

Wire into the future... with Digital Reliability Services

Increased uptime, avoid unscheduled maintenance

Asset failures are one of the biggest burdens for engineering managers and manufacturing plants in their attempt to drive down costs and overheads. Failure to identify potential problems with complex machinery will only ever lead to catastrophic consequences.

In the case of one Network Solutions Provider, interruption of their production process would lead to scrapping an entire production run and starting again from step one.

Let the implications of a single asset failure sink in for one moment. An entire production run lost, excessive downtime, unscheduled maintenance, interruptions to the supply chain, or potential reputational damage could be just the start of losses spiralling out of control.

Challenge

Looking to avoid such catastrophic production losses, the customer turned to ERIKS Digital Reliability Services, which utilises state-of-the-art online monitoring through wireless sensors. Over a period of time, a warning alarm was triggered, highlighting that the Twiner Main Drive Motor was starting to fail.

“Run to failure would have cost the customer disproportionate amounts in lost production”

Allowing this particular machine to run to failure would have cost the customer disproportionate amounts in lost production, and could easily be rectified with further investigation, avoiding a costly breakdown and the associated risks.

Solution

Investment in ERIKS Digital Reliability Services provided the customer with an early indication to an issue that otherwise would have remained undetected. Utilising years of expertise, the Condition Monitoring Vibration Analysts were able to remotely identify an issue within the bearings on the Twiner Main Drive Motor.

Industry sector:

**Electrical
Manufacturing/Semicon**



Application:

Twiner Main Drive Motor

Actual saving:

£24,000 (cost avoidance)

Payback period:

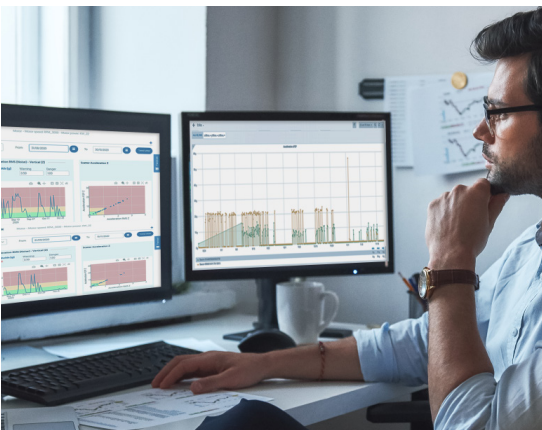
1 day

Product/Service:

- Digital Reliability Services
- Online Condition Monitoring
- Re-Engineering

Customer Benefits:

- Increased uptime
- Reduced maintenance costs
- Improved lead times
- Future foresight and insight
- Prescriptive maintenance



Data trend analysis



Deteriorated and contaminated Drive End



New Drive End following re-engineering work

Based on the findings from the initial trend data, a decision was made to remove the machine for inspection and further diagnostics, allowing ERIKS engineers to investigate the root cause in greater detail.

From the data obtained, which comprised of tri-axis accelerometers logging velocity, acceleration and temperature, along with the visual investigation, it was confirmed that the drive end bearing of the motor was in a serious state of deterioration and on a path to failure. This was mainly due to lubricant contamination with the ingress of carbon from the natural design and construction of the machine forcing carbon dust through the vents causing issues over time.

Using the findings, ERIKS were able to propose a corrective action plan that would eliminate this problem, and once agreed with the customer, the ERIKS workshop in Inverkeithing got to work.

The first challenge came with the current assembly being an open roller bearing, meaning there was no way to seal the bearing to protect from contamination. However, drawing upon decades of engineering and application know-how, it was determined that there was enough room on the drive end shaft for extension.

The team then re-engineered, manufactured and fitted a new drive end backplate, housing a 'lip seal', to protect against any contamination, while the installation of an additional nylon 'thrower' would provide greater resistance to carbon ingress.

Result

In the case of the Twiner Main Drive Motor, failure modes have been eliminated, leading to greater reliability, increased efficiency and reduced maintenance, further adding to the benefits of moving from a 'reactive' maintenance approach to a 'prescriptive' strategy that provides foresight into potential asset failures and production problems.

“ Leading to greater reliability, increased efficiency and reduced maintenance ”

Introducing ERIKS online monitoring through wireless sensors, across 200 assets, as part of a site-wide implementation, now means that the customer receives warning alarms detailing any areas where failure modes have been activated.

The system generates, and emails, a daily condition score to the customer based on ERIKS' suggested thresholds, while auto-diagnostics from ERIKS algorithms provide corrective recommendations, allowing the customer to better manage risks to production, increase health and safety for their engineers, and improve financial savings.