Case study

Future-Ready Steel Cranes with Smart Monitoring

TYPE APPROVED PRODUCT
DNV
DNV-RP-A203

How Villari's certified wireless crack detection technology transforms end-of-life crane management by safely extending asset lifetime, reducing downtime and optimizing maintenance.

VILLARI

Context

In the dynamic realm of the steel industry, the lifespan of a steel crane is a critical factor. Typically lasting between 20 to 45 years, a substantial number of cranes find themselves in the “end-of-lifetime” (“EOL”) stage or beyond. Aging assets face the challenge of cracks appearing due to steel fatigue, resulting in costly inspections, maintenance, and downtime.

The Challenge

A prominent steel manufacturer grappled with this exact issue. With their EOT cranes reaching end-of-life, the alternatives of repairing and inspecting frequently or replacing the cranes would be costly and lead to excessive downtime.

Villari’s Solution

Collaborating with an engineering partner, Villari proposed a groundbreaking IoT monitoring solution. Following a comprehensive inspection for each crane, our certified crack detection sensors were strategically deployed in critical locations. Each sensor was installed in 10 minutes without surface preparation and will continue monitoring the crane for up to 5 years.

Figure 1 (Left) This image illustrates a typical EOT (Electric Overhead Traveling) steel crane, similar to the type used in the Villari case study. (Right) Villari’s crack detection sensors are typically installed at critical stress points, to ensure continuous monitoring and proactive maintenance.

Impact and Results

The implementation of Villari's sensor system unlocked a new level of data-driven asset management and maintenance. A continuous stream of data provides instant alerts when cracks start to develop. Maintenance costs and downtime were reduced and the EOL for each asset could now be precisely assessed – and increased in 15% –through the valuable data acquired.

Conclusion

Villari and Partner's innovative approach not only addressed the immediate challenges faced by the steel manufacturer, but also paved the way for a more efficient and cost-effective future in crane maintenance. This case study exemplifies how proactive, data- driven solutions can revolutionize the management of aging assets; ensuring longevity and reliability in crucial industrial operations.

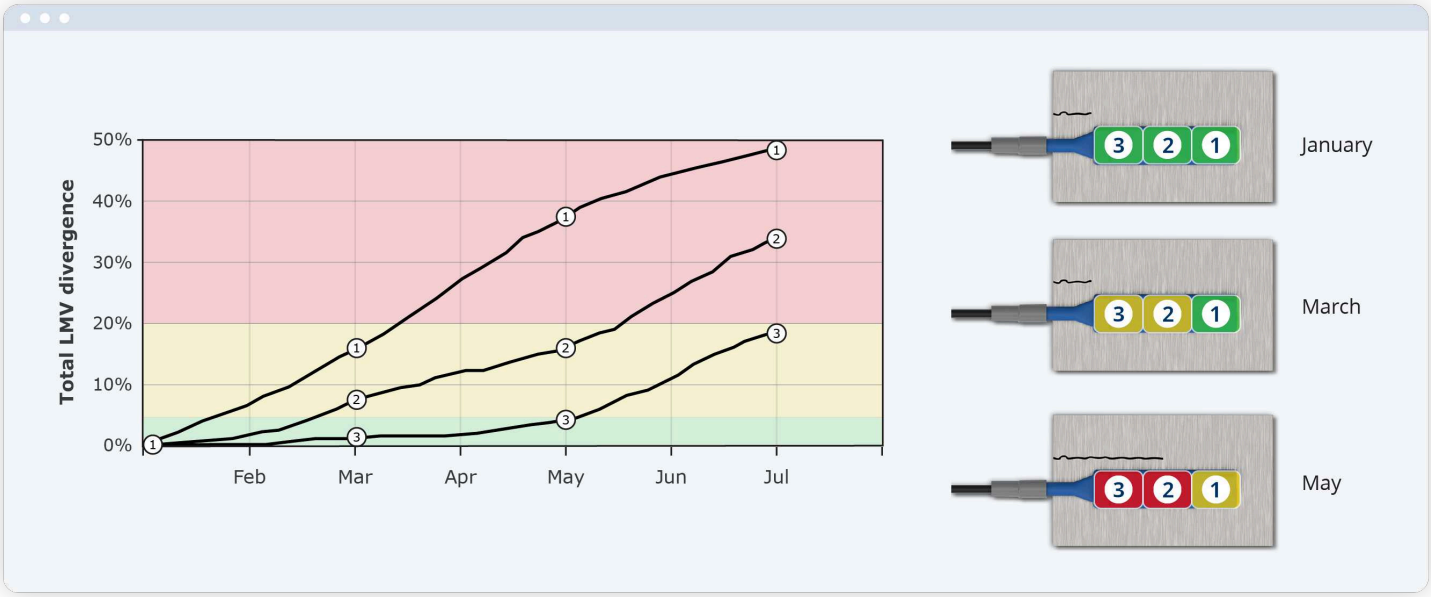

Figure 2 A graph illustrating the key outcomes of Villari's sensor implementation. The data highlights Villari's capabilty of early detecting crack growth and providing unique insights with continuous monitoring.

Key Numbers

10 min
Installation time/sensor

48 hours
Maximum response time

Up to 4.000
Measurements per year/sensor

>15%
Increase in crane lifetime

VILLARI

The future of structural health monitoring

Trusted by global industry leaders

ArcelorMittal HUTCHISONPORTS TATA STEEL

Get in touch

Talk to one of our experts today

Are you ready to take your asset management and maintenance strategy to the next level?

Schedule a consultation now

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