

Smart port cranes boost uptime

Vibration analysis secures operational reliability of remote-controlled gantry crane systems in modern megaports



Our customer:
A container handling facility on
China's southeast coast

Ports are a key factor in China's imports and exports; countless tons of goods are handled in the country every day. This is similarly so at our customer's port on the southeast coast of China: the company operates a large container handling facility with 1,757 employees at a natural deep-water port. The port boasts a great number of internal roads, rail connections and good nautical conditions. The shipping channel is 18.2 metres deep, making it deeper than the port of Hamburg, for example.

The company is currently in the process of transforming what used to be a conventional port terminal into a smart container handling facility. To achieve this goal, they need to have efficient, digitalised and sustainable processes.

CASE STUDY | PORT AUTOMATION



The challenge:

To achieve greater process reliability in the future, the port operator is turning to modern technologies. In addition to digitalisation, the evaluation of the system status and the ongoing processes, together with the automation of the various process sequences, helps to ensure that goods are handled more reliably and efficiently.



Smart port restructuring gives rise to transparent processes and paves the way for higher productivity and better logistics planning. It also shortens ship waiting and turnaround times. The port operator must be able to rely on constant monitoring of the machinery functions to detect any damage at an early stage, boost uptime and avoid downtimes.

In addition to various sensors, the company also needed a system for analysing vibration in the motors and gears of the gantry cranes and found the perfect solution with vibration detection and condition monitoring systems from ifm.

The solution – why ifm?

In the future, the port operator will use ifm's vibration detection system when remotely accessing the gantry cranes to monitor the condition of various motors and gears and to carry out maintenance based on the messages from the predictive maintenance system. Predictive maintenance plays a crucial role in this port: the cranes are fully remote-controlled, so there is no operator inside the crane to identify faults in case of doubt. The system must therefore be able to transmit the relevant data in real time, while simultaneously evaluating the historical data.



With the solution from ifm, the port operator has further developed facility monitoring significantly. Although a vibration monitoring system had already been installed, the new solution is more powerful. It is also more sensitive to abnormal vibrations. For the company, installing the ifm solution is the right step in the direction of future-proofing the crane systems. Through condition monitoring, ifm and their customer were able to implement a solution that not only increases system uptime and efficiency, but also prevents failures and costly repairs, thereby significantly boosting economic and ecological sustainability in the logistics process.

Results:

- Safe remote access to gantry cranes thanks to system status monitoring
- Real-time maintenance (RTM) possible
- Increased machine uptime thanks to continuous data collection
- Increased efficiency, reliability and sustainability



Safe remote access to crane systems enables flexible handling



Optimised planning thanks to increased system transparency



Enhanced efficiency and turnaround times



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