



BoostAL™ for Ladle Heating

Looking to:

- Bring down atmospheric emissions?
- Reduce your carbon footprint?
- Increase your production rate?

Liquid metal transport ladles is preheated to:

- Minimize thermal shock when pouring molten metal;
- Prevent damaging the refractory lining;
- Reduce temperature drops of the metal in the ladle.

Ladle preheating is generally done using air combustion while limited to a maximum metal temperature of 1000°C and very fuel intensive.

BoostAL™ Ladle Heating is the Air Liquide complete offer for ladle preheating in steel mills and foundries.

We offer an advanced oxy-fuel technology which, thanks to a high radiative oxygen/fuel combustion, accelerates the heating and at the same time cleans the ladles from oxides accumulated on the refractory surface. This technology accelerates the heating of the refractory to a temperature (defined by the customer) that avoids overheating the metal at the furnace exit.

Moreover, by eliminating nitrogen in the oxidant, the NO_x formation is drastically reduced.

Applicable Industries

Steelmaking, cast iron and non-ferrous foundries.

Environmental benefits

- Up to 60% CO₂ saving.
- Up to 70% fuel saving.

Operational benefits

- Production rate increase:
Heat-up times divided by 4;
More uptime.
- Better quality of metal by eliminating thermal stratification in ladles.
- Lifetime increase of the refractory lining.

Case Study #1: 130t Ladle

Stainless Steel

Customer requirement

Reducing atmospheric emissions and carbon footprint

Solution

Oxygen combustion with oxy-fuel burner (1.5MW)

Benefits



52% fuel savings/cycle*
2850 m³ -> 1366 m³

1 cycle -> Heat-up time : 8 hours



52% less CO₂ emissions/cycle
5700 kg -> 2732 kg

Study #2: 40t Ladle

Carbon Steel

Customer requirement

Increasing production rate and improving metal quality

Solution

Oxygen combustion with oxy-fuel burner (1.5MW)

Benefits

- ↘
 Heat-up times reduce
3 hours -> 2 hours
 - ↘
 40% fuel saving
875 m³ -> 350 m³
- Improvement of metal quality by eliminating thermal stratification in ladles.
 - 100°C metal temperature increase (1100°C -> 1200 °C).

What We Offer:

• **Low-Carbon Oxygen Supply** in liquid storage.

• **Combustion Equipment**

The **FLAMOXAL-B** is an automated valve train for controlling oxy-fuel burners and their gas supply.



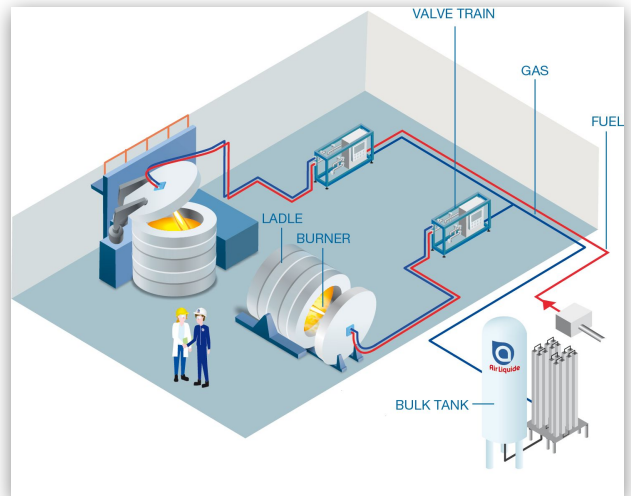
• Expertise

Based on your specifications, our experts design the best **BoostAL™ Ladle Heating** technology.

They provide you with full support all along your project:

- from the preliminary and detailed design of the suitable oxy-fuel solution to your project;
- the installation, start-up and commissioning of combustion equipment;
- and for the optimization of operating process parameters.

Our experts are also available to help you with your risk analysis if necessary.



Process Diagram for BoostAL™ Ladle Heating

OXYGEN INJECTION TECHNOLOGY

Patented burner

The **ALJET LH** burner is an oxy-fuel burner especially designed for drying and heating of ladles. It is suitable to severe working conditions as confined or overheated areas. An ignition pilot burner and a flame supervision cell can be integrated into the burner body. The burner configuration is of pipe-in-pipe type with the fuel pipe located inside the oxygen pipe. Fuel and oxygen together mix at the burner outlet and the flame develops in the ladle.

The **ALJET LH** burner is available in two standard models: the **ALJET 1500 LH** and **ALJET 750 LH** burners.

Related Offers

- BoostAL™ for Non-Ferrous
- BoostAL™ CControl for Non-Ferrous