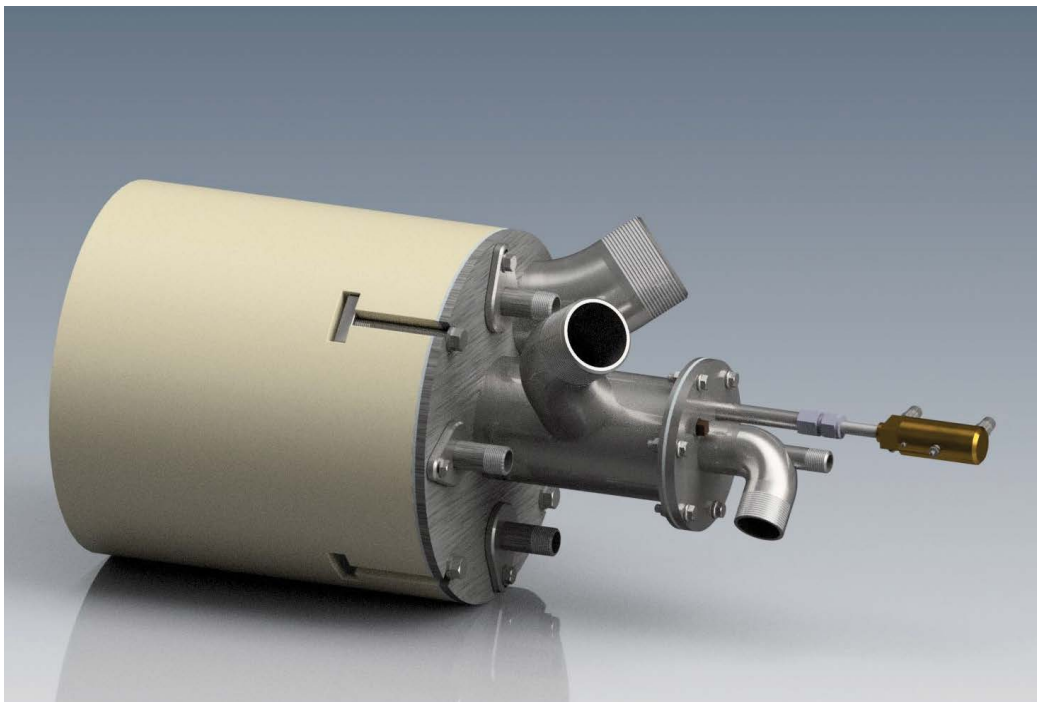


OXIPYR[®] LEAF Air-Oxy Fuel Burner

Flexibility to switch from straight air-fuel to 100% oxy-fuel with lower NOx emissions



The flameless Messer OXIPYR LEAF air-oxy fuel burner offers on-demand and adjustable productivity, superior temperature uniformity, cost savings and low NOx emissions.

Key benefits

- Complete flexibility to adjust your oxygen usage from 0 to 100% for cost savings
- Ability to boost melt rate on demand resulting in shorter cycle times
- Reduced fuel consumption and CO₂ emissions to meet sustainability objectives
- Improved temperature uniformity and heat distribution throughout the furnace
- Reduced NOx emissions compared to conventional air- and oxy-fuel burners

Boost melt rate on demand

Messer burners can be operated from straight air-fuel to 100% oxy-fuel. This enables recyclers to add oxygen as necessary – based on scrap shape and type, throughput requirements and furnace load – to boost productivity to desired levels.

As the percentage of injected oxygen increases (vs. the amount of air), the melt rate increases and fuel consumption decreases. As shown in (Fig. 1), when only oxygen is used (no air), fuel consumption (and CO₂ emissions) declines by 40% and the melt rate yields up to a 30%-40% increase in production as compared to a standard air-fuel burner.

The increased melt rate can be used to reduce overall cycle time and increase annual productivity.

Superior temperature uniformity

The LEAF burner improves temperature uniformity throughout the furnace. The uniform heat distribution reduces hot spots, overheating, oxidation, dross formation, and yield loss. Through the controlled use of air and oxygen in the combustion process, peak flame temperatures are avoided.

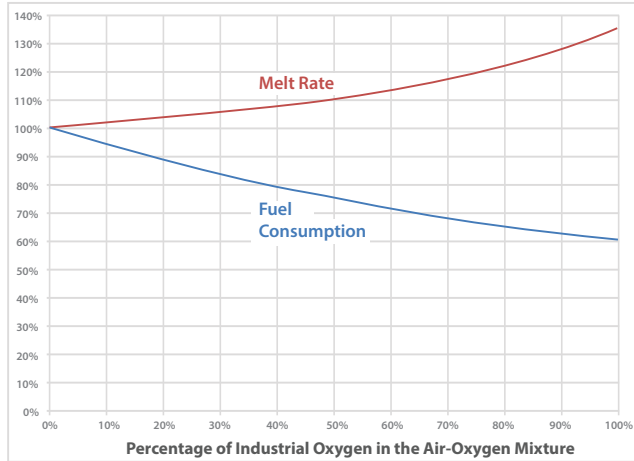


Fig.1: OXIPYR LEAF burner impact: Improved heat transfer and melt rate yields up to 30-40% increase (LEAF vs. air-fuel).

Heat distribution benefits are more pronounced for the flameless technology vs. semi-flameless. As shown in (Fig. 2), a flameless burner delivers a more uniform

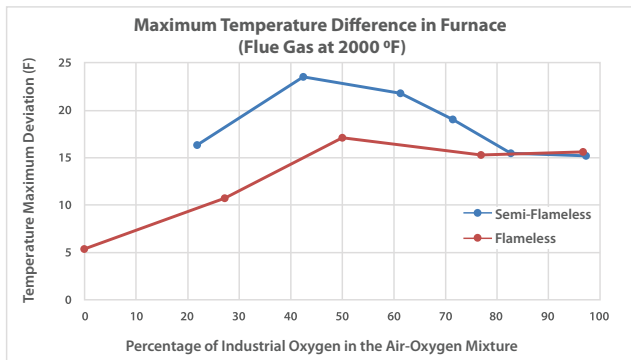


Fig.2

OXIPYR LEAF Burners Available

Model #	NG flow (MMBtu/hr)		Oxygen flow (scfh)		Pressures (psig)			Block dimensions (in)*	
	Min	Max	Min	Max	NG	O ₂	Air	Length	Diameter
L3000	1	3	0	7500	<1	<80	<0.5	15	14
L6000	2	6	0	15000	<1	<80	<0.5	15	14
L12000	4	12	0	30000	<1	<80	<0.5	15	18

* Large capacity, and custom fit burners available.

temperature than a semi-flameless burner. This allows more power without overheating, thus increasing melt rate even further.

High performance, low NOx emissions

Melting metal, an energy intensive process, can generate significant levels of nitrogen oxides (NOx). The OXIPYR LEAF burner from Messer enables recyclers to significantly reduce NOx emissions.

The OXIPYR LEAF burner combines the features of low-temperature semi-flameless combustion with full flameless combustion in one unit that is capable of using air, oxygen or any combination of the two. Metal recyclers can reduce operating costs compared to existing oxy fuel burners, while generating cleaner, more efficient combustion.

Figure 3 shows NOx emissions for the flameless mode are consistently and significantly lower than air- and oxy-fuel burners.

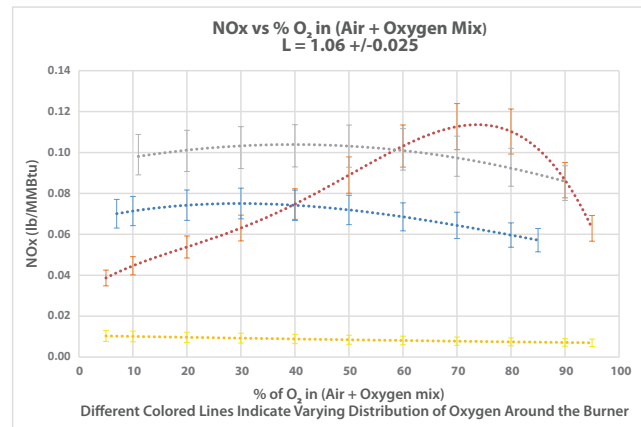


Fig.3



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