Sarralle put into operation the first ladle preheating station capable of working with green hydrogen as fuel

On its way to help companies in the challenge of decarbonization and sustainability, Sarralle has provided to a Spanish steel manufacturer with state of the art technology capable of using green hydrogen in the steel manufacturing process. Sarralle has installed the first ladle preheating station capable of running entirely on green hydrogen, achieving zero CO₂ emissions in this ladle.

The steel industry has always been considered a traditional energy-intensive sector, with high CO₂ emissions. It is estimated that 9% of the total CO₂ emissions to the atmosphere come from the iron and steel sectors. In this context, decarbonization in the steel sector represents a great challenge that stems from the need to invest in innovative technologies. The ladles are auxiliary equipment used in the steel melting plant, and are used to transport cast steel from the furnace to the casting area.
The installation of this ladle preheater station, capable of using green hydrogen, is a highly innovative project. The burner that used natural gas as fuel has been replaced by a oxy-combustion burner that can use 100% green hydrogen as fuel. In this way, CO₂ emissions are eliminated, as only water vapor is generated in the combustion of green hydrogen. The new burner installed is a dual burner and it can use natural gas as fuel or mixes of natural gas and hydrogen.

On the way to achieving decarbonization objectives, the project demonstrates that the new hydrogen-oxygen burner is capable of reproducing the usual ladle preheating ramps but allowing to work with zero CO₂ emissions.

**Conditioning of equipment to oxy-combustion, with natural gas or 100% Green Hydrogen**

The main steelmaking equipment with large natural gas consumptions that can be conditioned to work with green hydrogen are the burners of the Electric Arc Furnace, Ladle Heaters, Tundish Heaters, Continuous Casting Oxyfuel-Cutting and the Rolling Mill Reheating Furnace. SARRALLE offers oxy-combustion and hydrogen technology applicable to all these equipment, thus enabling savings in natural gas consumption and the total decarbonization.

SARRALLE is working with several steel manufacturers to adapt their ladle heaters from air combustion to oxy-combustion and to operate with Hydrogen, thus achieving significant energy savings and the reduction of CO₂ emissions, and so that once they have a supply of hydrogen in their plants, they can operate with 100% green hydrogen.

**Generation of Green Hydrogen in Steel Manufacturing Plants**

Aware of the difficulties of the steelmaking sector for the hydrogen supply in their manufacturing plants to enable the transition of their existing equipment from operating with natural gas to using hydrogen as fuel, SARRALLE has gone a step further by offering to this sector the engineering, manufacture, supply and commissioning of green hydrogen generation equipment by electrolyzers.

For further information, contact writing to: hydrogen@sarralle.com