



# CBL

## MODEL

900-1,600 HP

3- OR 4- PASS WETBACK DESIGN

# The Model CBL Offer Easy Maintenance, Reliability and Safety

## **FLEXIBLE OPTIONS:**

- 3-Pass or 4-Pass wetback design
- 8 Sizes from 900 through 1,600 horsepower  
4.0 and 5.0 square feet per BHP
- Steam – High design pressure 150 psig through 250 psig
- Fuel Flexibility - Fire Natural Gas, No. 2 Oil, No. 6 Oil, combination gas/oil, propane/air mix
- Fireside Accessibility - Clean-out door in rear combustion chamber with Pyrex Observation Port
- Shell Insulated, covered with heavy-gauge jacket and painted
- Boiler/burner package from one manufacturer
- Rigorous Quality Control-  
Factory tested and field startup
- Meets Industry Standards-  
ASME Code, National Board of Pressure Vessel Inspectors, NEC
- Burner selected to fit your needs



This 3- or 4- pass wetback firetube boiler is ruggedly constructed for hot water or low and high pressure steam applications. Ranging in size from 900–1,600 horsepower, this gas, #2 oil, #6 or combination fired product is a highly engineered and fully compatible boiler/burner package featuring excellent fuel to steam/water efficiency, space savings, low emissions and optional upgrades.

**EXCELLENT EFFICIENCY:** Attaining high fuel- to-steam/water efficiencies in excess of 80% does not happen by chance. It requires exacting combustion and heat transfer design to ensure optimum performance throughout the entire firing range. The model CBL's precise matching of the advanced ProFire D, S and LNS (100 & 30 PPM) burners to the heat-exchanging furnace and convection section is without precedent.

**COMPACT DESIGN:** With ever-rising mechanical room construction costs, it's critical that the design team create a boiler package that conserves every inch of your valuable floor space. The Cleaver-Brooks CBL's large furnace area allows over 35% of the energy to be absorbed in the furnace. This means a shorter boiler overall; therefore, considerably less space is required—a significant consideration when construction budgets or boiler rooms are tight!



Large Radiant Furnace Area

**LOW EMISSIONS:** Lowering emissions in the Cleaver-Brooks CBL involves two key factors: (1) advanced burner design and (2) the proper sizing of the furnace to minimize nitrogen oxides and other contaminants from forming during the combustion process.

Given these dynamics, the CBL can be equipped with the ProFire LN burner, delivering a maximum of 100 or 30 PPM when burning natural gas and employing flue gas recirculation.

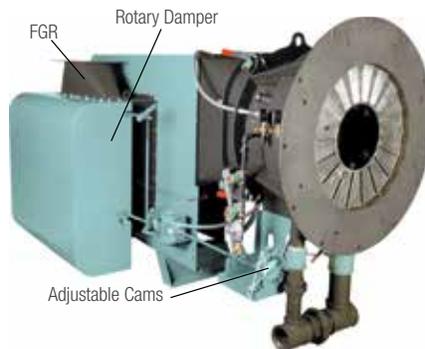


As in all of our highly engineered boiler offerings, it starts with computational fluid dynamics (CFD) to deliver optimum burner performance and furnace geometry fit, thus delivering:

- Highly efficient fuel-burning packages with excellent turndown on gas and #2 oil.
- Accurate fuel/air ratio control with 14-point adjustment cam(s), simple linkage assembly and Cleaver-Brooks ProFire burner's unique rotary air damper.
- Low emission options ranging from 100 to 30 ppm NOx on natural gas and 120 ppm on No. 2 oil.
- Ease of setup and adjustment of the fuel/air and FGR when applicable.
- Easy access to burner components with swing-out burner assembly.
- Optimum safety with state-of-the-art burner management and limiting control schemes.

## LOWERING EMISSIONS

Maximizing efficiency and minimizing emissions requires excellent burner design and burner compatibility for flame shaping and temperature control throughout the entire firing range. It is critical in reducing NOx formation and maximizing fuel-to-steam/water efficiency.



The CBL offers low NOx gun burners with and without FGR, affording a range of NOx maximums depending on the given application. Available in 100 and 30 ppm NOx when burning natural gas, this line exceeds expectations when it comes to meeting increasingly stringent air regulations.

## AND THE REAL DIFFERENCE IS FOUND INSIDE...

### Burner and Furnace Compatibility

Optimum combustion and heat transfer begins with the fuel and air delivery system and progresses to the firing head, where the proper amounts of fuel and air are united to form a combustible mix resulting in the highest combustion efficiency and lowest emissions. Compatibility of the burner and furnace is therefore critical.

## STANDARD EQUIPMENT

- Hinged forced draft burner allowing for ease of maintenance
- CB7B0E Flame Safeguard Control
- Level Master low-water cutoff and level control standard on high-pressure steam
- Modulating feedwater valve to maintain the boiler water level within normal limits.
- Feedwater three valve bypass
- Low-water cutoff is wired into the burner control circuit to prevent burner operation if the boiler water falls below a safe level
- Auxiliary Low Water Control – External probe type with manual reset
- 3" tubes provide optimum performance and minimize maintenance
- Hinged rear access plug
- Davited front and rear doors

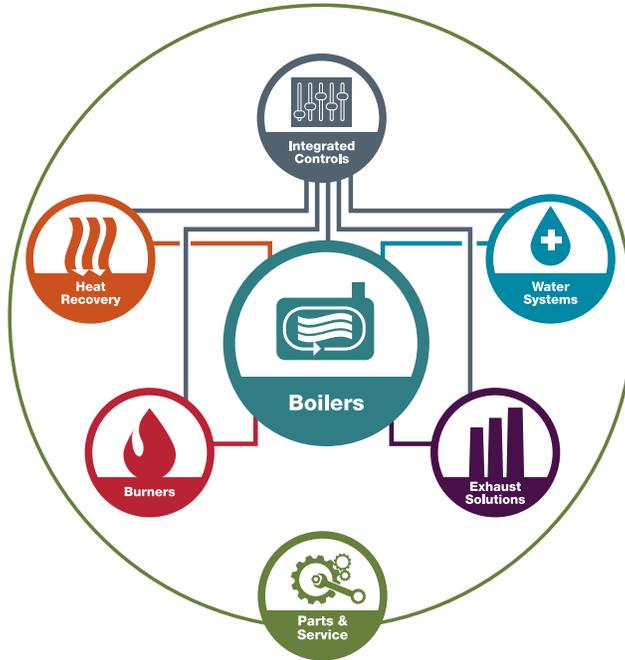
## CBL OPTIONAL EQUIPMENT

The versatile Cleaver-Brooks model CBL can be easily upgraded with options during manufacture, or it can be retrofitted later.

- The standard ProFire burner can be changed to the ProFire LN burner, providing the maximum in combustion efficiency and low NOx technology.
- Upgrade the standard burner management control to the Hawk. A totally integrated, PLC-based control system embodying precise boiler/burner management, safety, interconnectivity and high-powered communications in a single package.

### Other Optional Upgrades:

- Seismic Design
- Blowdown Valves
- Non-Return Valves
- FM/IRI Insurance
- NFPA8501 Requirements
- Flame Safeguard Controllers



## Total Integration goes far beyond boilers.

For more than 80 years, Cleaver-Brooks has built a reputation for innovation in the boiler solutions industry. We remain committed to introducing technology and products that enable a more energy-efficient and environmentally friendly generation of steam and hot water.

When you come to us for a boiler, you can know that each element is created to the highest standards and all will work together seamlessly to give you a highly efficient and reliable solution for protecting your boiler system. To learn more, please call or visit us online.



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