

**Cleaver
Brooks®**

SwitchFire®

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Brooks®**

SwitchFire®

HYDRONIC SOLUTIONS

More than just hydronic boilers, we
offer the most-efficient, integrated
hydronic system solutions on the market



Hydronic Boiler Solutions

By focusing on the benefits of integration, Cleaver-Brooks has developed a full range of hydronic boilers that offer best-in-class performance, efficiency, reliability, and savings with the control system to operate any system at peak performance. Choose from condensing, non-condensing, electric, or a hybrid system to develop a flexible solution to meet your specific requirements.

Condensing Boilers

Condensing boiler technology offers efficiencies far exceeding traditional non-condensing boilers. Cleaver-Brooks understands how to leverage system design and coordinated controls to maximize efficiency. Ideal for schools, office buildings, sports & entertainment as well as manufacturing processes, condensing boilers are a versatile, efficient solution for many applications.

Non-Condensing Boilers

Great for systems requiring high operating temperatures or pressures and/or fuel flexibility that preclude the use of condensing boiler technology. Our non-condensing line offers operating efficiencies up to 88% and can be integrated into any system design.

Electric Boilers

For facilities aiming to be carbon-free, or do not have them available, Cleaver-Brooks electric boilers offer a safe, reliable solution. Nearly 99% efficient, quiet, and simple to install, electric boilers are a great alternative to fossil-fueled hydronic boilers.



Our hydronic boilers meet the strict performance and sustainability criteria required to earn the Cleaver-Brooks Sustainability Seal. Find out more at cleaverbrooks.com/sustainability.

Why Hydronics?



Enduring Lifespan, Minimal Cost

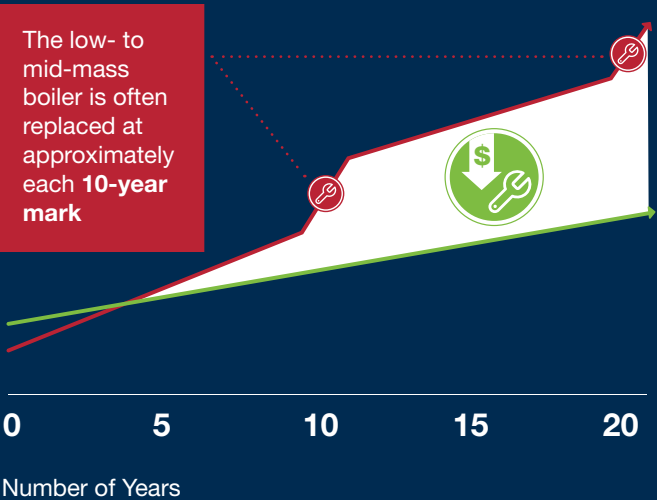
Cleaver-Brooks condensing boilers are built to last and engineered to perform in the most-efficient, energy-saving manner to keep operating and maintenance costs low. When used in condensing systems, Cleaver-Brooks condensing boilers deliver the lowest total cost of ownership.



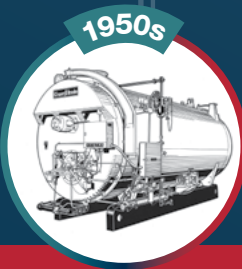
Lower Total Cost of Ownership

Includes installation and equipment costs as well as annual fuel, electrical and maintenance costs

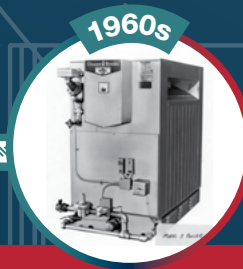
- Cleaver-Brooks Condensing Boilers
- Low- to Mid- Mass Boiler
- Difference in Cost



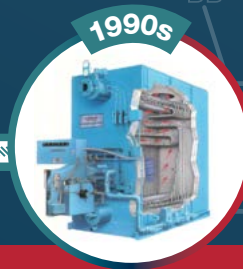
History of Hydronics



Firetube Boiler
Scotch marine, four-pass firetube boilers designed for hydronic heating that featured the Cleaver-Brooks integral burner technology.



Modular Watertube Boiler
Three models (3, 4 and 5) of smaller-capacity, membrane-wall watertube boilers capable of hydronic heating. Featured a small footprint (to fit through a door).



Flexible Watertube (FLX) Boiler
Flexible watertube for hydronic heating, capable of higher delta T systems and lower flow rates due to bent-tube design. Enabled engineers to design variable-flow primary systems and pioneer enhancements in condensing hot water market.



ClearFire®-W Boiler
Designed for non-condensing applications when modular boilers are required.



ClearFire®-C Boiler
Cleaver-Brooks first stainless steel firetube boiler. We were one of the first to introduce a high-mass firetube boiler in the North American market.



TrueFire Boiler
Modular non-condensing boiler (3-pass firetube) designed to work in newer systems with variable flow.



ClearFire®-LC Boiler
Large-capacity condensing boiler. The CFLC was the largest condensing boiler on the market for several years.



ClearFire®-CE Boiler
Redesigned and updated from the original CFC and capable of variable-flow pumping. Meets current North American market requirements while maintaining Cleaver-Brooks core technologies.



Hydronic Skids
The CFC-E enabled Cleaver-Brooks to formally launch its skid systems with pre-engineered solutions.



Next Generation ClearFire®-CE Boiler
Delivers up to 99% efficiency. Combines the patented TurboFer® heat exchanger technology with innovative industry-leading Ember controls. Ideal for variable flow primary pumping systems.



SwitchFire® Boiler
Large capacity, dual fuel condensing boiler developed for the healthcare market.

Hydronic Skid Solutions



Our long history has taught us that a skid-mounted system in only one size cannot meet every need. This is why we design our ClearFire® and hydronic skid solutions to be adaptable, even though they are pre-engineered and assembled to provide the lowest cost of installation and ownership. Cleaver-Brooks pre-packaged, skid-mounted hydronic boiler solutions offer a simple way to get up and running in less time with less effort than field installed systems.



Easy to Design
System design flexibility



Easy to Install
Modular construction for fast assembly



Easy to Save
Increased condensing performance



Hydronic Boiler System Products

ClearFire®-CE

CONDENSING HYDRONIC

The ClearFire®-CE, featuring TurboFer® technology, is the best condensing boiler on the market. Our engineers designed them from the ground up to provide maximum condensing efficiency, the most reliable operation, and complete system design flexibility. The ClearFire-CE was developed with the boiler operator in mind. Its the hinged burner makes it the easiest boiler on the market to maintain.

- » 500–6,000 MBH
- » Natural gas or propane fuels
- » Up to 99% efficient
- » Available to less than 7 ppm NOx
- » 10:1 fully modulation turndown

Features

- » Gain 6%+ efficiency with dual-return water connections
- » Modulating premix burner standard
- » Intelligent boiler control for multiple lead/lag configurations
- » Hinged burner door for easy maintenance
- » Capable of firing hydrogen blend and renewable natural gas



- » 10:1 turndown
- » State-of-the-art Ember controls
- » TurboFer technology
- » Enhanced casing design

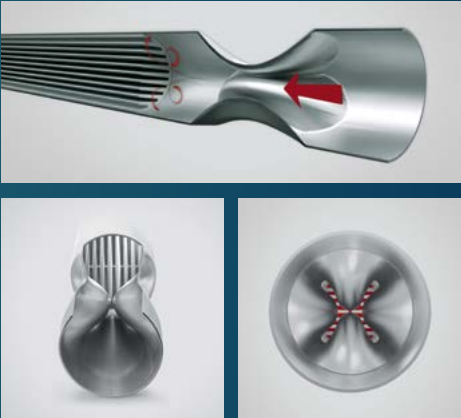


ClearFire® Technology

Our TurboFer® tubes provide the maximum effective heating surface to deliver superior operational efficiency in a robust firetube heat exchanger. Our modulating, low-emissions premix burner automatically adjusts the air/fuel mixture to the correct proportion for peak combustion efficiency.

TurboFer® Firetube Technology

The patented TurboFer heat exchanger is the core component of ClearFire-CE. The design starts with a duplex stainless steel tube die-fitted with an inner (fireside) aluminum-alloy finned heating surface. The top of the tube is then pressed together producing a smaller cross-sectional area which increases flue gas velocity and turbulence. The flue gases speed up, creating a swirling effect increasing heat transfer and boosting efficiency in a compact footprint.



Heat Exchanger

- » Ideal for variable flow primary pumping
- » Large water volume
- » Low pressure drop



*2000 MBH and smaller

Premix Burner

- » Modulating burner offers ideal load, matching the system requirements
- » Clean combustion
- » Ultra-low NOx emissions
 - Less than 20 ppm as standard
 - Less than 7 ppm as optional
- » 10:1 fully modulating turndown



SwitchFire®

DUAL FUEL CONDENSING HYDRONIC

The **SwitchFire** is a high-mass firetube condensing boiler designed with Cleaver-Brooks stainless steel EX tube technology. With extended heating surface tubes, the SwitchFire boiler provides fuel-to-water efficiency of 98.5% thermal efficiency and 95.9% combustion efficiency. This high-mass firetube offers stainless-steel construction with dual-return water connections for design flexibility and system optimization.

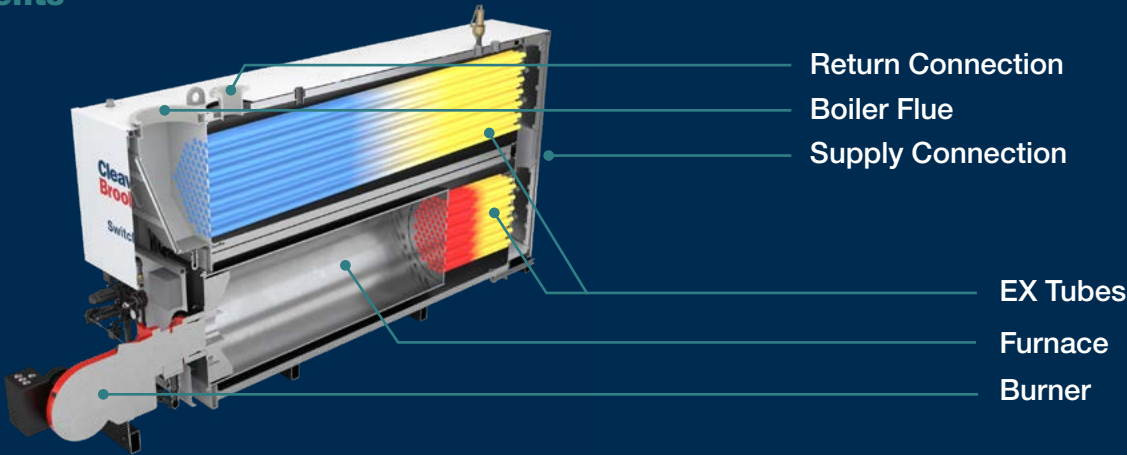
- » 6,000–12,000 MBH
 - » 98.5% thermal efficiency and 95.9% combustion efficiency
 - » Weishaupt burner
 - » Natural gas/2 oil back-up
- » Sub-30 ppm NOx standard (natural gas)
 - » Gas only (8,000 and 12,000)
 - » Sub-20 ppm NOx standard
 - » Siemens LMV controls

Features

- » Designed for use in variable-flow-primary systems
- » High-mass firetube, large water volume
- » 316L stainless steel construction
- » EX tube technology offers excellent heat transfer
- » UL-listed packaged boiler
- » AHRI-certified
- » Removable panels and hinged burner for ease of maintenance



Components



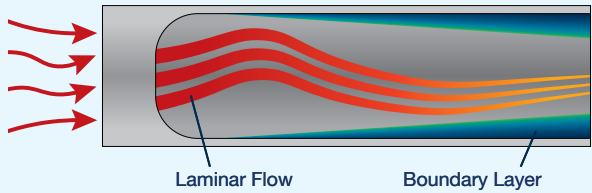
SwitchFire® Technology



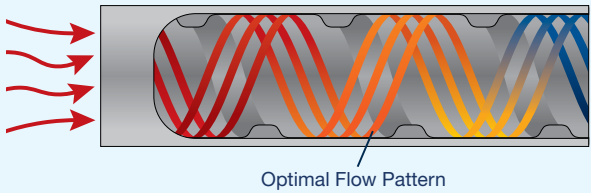
The combination of the SwitchFire’s stainless steel EX tubes and the Weishaupt and Premix burners makes the SwitchFire outsmart the competition. The EX tubes enhance heat transfer and efficiency. The Weishaupt burner ensures reliable performance with natural gas and #2 oil, offering up to 6:1 turndown. The Premix burner provides optimal performance with natural gas, propane, or dual-fuel (NG/LP) options, featuring 15:1 fully modulating turndown and low NOx emissions, making it suitable for larger systems and industrial applications.

Advanced Heat Transfer Tube

Typical Straight Boiler Tube



Cleaver-Brooks Advanced Heat Transfer Tube



Heat Exchanger

- » Two-pass firetube design
- » Industry-leading capacities, from 6,000 to 12,000 MBH
- » Large systems operate with fewer boilers
- » Reduced equipment, installation, maintenance costs
- » Designed for use in variable-flow-primary systems

Burner & Controls

- » Fires gas and light oil
- » Sub-30 ppm NOx on natural gas
- » Maintains low excess air levels
- » UL-packaged boiler label



Hydronic Boiler System Products

LVR

ELECTRIC HYDRONIC

If your industrial steam generation process demands peak efficiency and cost savings, the Cleaver-Brooks Model LVR Electric Hydronic Boiler system is your answer. Leveraging advanced electric technology for high efficiency and reduced energy consumption, the LVR ensures a clean, emissions-free operation that slashes operating costs and enhances performance. With its compact, streamlined design, this system integrates seamlessly with new or existing Cleaver-Brooks boilers, making it a superior choice for industries seeking smart, sustainable solutions.



Nearly **100%** efficiency at all operating points

- » 90–540 kW capacity range (335–1,850 MBTu)
- » 480–600V power supply
- » 160 psig design pressure

Features

- » Compact design and easy integration
- » Reduced energy consumption for cost savings and lower emissions
- » Robust warranties: 2-year comprehensive parts warranty, 10-year on ASME-compliant pressure vessel
- » Quality tested in ISO-certified shops and certified to ASME and (c)UL standards
- » 100% emission-free operation



FLX

NON-CONDENSING HYDRONIC

For large capacities, rapid response, temperatures above 250, delta T greater than 40 degrees (Use symbols), back-up fuel oil or field erectibility, the FLX watertube hydronic boiler is the answer. Applications include hydronic heating for universities, medical facilities, office complexes and airport facilities as well as process applications such as pharmaceuticals, manufacturing and food processing.



- » 1,500–25,000 MBH (36-600 HP)
- » No. 2 oil and gaseous fuels

Features

- » Compact footprint saves valuable square footage
- » Field erectable
- » Rapid response
- » Thermal-shock-resistant
- » Alternative-fuel flexibility



Dimensions and Ratings

ClearFire®-CE Condensing Boiler Models

Input Capacity (MBH)	500	750	1,000	1,500	2,000	2,500	3,000	3,500	4,000	5,000	6,000
Overall Height (in.)	78.0	78.0	78.0	79.8	79.8	95.2	95.2	91.3	91.3	93.6	93.6
Overall Width (in.)	32.6	32.6	32.6	35.7	35.7	35.7	35.7	48.4	48.4	58.7	58.7
Overall Depth (in.)	49.4	49.4	49.4	56.0	56.0	56.0	56.0	68.4	68.4	80.6	80.6
Shipping Weight (lbs.)	1,413	1,413	1,511	1,986	2,166	2,541	2,596	3,725	3,725	5,075	5,450
Operating Weight (lbs.)	2,065	2,065	2,113	2,778	2,858	3,470	3,492	5,227	5,304	7,502	7,659

SwitchFire® Boiler Models

Input Capacity (MBH)	6,000	10,000	12,000
Overall Height (in.)	85.5	103.5	103.5
Overall Width (in.)	48	60	60
Overall Depth (in.)	191.5	228.2	228.2
Shipping Weight (lbs.)	11,050	17,041	17,614
Operating Weight (lbs.)	15,734	24,960	25,130

LVR Boiler Models

Rating (kW)	90	180	270	360	450	540
Capacity (MBH)	300	600	900	1,200	1,500	1,800
Overall Height (in.)	59.0	59.0	63.0	63.0	66.0	66.0
Overall Width (in.)	22.0	22.0	28.0	28.0	33.0	33.0
Overall Depth (in.)	42.0	42.0	50.0	50.0	61.0	61.0
Dry Weight (lbs.)	875	900	1,375	1,400	1,775	1,800
Water Volume (US gallon)	51.5	51.5	115	115	167	167
Connections (ANSI 150)	3" Flanged	3" Flanged	3" Flanged	3" Flanged	4" Flanged	4" Flanged
Available Voltages	208/240/480/600	208/240/480/600	480/600	480/600	480/600	480/600

FLX Boiler Models

Input Capacity (MBH ×10)	150	200	250	300	350	400	450	500	550	600	700
Capacity (HP)	35	50	60	70	85	95	110	120	130	140	170
Overall Height (in.)	76	76	76	80	80	85	85	85	85	85	94
Overall Width (in.)	42	42	42	46	46	48	48	48	48	48	54
Overall Depth (in.)	114	114	114	120	120	147	147	147	147	153	174
Shipping Weight (lbs.)		3,900		5,000				6,100			8,500
Operating Weight (lbs.)		4,700		5,900				7,600			10,500

Input Capacity (MBH ×10)	800	900	1,000	1,100	1,200	1,250	1,450	1,650	1,850	2,100	2,500
Capacity (HP)	190	215	240	260	290	300	350	400	450	500	600
Overall Height (in.)	94	94	94	94	94	96	96	107	107	132	132
Overall Width (in.)	54	54	54	54	54	54	54	60	60	75	75
Overall Depth (in.)	174	174	205	205	206	253	268	280	298	310	340
Shipping Weight (lbs.)		8,500		10,000		12,800	13,800	16,900	17,700	24,300	27,200
Operating Weight (lbs.)		10,500		12,300		15,400	16,600	21,200	22,400	31,000	34,800



The power of total integration.

The **Power of Total Integration** is how Cleaver-Brooks delivers the world's broadest range of integrated, sustainable boiler plant solutions. In addition to our products, this includes our global representative and service network, training resources, and trusted expertise that add significant value to your Cleaver-Brooks investment.



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