



**CLEAVER-BROOKS NEBRASKA D**

**STEAM-READY**

**SERIES**

**The highest-quality systems.  
Faster and easier than ever.**

# Get steam-ready faster.

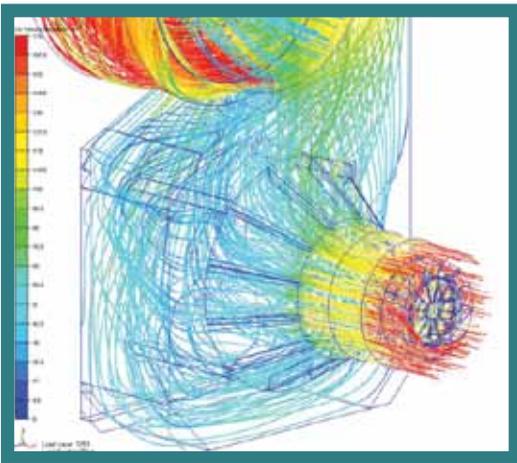
In what can only be described as a revolution in the Industrial Watertube boiler market, Cleaver-Brooks has brought its 90 years of experience and exclusive Engineered Integration to a series of steam-ready boilers. You choose the size and options on the Cleaver-Brooks Nebraska D boiler you need, and we'll have a solution that's ready faster than ever. Our steam-ready products are made with the highest-quality components you've come to expect from Cleaver-Brooks. We don't interface another brand's parts here. Just like every Cleaver-Brooks system, steam-ready systems are integrated only with Cleaver-Brooks parts. No one else can say that.



## Everything You Need. Faster to Market. Convenient and Cost-Effective.

It's more than just a boiler. We have designed and engineered an entire boiler package, from the air inlet to the stack outlet and the feedwater inlet to the steam nozzle outlet, along with everything you need to operate the boiler. The important layout and configuration drawings are available with a quote, while a complete set of drawings are available soon after your order. With a drawing available quicker, you not only get a faster delivery from Cleaver-Brooks, but you're also able to plan and manage your work faster – weeks faster than with a traditional system.

## Complete Integration for Proven Performance



Computational Fluid Dynamics is key to our state-of-the-art integration and ability to provide high-efficiency, ultra-low NOx burner systems.

Only Cleaver-Brooks can offer watertube boilers, state-of-the-art burners, and combustion controls that are 100 percent designed, engineered, manufactured and integrated by one company. Other boiler manufacturers rely on equipment from a variety of manufacturers, simply bolted on, jeopardizing compatibility and performance.

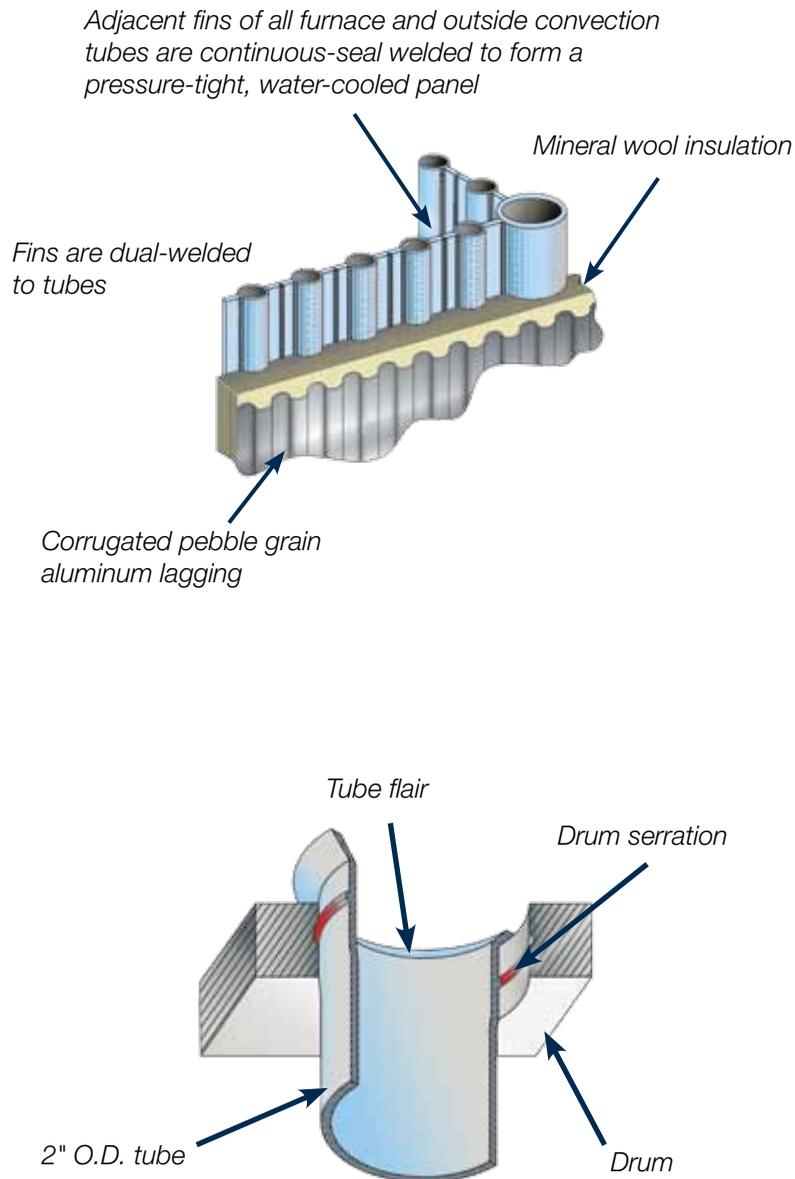
Both the furnace and flame geometries are optimized to provide the ideal environment for combustion. Through Computational Fluid Dynamics (CFD) calculations, our equipment is engineered to match perfectly and operate at peak performance.

The seamless integration of the optimized burner, boiler, combustion control system, and burner management system (BMS) allows the equipment to function at maximum efficiency and minimum emissions, all while maintaining the highest safety standards.

<b>Capacities</b>
10,000–225,000 lb/h
<b>Operating Pressures</b>
100 psig to 325 psig
Higher pressures available
<b>Design Pressure</b>
375 psig
<b>Fuels</b>
Natural Gas
#2 Fuel Oil
<b>Emissions</b>
Natural Gas – 9 ppm, 30 ppm or uncontrolled
#2 Fuel Oil – 75–120 ppm or uncontrolled
<b>Turndown</b>
10 to 1 – Natural Gas
8 to 1 - #2 Fuel Oil
<b>Super heat available</b>

## Flexibility

Cleaver-Brooks understands that one size does not fit all. The options that are available for our steam-ready D-style allow you to select the package that fits the exact needs of your facility. All our options are ready for quick delivery and optimal performance. Cleaver-Brooks has the years of experience that count in the design of complex, integrated systems calling for ultra-high performance.



### Highest-Quality Boiler Construction

- ▶ 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

# System-Matched Burner

Cleaver-Brooks has always been at the forefront of emissions technology, and that commitment extends to our steam-ready boilers. The Nebraska D steam-ready boiler is available equipped for uncontrolled, 30 ppm, or 9 ppm emissions – all while maintaining some of the highest boiler efficiencies in the industry. Get the boiler system you need, and the reduction in carbon footprint you want, and get it all faster.

With more than 10,000 units installed, the Cleaver-Brooks burner is the benchmark of the industry. Super-low NOx, CO, VOC, and PM emissions are easily obtainable. Its traditional layout with a full windbox design is ideal for industrial, commercial, and institutional applications. It is seamlessly integrated with the furnace and the Hawk 5000 combustion controls to provide unparalleled levels of control and efficiency in a steam-ready package.

# Hawk 5000 Control

The Hawk 5000 is state-of-the-art for burner management systems and combustion controls. It is fully designed and optimized to work with our Cleaver-Brooks burners. The Hawk delivers reliability, safety, and efficiency with a seamless, easy-to-use, human-to-machine interface.

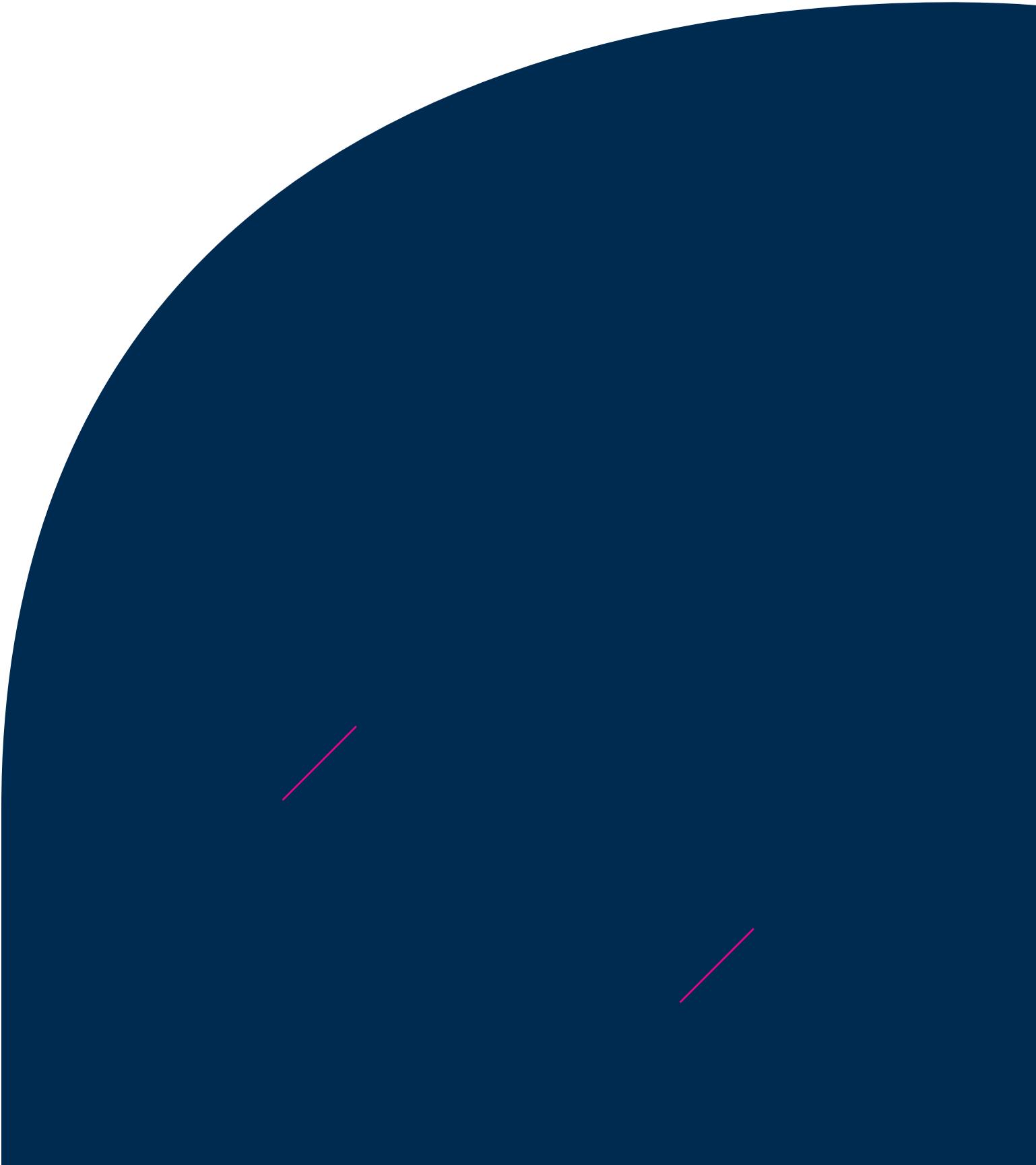
## Hawk 5000 Features

- Fireye (CB110)-based integrated burner management system
- Allen-Bradley CompactLogix™ PLC for boiler control
- Allen-Bradley Panelview Plus 10" color touch screen HMI for setup, monitoring, and data acquisition
- Trending and data-logging of up to 300,000 points
- Combustion set curves, system constants, alarm settings, tuning parameters, and all commissioning values adjustable via HMI
- Automatic boiler warming feature limits thermal shock
- Boiler efficiency and O<sub>2</sub>-corrected efficiency readings available
- External communications to most commonly used protocols
- Assignable I/O
- Plant Master Panel available as an option for multiple boiler installations
- Fully integrated PLC programming for pressure control options for unison modulation, local stand-alone pressure control, or remote firing rate input
- 1-, 2-, or 3-element feedwater control
- O<sub>2</sub> trim and monitoring trims combustion on all fuels to maintain most efficient fuel/air ratio
- Variable-speed drive (VSD) control
- Draft control

# **The boiler is only the beginning. We can complete your whole boiler room.**

Don't stop at just the world's best-engineered boiler system. Cleaver-Brooks supplies a full line of equipment to complete your boiler room, regardless of your needs. From blowdown tanks to deaerators to chemical feed systems, Cleaver-Brooks produces every accessory and ancillary product with the same meticulous engineering and complete integration used in every Cleaver-Brooks boiler system. Ask your rep how we can build your whole boiler room today.







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