



# ONLINE CONDITION MONITORING SERVICES FOR KILNS

Monitoring and expertise to improve kiln performance and avoid unplanned downtime

The kiln is at the heart of the cement plant. Your productivity, product quality and sustainability all rely on optimal kiln performance. Unplanned downtime is catastrophic. Yet most kilns operate with just a few isolated sensors and inspections every 2 – 3 years, which doesn't give you enough information to optimise performance and get ahead on kiln maintenance.

## Keys Benefits

- Minimise unplanned stoppages
- Minimise secondary damage to equipment
- Increase equipment lifetime, reliability and performance
- Lower OPEX and more productivity
- Achieve more sustainable operations

Online condition monitoring services for kilns utilise multiple sensors and our kiln experts to provide real-time monitoring and analysis of the kiln crank, kiln shell ovality and axial balance. Sensors provide continuous data that is forwarded automatically to our 24/7 Global Remote Service Centre, where our network of specialists analyse it and make recommendations to help you:

- Increase availability and reliability
- Eliminate unplanned downtime
- Gain a greater understanding of conditions in the kiln
- Get ahead on maintenance tasks
- Reduce OPEX

**Level I package**

- 1 Bearing monitoring
- 2 Hydraulic thrust device monitoring
- 3 Kiln drive monitoring
- 4 CemScanner™ data analysis

**Level II package\*\***

- 5 Kiln crank
- 6 Kiln shell ovality
- 7 Kiln drive vibration
- 8 Axial balance\*
- 9 Girth Gear Runout\* \* optional

\*\* tailor made packages are also available for Level-II

## Two monitoring packages

These services come in two packages – Level I and Level II. Level I is based on existing signals and will help you improve wear life and identify the root cause of many kiln problems so that you can react quickly.

The Level II package uses additional sensors to continuously monitor kiln crank, kiln shell ovality, kiln drive vibration and axial balance. With this package, most of the well-known measurements from a Hot Kiln Alignment (HKA) will be monitored all the time – enabling you to schedule the HKA when it is most needed. And you get continuous insights that were not previously available.

## Taking it to the next level - root cause analysis

With the Level II service package, extensive root cause analysis ensures that small problems don't have the opportunity to escalate into failures. These services help to:

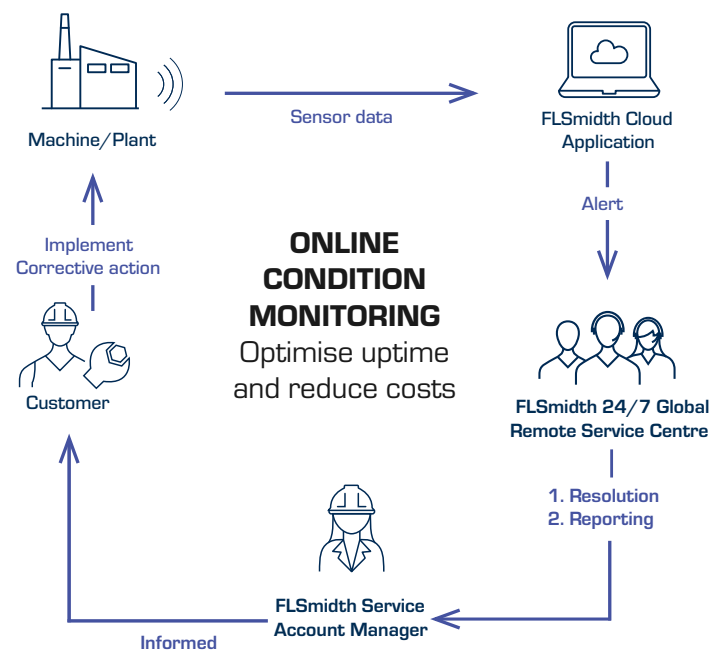
- Extend the life of rotating parts
- Improve the life of lining and kiln shell
- Avoid kiln shell constriction and reduce stress
- Avoid girth gear breakdown
- Identify alignment issues
- Stabilise bearing temperatures
- Reduce power consumption

## Analyse, report, recommend

With both Level I and Level II packages, the process is the same. When alarms/events indicate action needs to be taken, a case is created and evaluated by FLSmidth experts. We then deliver critical insights and recommendations for maintenance, indicating both what needs to be done and when.

You also get regular Asset Health reports summarising all opened cases/events, together with a summary of recommended actions for each case and actionable recommendations to improve uptime.

If you would like to reduce downtime with a more strategic approach to maintenance, contact us today. All our service packages can be tailored to your needs.



Signals from the monitors are sent to the cloud for analysis. Experts at our Global Remote Service Centre are notified of all alarms/events, enabling them to further analyse the data and generate a report detailing our recommendations for corrective actions. Your Service Account Manager will keep you informed at all times, ensuring you have plenty of time to carry out our recommendations and avoid further problems.