CleaverBrooks®

CBL

MODEL

900 - 1800 HORSEPOWER
3 OR 4 PASS WETBACK DESIGN

THE MODEL CBL

Offering easy maintenance, reliability and saftey.

Flexible Options:

- Three-Pass or Four-Pass Wetback Design
- 8 Sizes from 900 thru 1800 Horsepower
  4.0 & 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 start-up
- Meets Industry Standards
  ASME Code; National Board of Pressure Vessel Inspectors, NEC
- Burner Selected to Fit Your Needs

This three or four pass wet-back firetube boiler is ruggedly constructed for hot water or low and high pressure steam applications. Ranging in size from 900–1800 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 assure optimum performance throughout the entire firing range. The model CBL's precise matching of the advanced ProFire D, S & LNS (100 & 30 PPM) and ProFire NT (15 - less than 9 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 creates a boiler package that conserves every inch of your valuable floor space. The Cleaver-Brooks CBL 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 one of two different burner designs depending on the degree of NOx reduction desired. If medium reduction is sufficient, the ProFire LN burner will be applied delivering a maximum of 100 or 30 PPM when burning natural gas and employing FGR. If high reduction is desired, the ProFire NT becomes part of the package, delivering 15 - less than 9 PPM on natural gas.

As in all of our highly engineered boiler offerings, it starts with computational fluid dynamics (CFD) determining optimum burner performance and furnace geometry fit 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, 30, 15 to less than 9 PPM on natural gas and 120 PPM on #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 flue gas recirculation (FGR) affording a range of NOx maximums depending on the given application. Available in 100 (no FGR), 30, 15, to less than 9 PPM NOx when burning natural gas, this line covers the gamut 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
- CB120E Flame Safeguard Control
- Levelmaster low water cut off 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

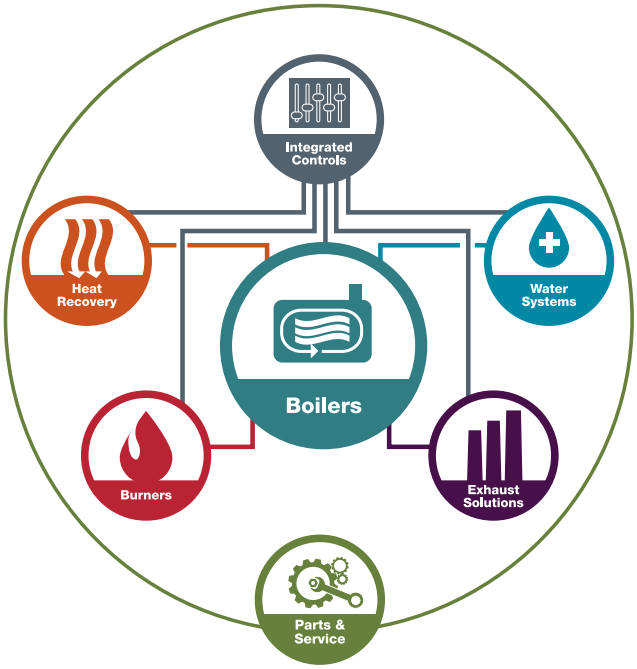
CBL OPTIONAL EQUIPMENT

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

- The standard ProFire burner can be changed to the ProFire LN or NT 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.

Efficiency and quality don't end with our boilers. Cleaver-Brooks complete integration produces the most efficient boiler solutions in the world. Completely designed, engineered, manufactured, integrated, and serviced by one company, our systems don't have a single outsourced component to jeopardize compatibility or performance. If you're looking for the best-quality boiler systems with the lowest emissions and highest efficiencies, you're looking for Cleaver-Brooks.

CleaverBrooks®

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