

Measurement of O₂ Concentration in Exhaust Gases from Pulverized Coal-fired Boilers - Direct Insertion Reduces Maintenance Time and Costs

Industry: Power
Product: Zirconia Oxygen Analyzer

Introduction

In a pulverized coal-fired boiler of a large power plant, an oxygen analyzer is essential for combustion control. Exhaust gases from the pulverized coal boiler contain a large quantity of dust and flow very fast. Oxygen analyzers that employ a sampling method may be subject to wear or clogging, resulting in increased maintenance workload and cost. A solution to this problem is the ZR22/ZR402 Direct In-Situ Zirconia Oxygen Analyzer that has no sampling system and utilizes a long-life sensor. A probe protector is attached to protection it against wear.

Expected Benefits

- Improves combustion efficiency for pulverized coal-fired boilers
- Ensures stable, continuous oxygen measurement
- Reduces operating cost
- Minimizes the need for equipment replacement

Process Overview

While oil is commonly used as a boiler fuel, coal is also used because it is inexpensive and readily available. Unlike oil, coal produces a large quantity of ashes when it is burned, necessitating pulverized coal-fired boilers to be equipped with an ash removal system such as a cyclone. Exhaust gases from these boilers contain a large quantity of dust (10 to 30 g/Nm³) and flow very fast as the result of the large volume of air being blown into the boiler. For oxygen measurement in large ducts, a probe with a long insertion length is used.



