

## Kiln Troubleshooting

### Objectives:

The kiln is the main machine in the cement manufacturing process. Kiln repair and maintenance are critical components in assuring the efficiency of the cement manufacturing plant. If not maintained properly, kiln run-time will be reduced, causing substantial economic losses.

This course introduces kiln maintenance procedures and techniques, and provides proper kiln maintenance techniques to ensure desirable operating efficiency, Alignment and ovality measurements to prevent break-downs and Inspection and maintenance of the clinker cooler

### Participants:

The course addresses mechanical engineers with some years of experience working in the field of kiln area, preparation office, inspection and preventive maintenance.

### Outlines:

- Opening
- Kiln Drive Seals, Nose Ring
- Kiln Roller & Bearing
- Kiln Alignment
- Kiln & Preheater Refractory
- Kiln main & Calciner Burners
- Cooler System & Problems
  - Introduction
  - Clinker Cooling Process
  - Cooler Thermal Efficiency
  - Factors affecting cooler efficiency
  - Developments related to grate cooler
  - Grate cooler operation and control
  - The Coolax – CFG grate cooler
  - Clinker Crusher
  - SF Cross-Bar Cooler
  - Case Study
  - Maintenance of SF Cross- Bar Cooler

- Kiln Trust
- Kiln Shell & Tyre
  - **Kiln Shell Deformation**
    - Shell Deformation Causes
    - Shell Deformation measurements using Manual method
  - **Crank in Kiln Shell**
    - Mechanical crank
    - Hermal crank
    - Elimination or repair of cranks
- **Kiln Shell Ovality**
  - **Kiln Shell Ovality Based On Migration**
    - Shell Ovality Measurement And Correction
    - Clearance / Live- Ring Migration
    - Measurement Of Live-Ring Migration
    - Interpreting The Migration
    - Live-Rings - Reduction Of Migration
    - Kiln Shell With Live-Ring Supporting Blocks
    - Kiln Shell Without Live Ring Supporting Blocks
    - Live-Ring – Lubrication
  - **Kiln Shell Ovality Based On Radial Deformation**
    - Principle of the measurement
    - Measurement procedure
    - Calculation of the shell ovality based on “Shell test” records
    - Interpretation of the Shell test Record