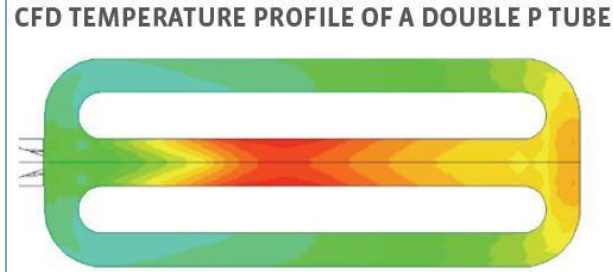


2460 SERIES RECUPERATIVE RADIANT TUBE BURNER, FOR PP SHAPED TUBES



LABORATORY CAPABILITIES

Bloom operates one of the largest and most advanced private, applied combustion labs in North America. The lab occupies 20,000 ft² (2,000 M²). It has 20 fully instrumented furnaces of varying configurations to suit the range of industrial combustion applications. Additionally, the lab has a dedicated staff of engineers and technicians. Lab activities include new burner development, burner upgrades, production performance testing and emissions verification. Bloom's computational fluid dynamics (CFD) capabilities are fully integrated into the laboratory activities.

RADIANT TUBE LIFE

For proper radiant tube life, the maximum operating temperature at any point along the tube must not exceed the design working temperature for the tube material. Tube life can thus be predicted, to a large extent, by its temperature uniformity. A measure of temperature uniformity is expressed as the Hot Spot Over Average (HSOA) temperature. The HSOA is the difference between the peak high (or low) tube temperature and the average tube operating temperature within the operating range of the burner. A low HSOA is an indication of low peak tube temperature. A low HSOA will cause the tube to have minimal thermal stresses, enhancing tube life. A low HSOA will also create a better heating quality within the furnace.

RELIABILITY

Bloom burners are designed for continuous operation in demanding environments. The burners are manufactured from heavy alloy castings. Bloom burner designs are based on 50 years experience and backed up by the latest design techniques including computational fluid dynamics (CFD). Laboratory testing ensures the optimization of the specific application. Additionally, customer feedback and laboratory-based research provides a source of continuous improvement of the fundamental designs. All of these characteristics are what to expect from an engineering based company. As such, reliability is not an unknown but an engineered process to achieve the maximum service life. Service lives in-excess of 25 years have been documented.