serviced by one company. Contact your local Cleaver-Brooks representative for information on options and accessories.



Advanced Controls

- ▶ Hawk boiler controls
- ▶ Prometha IoT Solutions
- ▶ Advanced deaerator controls
- ▶ Master panel

Exhaust Solutions

- ▶ Draft calculations and design
- ▶ Single-source solution
- ▶ UL-listed products

Stack Economizers

- ▶ Non-condensing
- ▶ C2X-HE – 94% efficient
- ▶ Condensing

High-Pressure Condensate Systems

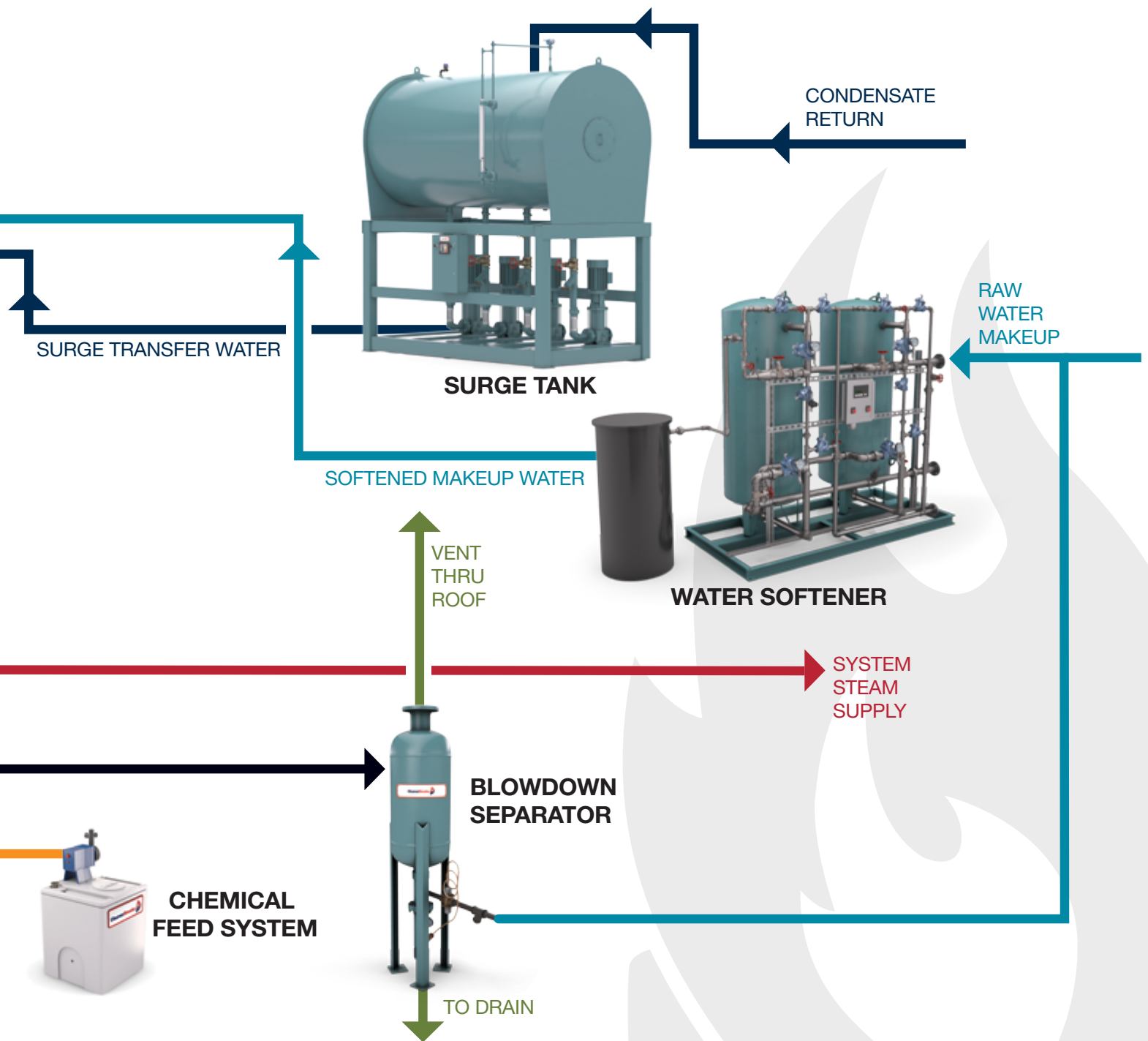
- ▶ Improves overall system efficiency
- ▶ Integrated controls for high-pressure operation

Deaerators

- ▶ Pre-heats boiler feedwater
- ▶ Removes dissolved gases
- ▶ Improves lifespan and efficiency of boilers

Surge Tanks

- ▶ Collects and stores condensate
- ▶ Reduces makeup water and chemical usage



Chemical Feed Systems

- ▶ Chemicals treat the boiler system to maintain peak efficiency and reliability
- ▶ Variety of options available depending on system specifics

Duo Tank Systems

- ▶ Combines spray-type deaerator and surge tank
- ▶ Simplifies installation

Water Softeners

- ▶ Removes minerals that will create scale within boilers
- ▶ Ensures long equipment life

Blowdown Separators and Tanks

- ▶ Cools blowdown water to safe temperature for discharge to drain
- ▶ Required by code for most steam systems

CBLE Dimensions and Ratings

CBLE Waterback: 100 to 800 HP

Boiler Output (HP)	100	125	150	200	250	300	350
Boiler Output (pph @ 212 °F)	3,450	4,313	5,175	6,900	8,625	10,350	12,075
	3,348	4,184	5,021	6,695	8,369	10,043	11,716
Overall Length (60 PPM System)	161.63	185.63	175	208	200	220.13	223.5
Overall Length (30 PPM System)	161.63	185.63	175	208	200	220.13	223.5
Overall Width	90.25	90.25	94.38	94.38	107	107	114
Overall Height	87	87	101.75	101.75	115	115	123.5
Steam Outlet (125 psig OP, 300# fig.)	4	4	4	4	6	6	6
SRV Outlet (150 psig)	1@ 1.5"	1@1.25", 1@1.5"	1@1.25", 1@1.5"	2@1.5"	1@1.5", 1@2"	1@1.5", 1@2"	2@2"
Flue Outlet	16	16	16	16	20	20	24
Shipping Weight (lbs)	12,500	13,900	15,200	17,700	22,640	24,200	28,000
Operating Weight (lbs)	18,370	21,210	22,825	27,700	35,230	39,048	44,025
Flooded Weight (lbs)	19,388	22,469	24,057	29,290	37,386	41,568	47,212

CBLE Dryback: 50 to 800 HP

Boiler Output (HP)	50	60	70	80	100	125	150
Boiler Output (pph @ 212 °F)	1,725	2,070	2,415	2,760	3,450	4,313	5,175
	1,674	2,009	2,343	2,678	3,348	4,184	5,021
Overall Length (30 PPM System)	129	129	168	168	187	187	196.5
Overall Width	73	73	73	73	73	89.88	89.875
Overall Height	78.75	78.75	78.75	78.75	78.75	87	87
Steam Outlet (125 psig OP, 300# fig.)	3	3	3	3	4	4	4
SRV Outlet (150 psig)	1@1.25"	1@1.25"	1@1.5"	1@1.5"	1@1.5"	1@1.5", 1@1.25"	1@1.5", 1@1.25"
Flue Outlet	10	10	12	12	12	16	16
Shipping Weight (lbs)	7,000	7,200	8,800	9,000	9,500	12,400	13,500
Operating Weight (lbs)	9,920	10,330	13,260	13,620	14,588	18,150	20,750
Flooded Weight (lbs)	10,500	10,865	14,050	14,420	15,460	20,070	22,795



400	500	600	700	800
13,800	17,250	20,700	24,150	27,600
13,390	16,738	20,085	23,433	26,780

238.75	245.75	282.75	270.75	297.75
247	253.5	287.25	276.75	303.75
114	124.75	124.75	134.68	134.68
123.5	134	134	145.5	145.5

6	8	8	8	8
1@2.5", 1@2"	1@2.5", 1@2"	2@2.5"	2@2.5", 1@2"	2@2.5", 1@2"
24	24	24	24	24

30,400	36,700	39,580	45,940	50,480
48,360	57,755	64,935	74,640	83,250
51,907	62,954	71,151	81,818	91,410



200	250	300	350	400	500	600	700	800
6,900	8,625	10,350	12,075	13,800	17,250	20,700	24,150	27,600
6,695	8,369	10,043	11,716	13,390	16,738	20,085	23,433	26,780

228.5	191.5	220	250	205.75	227.75	259.75	298.75	298.75
90.5	106.5	106.5	108.75	124	124.25	124	124	124
87	115	115	115	134	134	134	134	134

4	6	6	6	6	8	8	8	8
2@1.5"	1@2", 1@1.5"	1@2", 1@1.5"	2@2"	1@2.5", 1@2"	1@2.5", 1@2"	2@2.5"	2@2.5", 1@2"	2@2.5", 1@2"
16	20	20	20	24	24	24	24	24

15,600	22,800	25,200	27,800	36,570	39,970	45,025	52,050	52,150
24,225	33,470	38,200	43,265	51,380	55,920	64,295	75,050	75,150
26,730	36,680	42,040	47,890	56,585	63,270	73,285	85,410	85,510



The power of total integration.

- Boilers
- Burners
- Controls
- Heat Recovery
- Water Systems
- Exhaust
- Rental Boilers
- Modular Skids
- Remote Monitoring
- Preventive Maintenance
- Field Service and Projects
- Installation
- Spare Parts Programs
- Commissioning
- Service Agreements
- E-commerce
- Retrofit and Renewal
- Risk Management
- Operational Optimization
- Education and Training
- Design, Application Assistance
- Webinars, Virtual Learning
- Thought Leadership
- Data/Analysis/Insights
- Engineering Support
- Best Practices
- Certified Sales, Service Professionals

Cleaver-Brooks is the only company able to deliver integrated equipment, full lifecycle services, and expert consultation to all our customers. These three competencies work together as one integrated solution, the sum of which is greater than its parts.

To find a Cleaver-Brooks representative near you, visit [cleaverbrooks.com/reps](https://cleaverbrooks.com/ reps).



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