

Tunable Enrichment Air-oxy-fuel Burner



Flexible heating modes for all enrichment levels between air-fuel and oxy-fuel

Air Products' Tunable Enrichment burner operating at different oxygen enrichment levels.



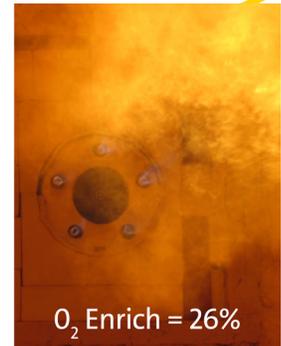
O₂ Enrich = 100%

Full Oxy-fuel



O₂ Enrich = 45%

Air-oxy-fuel



O₂ Enrich = 26%

Enriched Air-fuel

The Tunable Enrichment burner can enable:

- Increased productivity
- Improved yield
- Reduced fuel consumption
- Lower emissions
- Use of cheaper, lower quality scrap

With intense competition in the non-ferrous market, you are under great pressure to increase productivity and reduce environmental impact, while also reducing operating costs. The Air Products Tunable Enrichment Air-oxy-fuel burner* can help you achieve these goals. This burner offers a comprehensive combustion solution to help you increase process flexibility and productivity. It allows you to operate within the full range of air-fuel and oxy-fuel modes to optimize the melting and holding processes of non-ferrous materials in reverberatory furnaces.

Customization enables optimization

Air Product's Tunable Enrichment burner produces a high momentum, spacious flame. The flame length and heating profile are adjustable to facilitate uniform furnace temperatures. You can adjust the flame length to generate a long, luminous and highly radiant flame or a short, intense flame, at firing rates between 3 and 30 MM BTU/hr.

The burner can provide high heat transfer efficiency at low NO_x air-oxy-fuel operating conditions. See Figure 1 (Regions A and B). In addition, the burner can operate with oxygen and/or air as the oxidizer. This offers you full flexibility to customize the flame and control of the energy input based on the actual furnace design. Turn to our Tunable Enrichment burner for:

- Operational flexibility
- Ease of maintenance, minimal downtime
- Low NO_x operation
- High-yield
- Tunability— can create different energy release profiles
- Smaller footprint than conventional air-oxy-fuel burners

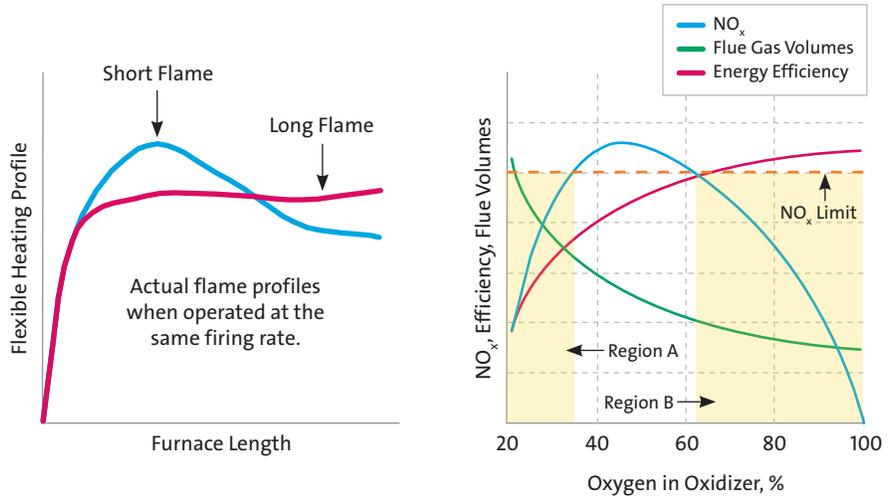
* May be covered by one or more of the following patents and pending patent applications: US 9,134,025 B1; EP 2812633 A2; US 2013/0143169 A1, EP 2815180 A1.

The Air Products advantage

At Air Products, we recognize that no two furnaces are alike, so we draw upon our 50+ years of R&D and field experience to engineer a custom-tailored system to match your furnace's specific needs. Our broad range of newly designed burners and precision-control systems represent the cutting edge of combustion technology. Count on us for:

- Complete equipment design and fabrication, including flow controls
- Operator training, including proper maintenance and safety procedures
- State-of-the-art combustion labs for evaluation and demonstration of burner technologies
- Advanced CFD modeling capabilities to deliver optimized heating solutions to our customers
- Evaluation and economic analysis of operations using oxygen-enhanced combustion processes

Figure 1: Flexible heating profile (left) and low NO_x operation (right)



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