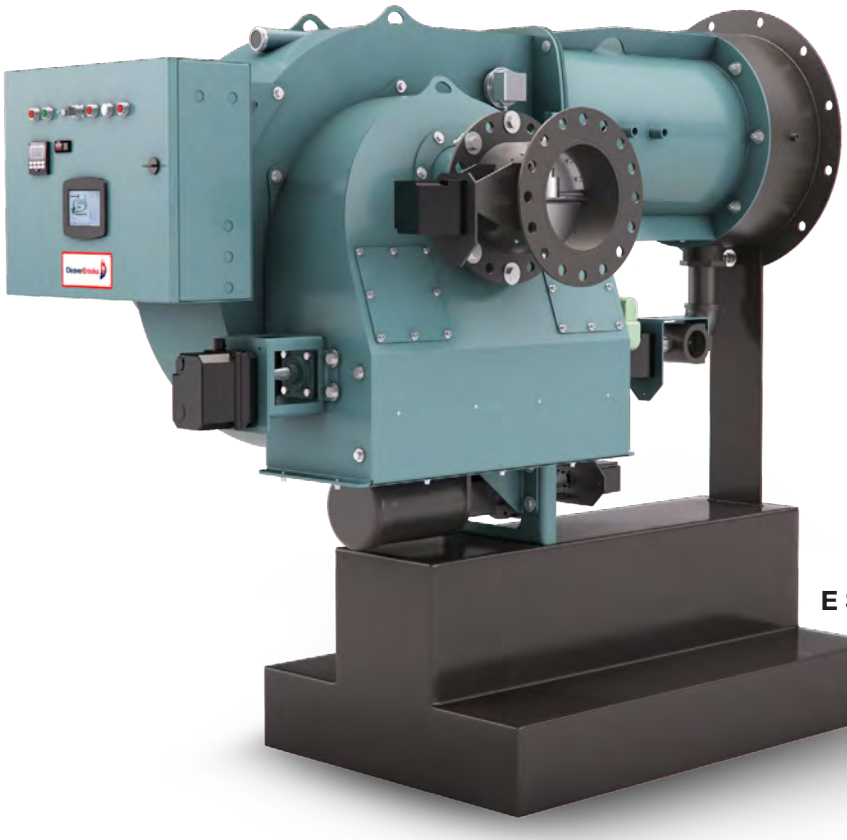


E Series

PROFIRE® BURNER SOLUTIONS

Quick Product Reference Guide

The Cleaver-Brooks burner difference.

Cleaver-Brooks provides a full line of high-quality, low-emissions burners that are specifically engineered to increase your boiler's efficiency and decrease fuel costs and emissions. Our commitment to research and development assures Cleaver-Brooks customers of having the most technologically advanced burner systems available.

Innovative features help the Cleaver-Brooks ProFire® line improve the performance of any boiler. With the flexibility of multiple fuel options and the availability of high turndown burners, there is a Cleaver-Brooks burner appropriate for your commercial, industrial and institutional applications.

Our burners are developed to deliver an impressive return on investment and feature the following characteristics:

- **Maximum efficiency:** True forced draft design controls the air and fuel mixture, resulting in complete combustion.
- **Low maintenance:** Modern, reliable controls maintain adjustment for dependable performance.
- **Save energy:** Retrofit your boilers with our high-efficiency, state-of-the-art burners.

Industries Served:

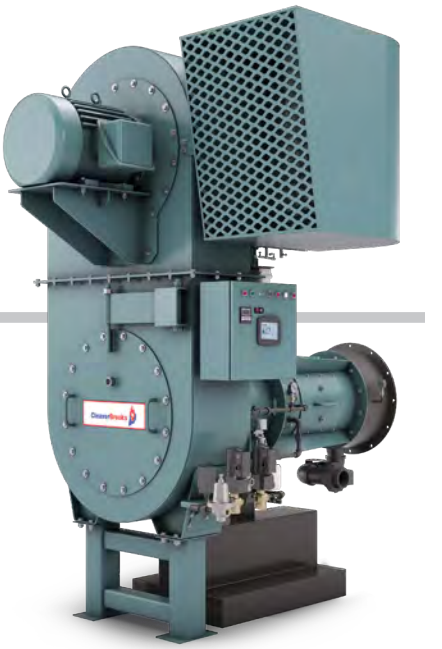
- Healthcare
- Chemical
- Food & Beverage
- Education
- Commercial
- Government & Military
- Manufacturing
- Oil Sands
- Petroleum & Refineries
- Pharmaceutical & Bio-Tech
- Pulp & Paper
- Utilities

		Light Commercial		Commercial/ Institutional	Light Industrial	Industrial	Heavy Industrial	Power/Utility	Petrochemical/ Oil Sands
Capacity	**MMBTU** (Input)	0.4	3	8	15	50	125	500	1,225
	BHP (BHP = 33,475 BTU/hr)	10	75	200	375	1,200	3,000	12,500	30,000
	Commercial Burners								
	Industrial Burners								
	Special Application Burners								

Products Overview

Cleaver-Brooks offers a choice of burner capacities ranging from 550,000 to 100,000,000 MBTU per hour. These units provide superior performance in boiler, heater, furnace, kiln, and dryer applications and are designed to perform to maximum efficiency with either gas or oil. Combination units enable operators to use the most economical fuel without costly equipment changeover or adjustments.

Special application burners exceeding standard inputs can be engineered by our industrial burner division.



XL/LNXL – Firetube & Watertube Series

- Designed for large firetube and watertube applications
- **Fuels:** Gas, #2 Oil, or Combination
- **Gas Input (MBTU/hr):** 37,800 to 92,400
- **Oil Input (US GPH):** 270 to 660
- **Thermal Output (BHP):** 900 to 2,200
- **Shipping Weight (lbs):** 12,000 approx.

Emissions	Frame	Model Range	Boiler HP	Capacities		Mode of Operation	Fuel	Parallel Positioning
				MBH	GPH			
Uncontrolled	Size 1 - 3	378 - 924	900 - 2,200	37,800 - 92,400	270 - 660	Full Modulation	Gas, Oil, Comb.	Required
<30 PPM	Size 1 - 3	378 - 924	900 - 2,200	37,800 - 92,400	270 - 660	Full Modulation	Gas & Comb.	Required

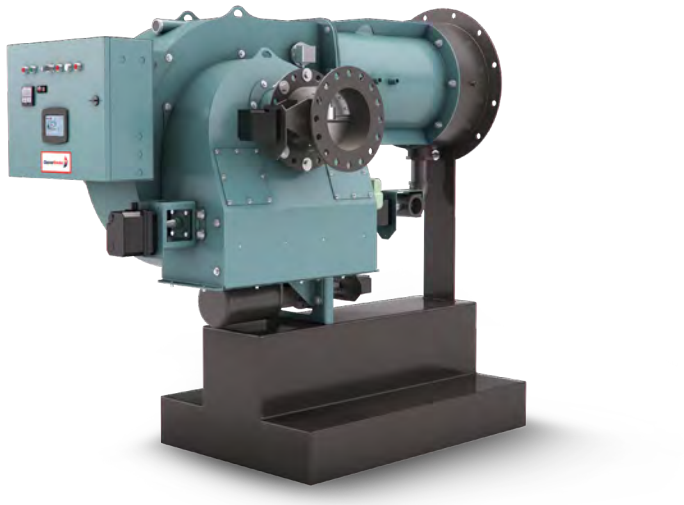
Note: A parallel-positioning system is required for burner management and combustion control. Consult factory for options.

S1/LNS1 – Series

- Designed for a wide range of applications such as firetube and firebox boilers, heaters, furnaces, kilns and dryers
- **Fuels:** Gas, #2-6 Oil, or Combination
- **Gas Input (MBTU/hr):** 46,200 to 63,000
- **Oil Input (US GPH):** 330 to 450
- **Thermal Output (BHP):** 1,100 to 1,500
- **Shipping Weight (lbs):** 7,000 to 8,750

Emissions	Frame	Model Range	Boiler HP	Capacities		Mode of Operation	Fuel	Parallel Positioning
				MBH	GPH			
Uncontrolled	Size 1 - 2	462 - 630	1,100 - 1,500	46,200 - 63,000	330 - 450	Full Modulation	Gas, Oil, Comb.	Optional
<30 PPM	Size 1 - 2	462 - 630	1,100 - 1,500	46,200 - 63,000	330 - 450	Full Modulation	Gas, Oil, Comb.	Optional

E/LNE – Series



- Designed for firetube, firebox, heaters, kilns, dryers and watertube applications
- **Fuels:** Gas, #2 Oil, or Combination
- **Gas Input (MBTU/hr):** 8,400 to 42,000
- **Oil Input (US GPH):** 60 to 300
- **Thermal Output (BHP):** 200 to 1,000
- **Shipping Weight (lbs):** 3,150

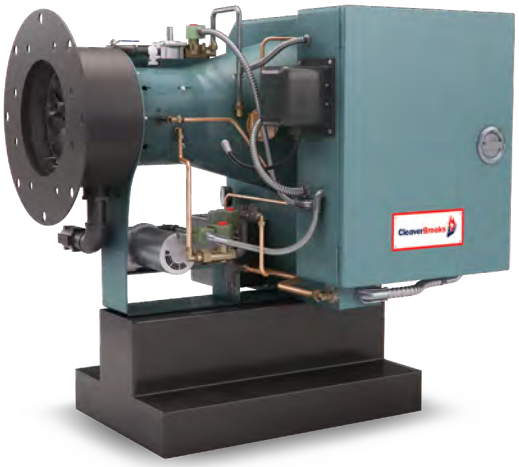
Emissions	Frame	Model Range	Boiler HP	Capacities		Mode of Operation	Fuel	Parallel Positioning
				MBH	GPH			
Uncontrolled	Size 1 - 3	84 - 420	200 - 1,000	8,400 - 42,000	60 - 300	Full Modulation	Gas, Oil, Comb.	Optional
<30 PPM	Size 1 - 3	84 - 420	200 - 1,000	8,400 - 42,000	60 - 300	Full Modulation	Gas & Comb.	Optional

D/LND – Series

- Designed for a wide range of applications such as firetube and firebox boilers, heaters, furnaces, kilns and dryers
- **Fuels:** Gas, #2-6 Oil, or Combination
- **Gas Input (MBTU/hr):** 3,360 to 42,000
- **Oil Input (US GPH):** 24 to 300
- **Thermal Output (BHP):** 80 to 1,000
- **Shipping Weight (lbs):** 1,000 to 5,500

Emissions	Frame	Model Range	Boiler HP	Capacities		Mode of Operation	Fuel	Parallel Positioning
				MBH	GPH			
Uncontrolled	Size 1 - 8	42 - 420	100 - 1,000	4,200 - 42,000	30 - 300	Full Modulation	Gas, Oil, Comb.	Optional
<30 PPM	Size 1 - 8	34 - 420	80 - 1,000	3,360 - 42,000	24 - 300	Full Modulation	Gas & Comb.	Optional
<9 PPM	Size 5 - 8	126 - 336	300 - 800	12,600 - 33,500	90 - 239	Full Modulation	Gas, Oil, Comb.	Standard

M – Series



- Designed for a wide range of applications such as firetube and firebox boilers, heaters, furnaces, kilns and dryers
- **Fuels:** Gas, #2-6 Oil, or Combination
- **Gas Input (MBTU/hr):** 1,400 to 10,500
- **Oil Input (US GPH):** 10 to 75
- **Thermal Output (BHP):** 33 to 250
- **Shipping Weight (lbs):** 450 to 1,250

Emissions	Frame	Model Range	Boiler HP	Capacities		Mode of Operation	Fuel	Parallel Positioning
				MBH	GPH*			
Uncontrolled	Size 1 - 4	14 - 105	33 - 250	1,400 - 10,500	10 - 75	Full Modulation	Gas, Oil, Comb.	Optional

* Oil input (US GPH) calculated for #2 Oil @ 140,000 BTU/gal

MTH – Series

- Designed for process heating applications such as thermal fluid system and hot oil heating, firetube, watertube, firebox, driers and ovens
- **Fuels:** Gas
- **Gas Input (MBTU/hr):** 2,500 to 63,000
- **Thermal Output (BHP):** 60 to 1,500
- **Shipping Weight (lbs):** 700 to 12,000 approx.

Emissions	Frame	Model Range	Boiler HP	MBH Capacity	Mode of Operation	Fuel	Parallel Positioning
<9 PPM	Size 1 - 3	25 - 630	60 - 1,500	2,500 - 63,000	Full Modulation	Gas	Optional

V – Series

- Designed for firetube, watertube, cast iron, firebox, ovens, kilns and heater applications
- **Fuels:** Gas, #2 Oil, or Combination
- **Gas Input (MBTU/hr):** 1,300 to 16,800
- **Oil Input (US GPH):** 9.3 to 120
- **Thermal Output (BHP):** 31 to 400
- **Shipping Weight (lbs):** 450 to 1,450

Emissions	Frame	Model Range	Boiler HP	Capacities		Mode of Operation	Fuel
				MBH	GPH		
Uncontrolled	Size 1 - 4	13 - 168	31 - 400	1,300 - 16,800	9.3 - 120.0	Full Modulation	Gas, Oil, Comb.
<30 PPM	Size 1 - 4	13 - 147	31 - 350	1,300 - 14,700	9.3 - 105.0	Full Modulation	Gas, Oil, Comb.

Q – Series

- Designed for cast iron sectional boilers, firebox, commercial watertube, firetube, furnace and oven applications
- **Fuels:** Gas
- **Gas Input (MBTU/hr):** 375 to 2,500
- **Thermal Output (BHP):** 9 to 60
- **Shipping Weight (lbs):** 350 to 550

Emissions	Frame	Model Range	Boiler HP	MBH Capacity	Mode of Operation	Fuel	Parallel Positioning
Uncontrolled	Size 1 - 3	37 - 250	9 - 60	375 - 2,500	On/Off	Gas	Optional

The right burner for virtually any application.

Designed for maximum efficiency and low emissions, Cleaver-Brooks offers the right burner solution for nearly any boiler room application. With our extensive engineering expertise and vast aftermarket support network, we can help determine which burner is right for you.

	NOx Levels	Recommended Boiler Types	Capacity (Horsepower)														
			0.375 (8.9)	0.5 (12)	1.0 (23.8)	1.3 (31)	2.5 (59.5)	3.3 (85.7)	8.4 (200)	10.5 (250)	16.8 (400)	25.2 (600)	37.8 (900)	42.0 (1100)	63.0 (1500)	72.6 (1728.6)	92.4 (2200)
	**XL Series** #2 Oil, Natural Gas, Propane	Less than 30 PPM NOx	Firetube Industrial Watertube										37.8–92.4 MMBTU (900–2200 HP)				
	**S1 Series** #2-#6 Oil, Natural Gas, Propane	Less than 30 PPM NOx	Firetube Industrial Watertube											42–63 MMBTU (1100–1500 HP)			
	**E Series** #2 Oil, Natural Gas, Propane	Uncontrolled or less than 30 PPM NOx	Firetube Firebox Commercial Watertube Cast Iron Boilers Thermal Fluid Heater						8.4–42.0 MMBTU (200–1000 HP)								
	**D Series** #2-#6 Oil, Natural Gas, Propane, Alternative Fuels	Uncontrolled or less than 30 PPM NOx	Firetube Firebox Thermal Fluid Heater					3.3–42.0 MMBTU (85.7–1000 HP)									
	**MTH Series** Gas only	Less than 9 PPM NOx	Firetube Watertube Boilers Oven Kiln Drier Thermal Fluid Heating				2.5–63.0 MMBTU (59.5–1500 HP)										
	**M Series** #2-#6 Oil, Natural Gas, Propane, Alternative Fuels	Uncontrolled NOx only	Firetube Firebox Thermal Fluid Heating			1.4–10.5 MMBTU (33.3–250 HP)											
	**V Series** #2 Oil, Natural Gas, Propane	Uncontrolled or less than 30 PPM NOx	Firetube Firebox Watertube Cast Iron Boilers			1.3–16.8 MMBTU (31–400 HP)											
	**Q Series** Gas only	Uncontrolled or less than 30 PPM NOx	Firetube Firebox Cast Iron Sectional Commercial Watertube Boilers Furnaces Ovens	0.375–2.5 MMBTU (8.9–59.5 HP)													

Controls Help Make the Difference.

The Hawk is a complete boiler room solution. It not only integrates the boiler/burner, heat recovery and feedwater systems, but provides complete boiler room data to remote communication systems such as building automation systems, SCADA packages and other remote monitoring systems.

All Hawk packages come standard with:

- Parallel positioning
- Stack temperature with high cutoff set point
- Thermal shock protection
- Dual set points
- Touch screen HMI
- PLC-based combustion control
- Alarm and historical monitoring

Click to view **Hawk Control Brochure**

Burner and Control Upgrades Are Easier Than Ever.

Cleaver-Brooks engineering team can design a turnkey solution for any boiler and any application. Contact a Cleaver-Brooks authorized representative to help determine beneficial upgrades to your system.

Evaluate your burner and controls for an upgrade if:

- Existing burners are cycling on/off frequently wasting energy
- Your burner or boiler controls are more than 10 years old
- Burner controls are not fully integrated with boiler loads
- You must reduce emissions while maintaining efficiency
- Alternate fuels could provide energy savings and/or reduced emissions

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