BLOOM ENGINEERING
A Wabtec company

BUSINESS CASE

Why Choose Bloom Engineering?

Bloom Engineering is at the forefront of low-NO_X industrial burner technology. Our products are not inexpensive but are purchased by furnace builders and end users around the world who are looking for premium performance. This industry-leading performance comes from a combination of:

- A legacy of innovation and patents
- A veteran staff with years of process experience
- Highly customizable products
- High thermal efficiency without sacrificing low NO_X capability
- Comprehensive field support and diverse offerings
- Unmatched ability to guarantee emissions levels

Bloom Engineering's Legacy of Innovation

Bloom Engineering's Research and Development strategy is one of continual product development and improvement, having been granted more than 80 US patents since our founding in 1934. We recognize the critical importance of maintaining a leading-edge product line in response to the market demands for reliable, fuel-efficient, low-emission combustion and control equipment. We believe that the level of our Research and Development commitment today determines the success of our company tomorrow.

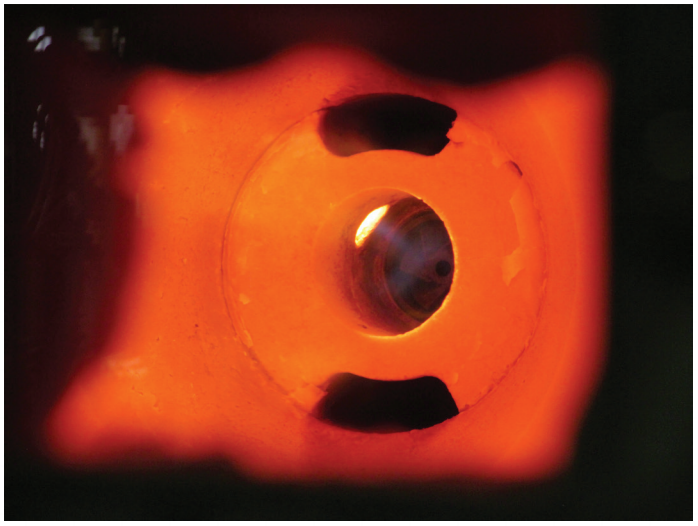
Bloom Engineering remains committed to the development and supply of rugged, reliable, practical products. Over the years, we have consistently seen the results of competing equipment that did not meet these fundamental criteria, resulting in unsatisfactory installations. Before a Bloom Engineering product reaches the market, we demand that it be proven in our laboratory. Furthermore, we take the time to analyze whether a new idea will be practical in the plant environment. These guiding principles have allowed us to maintain a leadership role in the markets we serve.

Bloom Engineering's Veteran Staff

Bloom Engineering is fortunate to have an experienced staff of combustion experts. Through a combination of in-house talent development and strategic hiring, both from furnace OEMs and end users, we bring deep expertise into all of the key markets we serve. Our team knows our customers' processes inside and out and has a deep understanding of their needs. This allows us to develop and offer solutions tailored to solving your problems.

Bloom Engineering's Customizable Products

After more than 90 years of optimization for heating performance and reliability, and 30 years of development for low NO_X, Bloom Engineering is able to offer exceptional solutions for many high-temperature industrial heating applications. Key products for



ultra-low NO_X steel reheating include our forward-firing 1150 series regenerative burners, along with 1610 and 1500 series burners for hot, recuperated air, and 2180 series HTR® flat flame burners, which are also suited for hot, recuperated air. In addition to being multifuel capable, these burners are customizable for specific furnace geometries, air and fuel supply pressures, and maintenance needs.

Bloom Engineering's Low NO_X Capability Coupled with High Thermal Efficiency

Bloom Engineering has integrated proven techniques like furnace-gas recirculation and air staging within its patented baffle burner designs. These techniques allow for the control of flame chemistry and peak temperatures that effectively minimize NO_X formation—even with elevated furnace and combustion air temperatures. In steel reheating applications, it is no longer necessary to limit air preheat temperatures or use efficiency-robbing external flue gas recirculation to achieve compliance with most global NO_X regulations.

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Comprehensive Support & Proven Field Performance

Our field service team offers comprehensive support for all types and makes of industrial burners, burner management systems, and related equipment. This experienced team is committed and available to address your safety, environmental sustainability, product quality, productivity, and energy efficiency needs. Recognizing the benefits of regular field support, many of our customers have established long-term service agreements with us to ensure that service is done on a regular schedule instead of only when an obvious problem occurs.

Additional offerings from Bloom Engineering include combustion controls, combustion air and fuel systems, including pre-piped and pre-wired fuel trains, valves, aftermarket parts, installation supervision, combustion training, and a robust R&D lab.

Bloom Engineering's Performance Guarantees

Bloom Engineering is unmatched in our ability to provide process guarantees for heating performance, fuel consumption, NO_X emissions, and other critical parameters. We can do this thanks to our proprietary knowledge, custom analytical methods, and extensive capabilities in furnace and combustion simulation and modeling. Often, key performance parameters are verified through physical testing in our R&D combustion lab, allowing you to observe burner operation before installation. By offering guarantees, we reduce risk to our clients and demonstrate our confidence that both production targets and stringent air permitting requirements will be met, delivering meaningful ESG improvements.

Above all else, Bloom is an engineering company. Manufacturing burners, fuel trains, control panels, and other combustion equipment is part of what we do, but our focus is to develop proper solutions to solve our customers' problems. Because Bloom Engineering custom-engineers each product that we supply, we can help our clients achieve optimal results from their heating equipment that might not have been possible using a standard "catalog" type product. This approach can be summed up by the words of our founder, Mr. Fred Bloom himself, *"First, understand the customer's problem. Then define it in terms that allow a calculated, engineering solution. Apply properly designed equipment in the correct arrangement so that the furnace will produce the desired results in terms of capacity and quality. Last, but not least, go back to the installation and make sure that the furnace is living up to what the calculations indicated it should."* After more than 90 years, we still hold to Fred's strategy, and whether they are looking to convert to a more sustainable or other unusual fuel, seeking BAT for efficiency, needing a custom product to work with an existing piece of equipment, or looking to comply with a stringent NO_X requirement, customers around the world continue to trust Bloom Engineering to solve their toughest combustion problems.