



STEEL INDUSTRY

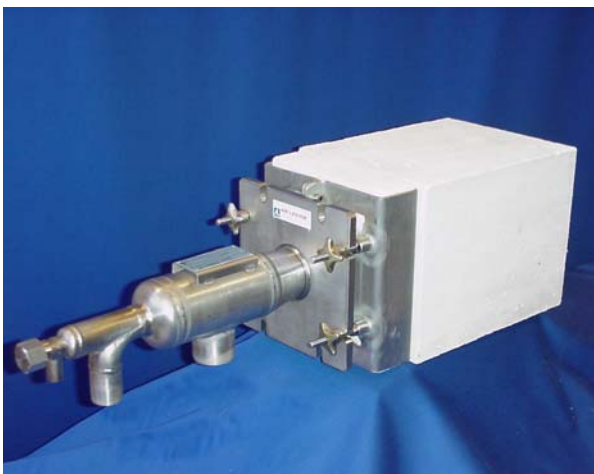


ALROLL™ *Boost your Furnace with Flexible Oxy-Burners*

The steel industry is facing major challenges in continuously reducing environmental emissions while improving the economic viability of its processes. Reheating processes, due to their high-energy rate, need to be continuously optimised.

ALROLL™ oxycombustion technology has been developed to **increase the production capacity** of your **reheat furnaces and continuous annealing/galvanizing lines** with performance **up to 20%** and more. **ALROLL™** also improves your furnace efficiency and your product heating quality. **ALROLL™** implementation on your existing furnace can be performed with a short downtime and a rapid return on investment.

Based on our oxy-combustion experience, we will customise your **ALROLL™** solution to meet your specific requirements.



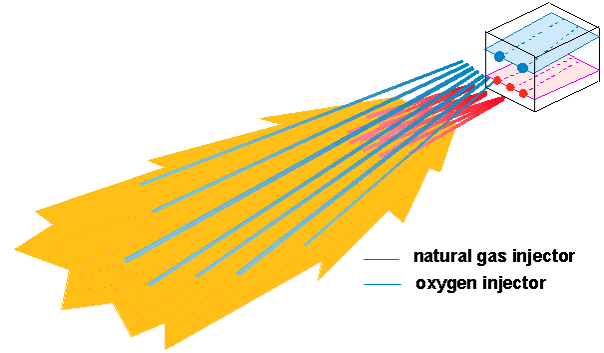
ALROLL™ oxy-burner
(Refractory block and metallic body)

ALROLL™ Burners Characteristics

- ✓ Power ranging from 100 kW to 4 MW
- ✓ High efficiency and homogeneous Heat Transfer
- ✓ Self Cooled Design
- ✓ Flexible, Compact and user-friendly Technology
- ✓ Very low Maintenance requirement
- ✓ Easy Implementation
- ✓ Small Volume of Fumes
- ✓ Multi Fuel Capabilities including coke oven gas



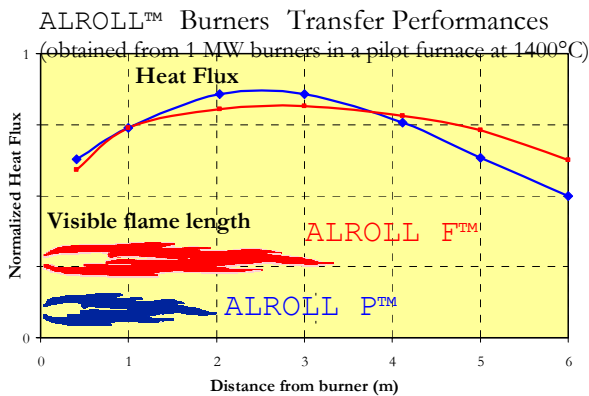
ALROLL™ P flame



Burner operation principle

ALROLL™ F flame

	Type of flame	Power Range	Block size
ALROLL™ P			
200	Cylindrical	100-300 kW	220 x 220 x 380 mm
400	Cylindrical	200-600 kW	220 x 220 x 380 mm
1000	Cylindrical	500-1500 kW	220 x 220 x 380 mm
2000	Cylindrical	1000-3500 kW	220 x 220 x 380 mm
ALROLL™ F			
400	Flat	200-600 kW	220 x 220 x 408 mm
	Flat	500-1500 kW	275 x 275 x 408 mm
	Flat	1000-4000 kW	330 x 330 x 408 mm



Oxy-combustion benefits

- Enhance heat transfer to steel (higher flame temperature with more emissive hot fumes)
- Improve your product homogeneity
- Increase your furnace efficiency
- Reduce your specific emission levels (NO_x per ton of steel)
- Decrease your specific costs of rolling or annealing/galvanizing



FLAMOXAL™ oxy-combustion valve train

Equipment Characteristic

ALROLL™ can be easily implemented in your furnace. Burner blocks are cast in high temperature refractory materials, metallic parts made of stainless steel and specific alloys, igniter and flame controller are added in option.

Oxygen and fuel flows are handled through dedicated compact valve train equipment, integrating an operational monitoring system (start-up, stop, safety procedures).

ALROLL™ is interfaced with your own Process Control and furnace regulation system. Specific development can be studied on request.

ALROLL™ References

Billet Reheat Furnaces (80-150 t/h) : 15% to 20% production increase

Continuous Annealing-Galvanizing Lines (20-50 t/h) : 15% to 25% strip velocity increase



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