



## OPTIFIRE™ Wide Flame Burner



Linde's OPTIFIRE wide flame burner has been successfully implemented in glass melting furnaces. It features a staged combustion process that provides high flame luminosity and low momentum, allowing optimum heat transfer during the melting process and preventing hot spots.

The burner generates a wide flame pattern that covers up to 200% more glass surface than conventional oxy-fuel burners.



*Covers up to 200% more glass surface than conventional oxy-fuel burners.*

A variety of flame shape configurations can be promoted, including a "half-flame" for use near end-walls or for other process reasons. This flexibility allows the burner to be incorporated in any location in any type of furnace.

Economic, environmental and production benefits can include:

- Low momentum flames that reduce particulate emissions and crown corrosion
- Up to 50% NO<sub>x</sub> reduction compared to conventional oxy-fuel burners
- Wide flame pattern resulting in fewer burners per unit area of melter
- No burner cooling required
- "Quick-release" feature for easy installation and removal of burner metallic components
- Effective at foam mitigation

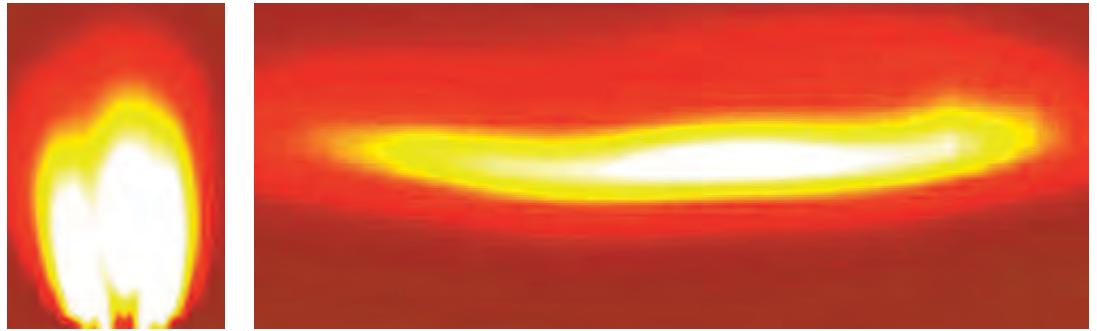


## Flame Characteristics

**Figure 1.** OPTIFIRE WFB flame views: top (left) and front (right).

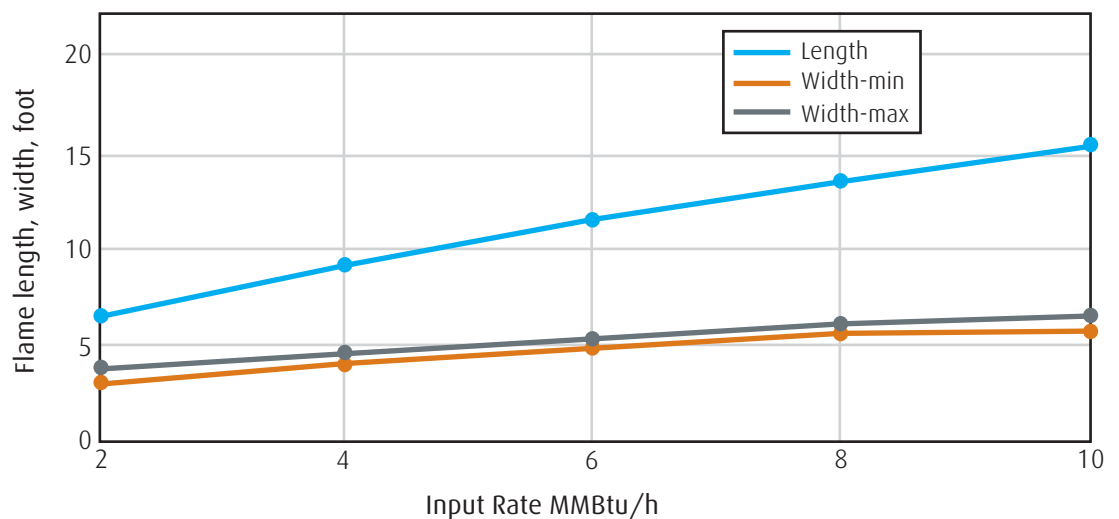
Note: Images not to scale.

The wide flame burner generates a soft flame with geometrical characteristics as shown in Figure 1:



**Figure 2.** OPTIFIRE WFB flame length and width as a function of firing rate. Firing rate range: 1 – 4 MMBtu/h, 3 – 7 MMBtu/h, and 4 – 10 MMBtu/h, other ranges on request.

### Flame Length, Width, Input Rate



At Linde, not only are you selecting one of the leading suppliers of industrial gases worldwide, you are also selecting a support team that includes years of experience in the glass industry. Linde understands the impact of oxygen supply parameters, like pressure and purity, on combustion system design, performance, and cost. We will work with your engineers and procurement specialists to design a fully integrated package that meets your specific oxy-fuel combustion needs. For more information about the OPTIFIRE wide flame burner contact us at [1-844-44LINDE](tel:1-844-44LINDE), or visit our website at [www.lindeus.com](http://www.lindeus.com).