

DOC-JL Burner



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**PRAXAIR**
Making our planet more productive™

Praxair's DOC-JL burner provides a flame that is ideal for large area coverage. It also helps minimize NOx emissions and reduce emissions from glass furnaces. Based on Praxair's patented Dilute Oxygen Combustion (DOC) technology and installed in over 50 furnaces worldwide, the burner features a unique two-zone design for ultra low NOx emissions and partial furnace atmosphere stratification. The upper fuel-rich primary zone produces a high luminosity stable flame for high heat transfer efficiency. The lower secondary oxygen zone helps control flame geometry and temperature profile. This produces a higher oxygen concentration and low water vapor content atmosphere over the glass-melt surface, minimizing volatilization of alkalis species. NOx emissions from the DOC-JL burner are 90% lower than conventional oxy-fuel burners.



With proper placement, Praxair's DOC-JL burners minimize alkali volatilization and particulate formation from the glass melt which significantly reduce furnace refractory corrosion and promote longer furnace life. In addition, the burner can operate with a variety of gaseous, liquid, and solid fuels.

Benefits

No burner cooling required

- Minimal maintenance
- Oxygen staging allows:
 - flame stability
 - flame length and temperature profile adjustments
 - atmosphere stratification control
 - Ultra-low NOx operation
- Multi-fuel burner
- Volatilization control

Flame Characteristics

The DOC-JL has the following geometrical characteristics:

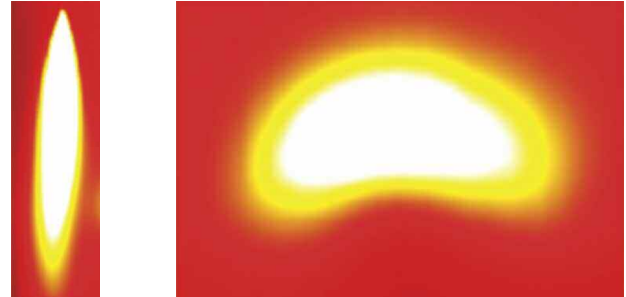


Figure 1. DOC-JL flame top(left) and front (right) views. Note: Images not to scale

Flame length and width for typical design conditions are summarized in the following figure:

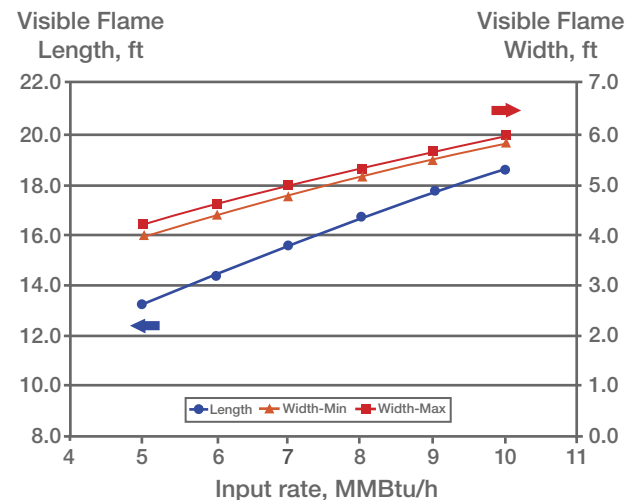


Figure 2. DOC-JL flame length and width as a function of firing rate

Praxair understands the impact of oxygen supply parameters (including pressure and purity) on combustion system design, performance, and cost. As your oxygen supplier, we are uniquely positioned to work with your engineers and procurement specialists to design a fully integrated package that meets your specific oxy-fuel combustion needs.

* (US Patents 5267850, 5411395, 5449286, 5601425, 5814125, 5823762, 5931654, 6096261, 6125133, 6139310, 6132204, 6142764, 6394790, 6171544)