**Condition Monitoring Sensor for Tie Rods of Coke Oven Batteries**

**WHY IS IT REQUIRED?**
- Coke oven walls experience continuous thermal cycling which cause buckling and tensile stresses on the oven walls.
- Tie rods are utilized as post-tensioning members for the coke oven walls which increase their tensile load bearing capacity.
- Corrosion in tie rods result in necking which may cause collapse of coke ovens.
- Damage in tie rods cannot be visually assessed as tie rods are embedded members within the coke oven walls.

**HOW IT WORKS**
- Customized guided wave ultrasound based system for detection of defective tie rods.
- FEM based signal analysis for accurate interpretation of signals.
- Sensors can be permanently installed on tie rods for continuous monitoring.
- On demand measurement can also be done during shutdowns.

**WHAT IT DELIVERS**
- Real time/On demand feedback on condition of tie rods will aid in prevention of tie rods failures.
- Enables planned preventive maintenance of tie rods for extending their service life.
- Prevents unexpected breakdown of coke oven walls.

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