APPLICATION NOTE

AUTOMATED CRACK DETECTION AND LASER-BASED DIMENSIONAL INSPECTION OF REFORMER TUBES

Reformer tubes operate under extreme temperatures and pressures, making them susceptible to creep damage and cracking. Combining eddy current testing with precise laser measurements enables early damage detection and reliable condition assessment.

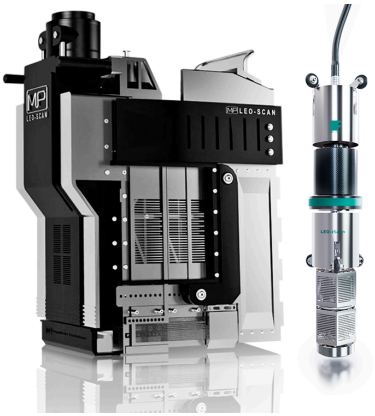


THE CHALLENGE

Reformer tubes are continuously exposed to high temperatures and pressures, making creep a major damage mechanism. Over time, this can lead to cracking, tube expansion or both. Complex operating conditions and material properties make such damage difficult to detect. Undetected defects can compromise tube integrity, shorten service life and cause unplanned shutdowns.

THE SOLUTION

FOERSTER combines eddy current testing with laser-based dimensional measurements using its LEO-Scan and LEO-iScan inspection systems. While LEO-Scan inspects tubes externally, LEO-iScan enables internal inspection. Specialized eddy current probes detect cracks, including defects that may not be visible on the surface, while laser measurements precisely identify changes in tube diameter. Together, these technologies detect cracks without expansion, expansion without cracks and combined damage. Accurate, repeatable measurements also enable detailed comparisons between inspections, helping track deterioration over time.





THE RESULT

Early damage detection enables targeted maintenance, timely tube replacement and adjustments to operating parameters. Identifying critical areas also helps operators address potential overheating conditions. Reliable inspection data supports safer reformer operation, reduces the risk of unplanned shutdowns and helps maximize tube service life.

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