More than just hydronic boilers, we offer the most efficient integrated hydronic solutions on the market.
Think outside the boiler.

It’s time to think about your boiler room in a different way. We’re not talking just about hydronic boilers, but hydronic solutions. An integrated approach that gives you full control over your system, allowing you to pick and choose the right components to maximize efficiency, minimize emissions and operate safely and reliably.

System Flexibility

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

The Hydronic System Control (HSC) allows facilities to maximize operating efficiency and minimize the operating cost of hydronic systems. By measuring outside air temperature along with the temperatures of the return water, the condensing boiler’s header and the supply water, the HSC determines the most efficient operation of your boiler system and operates it safely and reliably. The HSC uses complex algorithms based on temperature data to determine if it is best to operate only condensing boilers, only non-condensing boilers or a combination of both in a true hybrid system. The HSC can be used in a primary flow, primary-variable flow or primary-secondary flow design for both new and existing systems.

**TYPICAL HYBRID SYSTEM**

The Hydronic System Control (HSC) allows facilities to maximize operating efficiency and minimize the operating cost of hydronic systems. By measuring outside air temperature along with the temperatures of the return water, the condensing boiler’s header and the supply water, the HSC determines the most efficient operation of your boiler system and operates it safely and reliably. The HSC uses complex algorithms based on temperature data to determine if it is best to operate only condensing boilers, only non-condensing boilers or a combination of both in a true hybrid system. The HSC can be used in a primary flow, primary-variable flow or primary-secondary flow design for both new and existing systems.

**CONDENSING**

Condensing boiler technology offers boiler efficiencies in the mid- to high-90s. Cleaver-Brooks understands how to leverage your system design and combine it with a coordinated control strategy to squeeze more out of your system’s efficiency.

**NON-CONDENSING**

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

**HYBRID SYSTEMS**

Our hybrid solution leverages the benefits of both condensing and non-condensing boiler designs for peak system efficiency. They are especially beneficial to hospitals, universities and large commercial buildings because of their flexibility. Minimize your investment by utilizing your existing non-condensing boilers in a hybrid system.
ClearFire® Technology

“Technology Drives Innovation” is the heart of Cleaver-Brooks hydronic solutions. No other boiler company invests more energy and resources into research and product development. Our ALUFER® 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 proportions for peak combustion efficiency. It’s this innovative engineering, backed by our industry expertise, that not only gives you an outstanding hydronic boiler, but delivers the foundation for a fully integrated hydronic solution.

HEAT EXCHANGER

Every aspect of the true counterflow design is engineered to ensure the maximum effective heat transfer possible. The proven firetube arrangement ensures reliability and longevity. The large water volume and low pressure drop inherent in the firetube design make it ideal for variable flow primary pumping applications.

MODULATING PREMIX BURNER

The modulating premix burner and linkageless control automatically adjust the air/gas mixture for maximum efficiency and optimum turndown. A symmetrical, 360° even-temperature heat output is achieved from the burner, providing clean combustion with ultra-low NOx emissions of less than 20 ppm as standard and less than 9 ppm as optional.

DUAL RETURN ADVANTAGE

The ClearFire-C and ClearFire-LC’s Dual Return Advantage offers more opportunity to improve system efficiency. Most hydronic systems blend returns from different loops, compromising the performance of your condensing boiler system. The combination of our counterflow heat exchanger and ALUFER firetubes is what allows you to connect a cold (less than 130°F) return to the lower inlet connection and connecting the high temperature (greater than 140°F) return to the upper inlet connection, you can realize a 6%+ gain in efficiency by achieving true condensing performance even in applications with high temperature heating loops.
Hydronic Boiler System Products

ClearFire®-LC  CONDENSING HYDRONIC
4,000–12,000 MBTU/hr • Natural gas or propane fuels
Up to 99% efficient • Available to less than 9 ppm NOx

The ClearFire-LC combines Cleaver-Brooks exclusive ALUFER® and EX tube technologies to engineer a high-capacity condensing boiler ideal for larger central heating or process heating applications. The thermal shock proof design allows for operating temperature up to 250°F while having no minimum return temperature requirement. The large water volume, low pressure drop heat exchanger is ideal for primary pumping and variable flow operation. The Dual Return Advantage delivers even more system design flexibility. With the advanced engineering design and intelligently integrated controls, the ClearFire-LC is a best-in-class hydronic solution, offering greater capacities and unparalleled efficiency.

Features
- Gain 6%+ efficiency with dual return water connections
- Modulating premix burner standard
- Intelligent boiler control for multiple lead/lag configuration
- Reduce capital costs and simplify your installation by installing fewer, larger boilers
- Hinged burner door for easy maintenance

ClearFire®-C  CONDENSING HYDRONIC
500–3,300 MBTU/hr • Natural gas or propane fuels
Up to 99% efficient • Available to less than 9 ppm NOx

The ClearFire-C, featuring ALUFER technology, is the best condensing boiler on the market. Designed from the ground up to provide maximum condensing efficiency, the most reliable operation and complete system design flexibility. The dual return advantage provides a 6%+ efficiency gain. The ClearFire-C was designed with the boiler operator in mind; from the hinged burner to the built-in service platform, no other boiler is as easy to maintain.

Features
- Gain 6%+ efficiency with dual return water connections
- Modulating premix burner standard
- Intelligent boiler control for multiple lead/lag configuration
- Hinged burner door and built-in service platform for easy maintenance
Model M5M

2,000-6,000 MMBTU (47-143 HP) • Compact steam or hydronic boiler • Pressure design to 600 psig • Natural gas or propane • Less than 20 ppm NOx standard • Linkageless fuel/air control at 5:1 turndown

Where space is a limiting factor or when high pressure steam or high temperature water is needed for process applications, the M5M is your solution to deliver up to 400°F water or up to 600 PSIG steam. The M5M responds quickly to load changes via linkageless fuel/air ratio combustion control, maintaining your heating or process needs with 5:1 turndown operation. The complete package is UL labeled and built in accordance with the latest ASME requirements and stamped.

Features
- <20 ppm NOx emission as standard
- Linkageless Fuel/ Air Control at 5:1 turndown
- Pressure design to 600 psig

FLX NON-CONDENSING HYDRONIC

1,500–25,000 MBTU/hr (35-600 HP) • No. 2 oil and gaseous fuels • Up to 88% efficient • Available to less than 9 ppm NOx

If your application requires larger capacities, rapid response, high temperature pressure heating, back-up fuel oil or field erectibility, the flexible watertube hydronic boiler is the answer. Applications include hydronic heating for universities, medical facilities, office complexes and airport facilities; and process applications such as pharmaceuticals, manufacturing and food processing. The Cleaver-Brooks flexible watertube can also be paired with condensing boilers in a hybrid solution.

Features
- Compact footprint saves valuable square footage
- Field erectable
- Linkageless fuel air ratio control standard (300-600 HP)
- Thermal shock resistant
- Alternative fuel flexibility
Coordinated control of your hydronic boiler room is the key to providing reliable operation that maximizes system efficiency. Cleaver-Brooks provides several integrated and/or stand-alone control solutions that offer the flexibility to reduce not only the fuel costs, but the total energy and maintenance costs of the system.

**Integrated Falcon Control**

For ease of installation and reduction of commissioning and start-up time, use the integrated Falcon control system that comes standard on every ClearFire® boiler. Falcon provides a wide range of flexibility to control up to 8 boilers in a lead-lag operation. Modulate outside air dampers and control boiler pumps or isolation valves. Lead/lag control is configured to modulate only the correct number of boilers in the most efficient manner possible while eliminating short cycling.

### Features
- Lead lag up to 8 boilers
- Outdoor reset
- Intuitive color touchscreen interface
- Burner management
- Building Management System (BMS) interface
- Pump/Valve control
- Extensive trending and alarm diagnostics
- Damper interlock control

**Hydronic System Control**

For systems requiring a more comprehensive control strategy, look no further than Cleaver-Brooks Hydronic System Control (HSC). The HSC is an expandable, multi-faceted control solution specifically engineered to handle any type of heating system. This includes low temperature (condensing), high temperature (non-condensing) or hybrid systems designed to leverage the advantages of both technologies. The HSC can be applied to new or existing systems from any manufacturer’s hot water boiler. The HSC is great for retrofit applications with an existing non-condensing boiler where the customer can integrate condensing technology for dramatic energy savings at a lower initial cost. It is also ideal for any customer looking for the best return on investment, including a new installation.

### Features
- PID temperature setpoint control
- Alarm history and data logging
- Manages up to 20 boilers
- Outdoor reset
- Interlock dampers, draft controls and isolation valves
- Building Management System (BMS) communication interface
- Variable Speed Drive (VSD) control of system and boiler pumps
- Compatible with any manufacturer’s boilers
## Dimensions

### CLEARFIRE®-LC BOILER MODELS

<table>
<thead>
<tr>
<th>Capacity (MBTU/hr)</th>
<th>4000</th>
<th>5000</th>
<th>6000</th>
<th>8000</th>
<th>10000</th>
<th>12000</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overall Height (in.)</td>
<td>96</td>
<td>96</td>
<td>106</td>
<td>106</td>
<td>126</td>
<td>126</td>
</tr>
<tr>
<td>Overall Width (in.)</td>
<td>48</td>
<td>48</td>
<td>57.5</td>
<td>57.5</td>
<td>70</td>
<td>70</td>
</tr>
<tr>
<td>Overall Depth (in.)</td>
<td>117</td>
<td>117</td>
<td>131</td>
<td>131</td>
<td>147</td>
<td>147</td>
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<tr>
<td>Shipping Weight (lbs.)</td>
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<td>7,800</td>
<td>9,800</td>
<td>10,500</td>
<td>15,300</td>
<td>16,100</td>
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<tr>
<td>Operating Weight (lbs.)</td>
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<td>10,918</td>
<td>14,460</td>
<td>14,760</td>
<td>22,562</td>
<td>22,928</td>
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### CLEARFIRE®-C BOILER MODELS

<table>
<thead>
<tr>
<th>Capacity (MBTU/hr)</th>
<th>500</th>
<th>750</th>
<th>1000</th>
<th>1500</th>
<th>1800</th>
<th>2500</th>
<th>3300</th>
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<tbody>
<tr>
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<td>71.9</td>
<td>75.4</td>
<td>81.5</td>
<td>81.5</td>
<td>81.9</td>
<td>85</td>
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<td>Overall Width (in.)</td>
<td>32.3</td>
<td>32.3</td>
<td>36.6</td>
<td>43.7</td>
<td>43.7</td>
<td>50.8</td>
<td>61.3</td>
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<tr>
<td>Overall Depth (in.)</td>
<td>48.9</td>
<td>48.9</td>
<td>64.0</td>
<td>65.6</td>
<td>65.6</td>
<td>72.3</td>
<td>86.3</td>
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<tr>
<td>Shipping Weight (lbs.)</td>
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<td>1,160</td>
<td>1,795</td>
<td>2,225</td>
<td>2,505</td>
<td>3,640</td>
<td>4,835</td>
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<tr>
<td>Operating Weight (lbs.)</td>
<td>1,585</td>
<td>1,585</td>
<td>2,545</td>
<td>3,165</td>
<td>3,325</td>
<td>4,685</td>
<td>6,570</td>
</tr>
</tbody>
</table>

### FLX BOILER MODELS

| Capacity (MBTU/hr x10) | 150 | 200 | 250 | 300 | 350 | 400 | 450 | 500 | 550 | 600 | 700 | 800 | 900 | 1000 | 1100 | 1200 |
|------------------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|------|
| Capacity (HP)          | 35  | 50  | 60  | 70  | 85  | 95  | 110 | 120 | 130 | 140 | 170 | 190 | 215  | 240  | 260  | 290  |
| Overall Height (in.)   | 76  | 76  | 76  | 80  | 80  | 85  | 85  | 85  | 85  | 85  | 85  | 94   | 94   | 94   | 94   | 94   |
| Overall Width (in.)    | 42  | 42  | 42  | 46  | 46  | 48  | 48  | 48  | 48  | 48  | 48  | 48   | 54   | 54   | 54   | 54   |
| Overall Depth (in.)    | 114 | 114 | 114 | 120 | 120 | 147 | 147 | 147 | 147 | 147 | 153 | 174  | 174  | 174  | 205  | 205  |
| Shipping Weight (lbs.) | 3,900 | 3,900 | 3,900 | 5,000 | 5,000 | 6,100 | 6,100 | 6,100 | 6,100 | 6,100 | 8,500 | 8,500 | 8,500 | 10,000 | 10,000 | 10,000 |
| Operating Weight (lbs.) | 4,700  | 4,700 | 4,700 | 5,900 | 5,900 | 7,600 | 7,600 | 7,600 | 7,600 | 7,600 | 10,500 | 10,500 | 10,500 | 12,300 | 12,300 | 12,300 |

### FLX (LARGE CAPACITY) BOILER MODELS

<table>
<thead>
<tr>
<th>Capacity (MBTU/hr x10)</th>
<th>1250</th>
<th>1450</th>
<th>1650</th>
<th>1850</th>
<th>2100</th>
<th>2500</th>
</tr>
</thead>
<tbody>
<tr>
<td>Capacity (HP)</td>
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<td>350</td>
<td>400</td>
<td>450</td>
<td>500</td>
<td>600</td>
</tr>
<tr>
<td>Overall Height (in.)</td>
<td>96</td>
<td>96</td>
<td>107</td>
<td>107</td>
<td>132</td>
<td>132</td>
</tr>
<tr>
<td>Overall Width (in.)</td>
<td>54</td>
<td>54</td>
<td>60</td>
<td>60</td>
<td>75</td>
<td>75</td>
</tr>
<tr>
<td>Overall Depth (in.)</td>
<td>253</td>
<td>268</td>
<td>280</td>
<td>298</td>
<td>310</td>
<td>340</td>
</tr>
<tr>
<td>Shipping Weight (lbs.)</td>
<td>12,800</td>
<td>13,800</td>
<td>16,900</td>
<td>17,700</td>
<td>24,300</td>
<td>27,200</td>
</tr>
<tr>
<td>Operating Weight (lbs.)</td>
<td>15,400</td>
<td>16,600</td>
<td>21,200</td>
<td>22,400</td>
<td>31,000</td>
<td>34,800</td>
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</table>

### MODEL M5M BOILER MODELS

<table>
<thead>
<tr>
<th>Capacity (MBTU/hr x10)</th>
<th>2000</th>
<th>2500</th>
<th>3000</th>
<th>3500</th>
<th>4000</th>
<th>4500</th>
<th>5000</th>
<th>6000</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overall Height (in.)</td>
<td>79</td>
<td>79</td>
<td>79</td>
<td>79</td>
<td>79</td>
<td>79</td>
<td>79</td>
<td>79</td>
</tr>
<tr>
<td>Overall Width (in.)</td>
<td>33</td>
<td>33</td>
<td>33</td>
<td>33</td>
<td>33</td>
<td>33</td>
<td>33</td>
<td>33</td>
</tr>
<tr>
<td>Overall Depth (in.)</td>
<td>79</td>
<td>94.5</td>
<td>94.5</td>
<td>110</td>
<td>110</td>
<td>126</td>
<td>126</td>
<td>141.5</td>
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<tr>
<td>Shipping Weight (lbs.)</td>
<td>3,100</td>
<td>3,700</td>
<td>3,700</td>
<td>4,100</td>
<td>4,100</td>
<td>4,700</td>
<td>4,700</td>
<td>5,400</td>
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<tr>
<td>Operating Weight (lbs.)</td>
<td>3,900</td>
<td>4,792</td>
<td>4,792</td>
<td>5,458</td>
<td>5,458</td>
<td>6,366</td>
<td>6,366</td>
<td>7,342</td>
</tr>
</tbody>
</table>
Total Integration goes far beyond hydronic solutions.

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 hydronic solution, 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. To learn more, please call or visit us online.