

Measurement and Monitoring of O₂ Concentrations in Steel Mill Reheating Furnaces

Industry: Iron and Steel

Product: Zirconia Oxygen Analyzer

Introduction

A furnace for heating slabs needs to be operated under low-oxygen conditions at high temperatures of 1000 °C and above to prevent oxidation of the steel. The measurement of oxygen concentrations in the furnace is essential in this process. The ZR22/ZR402 Direct In-Situ Zirconia Oxygen Analyzer requires no sampling system and utilizes a long-life sensor, and is therefore ideally suited for measurement of oxygen concentrations in a high-temperature environment. The ZR22G detector with the ZO21P high temperature probe adapter can be used in gas furnaces at temperatures up to 1400 °C.

Expected Benefits

- Maintains high product quality by monitoring oxygen concentrations in steel mill reheating furnaces
- Ensures stable, continuous measurement of oxygen concentrations
- Reduces operating costs

Process Overview

Slabs are loaded on a conveyor and fed to a reheating furnace, which is heated to between 900 and 1400 °C by burners that use fuels such as by-product gas. In order to keep the oxygen concentration between 1 and 2%, it is monitored in the preheat, heat, and soak zones. The slabs are heated uniformly without being oxidized, and then sent to the next processing stage.



