

# Inspections and Preventive Maintenance

**KONECRANES®**  
Lifting Businesses™





# Improving safety and productivity

Konecranes certified inspectors and trained technicians provide an accurate assessment of the condition of your equipment. They evaluate risks, identify improvement opportunities and provide recommendations.

An active preventive maintenance program is crucial to improving safety and productivity. Preventive maintenance can reduce downtime and increase reliability. We create a proactive customized maintenance plan based on your equipment, application and duty cycle.

## Preventive Maintenance program

Our MAINMAN™ Planned Maintenance product combines preventive maintenance inspections with routine maintenance and forms the foundation for our CARE Preventive Maintenance Program. Where permitted, we can also perform compliance inspections to satisfy local regulatory requirements.

We tailor the CARE Preventive Maintenance Program to your operations, taking into account the equipment, its usage, operating environment, duty class, service history, manufacturer's recommendations and statutory requirements.

The inspections and preventive maintenance performed in the CARE program provide a baseline for maintenance planning, tracking, reporting and consultation.







## Preventive maintenance inspections

PM Inspections identify risks and improvement opportunities. Our vast experience and expertise allow us to tailor preventive maintenance to each manufacturer's recommendations.



## Routine Maintenance

Routine Maintenance has been designed to perform maintenance work, such as adjusting and lubricating with the intent of satisfying manufacturers' maintenance instructions.



## Compliance inspections

Compliance Inspections are designed to satisfy regulatory requirements. Our trained inspectors and technicians are your go-to experts on local regulations. In some countries, regulations require the use of a third party.



## Preauthorized repairs

Preauthorized repairs provide a blanket authorization to perform corrective maintenance, up to a certain amount, in order to get small repairs or adjustments arranged and completed quickly and efficiently.

# Risk & Recommendation Method

No matter which service product is being applied, our Risk and Recommendation Method drives our evaluation and consultative process and provides you with documented safety and production action items.



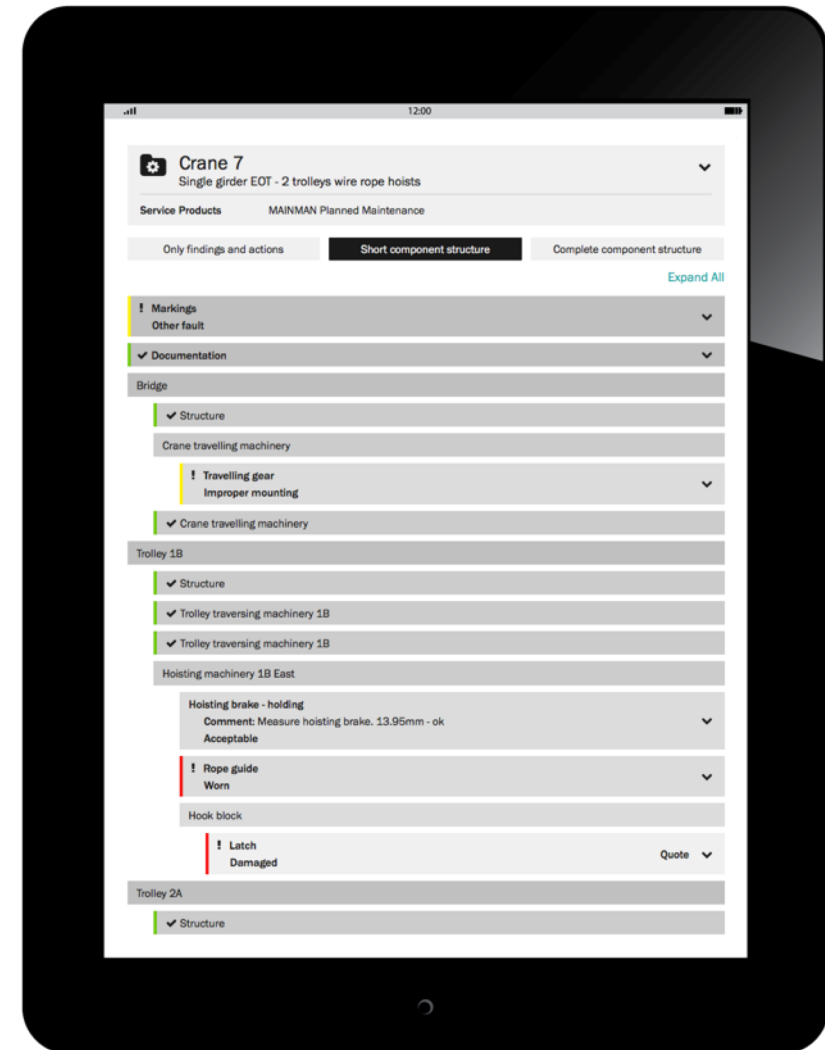
# Risk & Recommendation Method

## Component condition

A component is inspected in order to ascertain its condition. The component is either in acceptable condition or it needs attention.

Exceptions (failures, deficiencies, violations) are documented and each exception is assigned one of three risk types – safety risk, production risk, undetermined condition.

In addition to exceptions, improvement opportunities are identified and recommended actions are provided for each exception and improvement opportunity.



# Risk & Recommendation Method

## Safety Risk

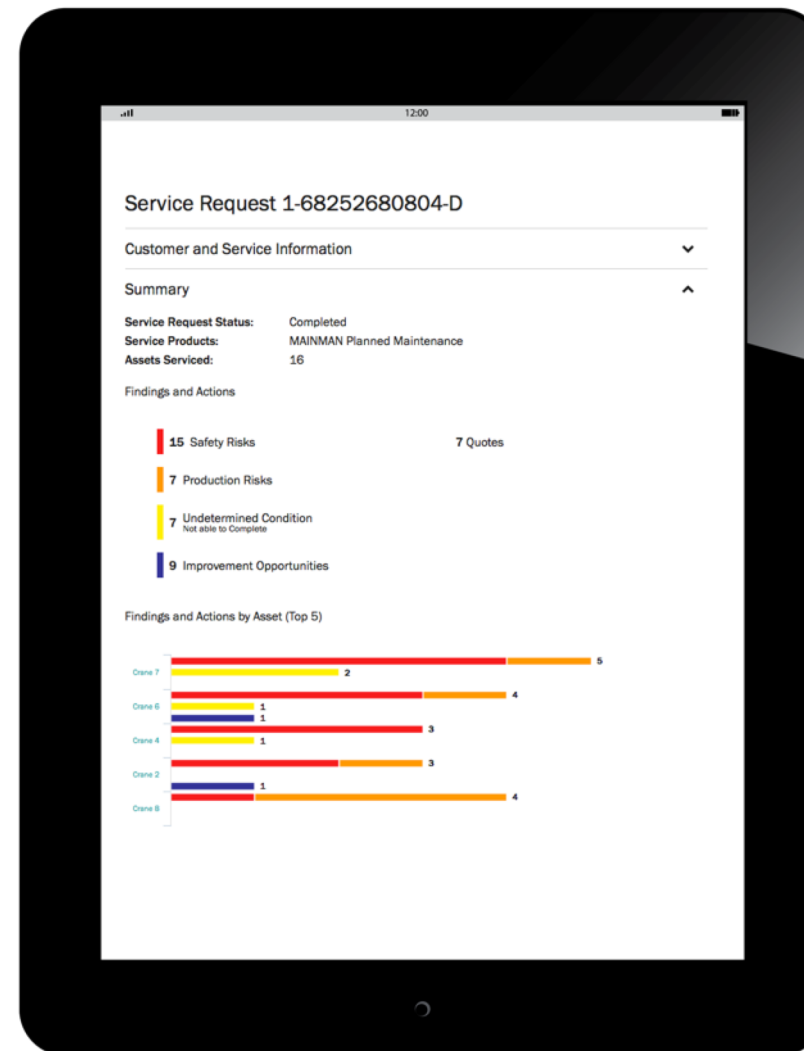
Indicates an unsafe condition. Failure to remedy such condition before continued operation of the identified asset may result in personal injury, including death, or property damage.

## Production Risk

Indicates an inefficient condition. Failure to remedy such condition before continued operation of the identified asset may result in inefficient asset performance or an interruption in production.

## Undetermined Condition

Indicates that the condition could not be verified through visual inspection as a result of asset configuration and/or obstruction.





# Our Consultative Approach

Only Konecranes provides expert advice every step of the way. Our consultative approach can help guide your decision-making. We don't just drop off a report on the way out. We take time to meet with you one-on-one and share our findings, provide recommendations based on our industry-leading expertise and discuss how each action impacts your operations and the entire health of your business.





## Four ways we consult with customers



### Safety Review

Whenever a safety-related risk is detected, the inspector or technician will carry out a Safety Review with the customer before leaving the site or returning the equipment to operation.



### Visit Review

At the completion of each service request, the inspector or technician will perform a Visit Review on site to share the insights of their inspection or maintenance findings, review the identified risks and improvement opportunities, and obtain decisions on recommended actions.



### Service Review

Within two business days, we will follow up with a Service Review, online or by phone. We'll go through open risk / recommendations and quotations to address them, answer the customer's questions or concerns and document next steps.



### Business Review

The Business Review is conducted at least once each year prior to renewal, but can be done any time during any discussion with the customer. We look at progress, feedback and documented value and discuss recommendations to improve safety and productivity.

# yourKONECRANES.com customer portal

Our customer portal, yourKONECRANES.com, gives you quick and easy access to your crane maintenance information. Usage data from TRUCONNECT and maintenance data and asset details from MAINMAN are linked, giving you a transparent view of events and activities over any selected time interval.





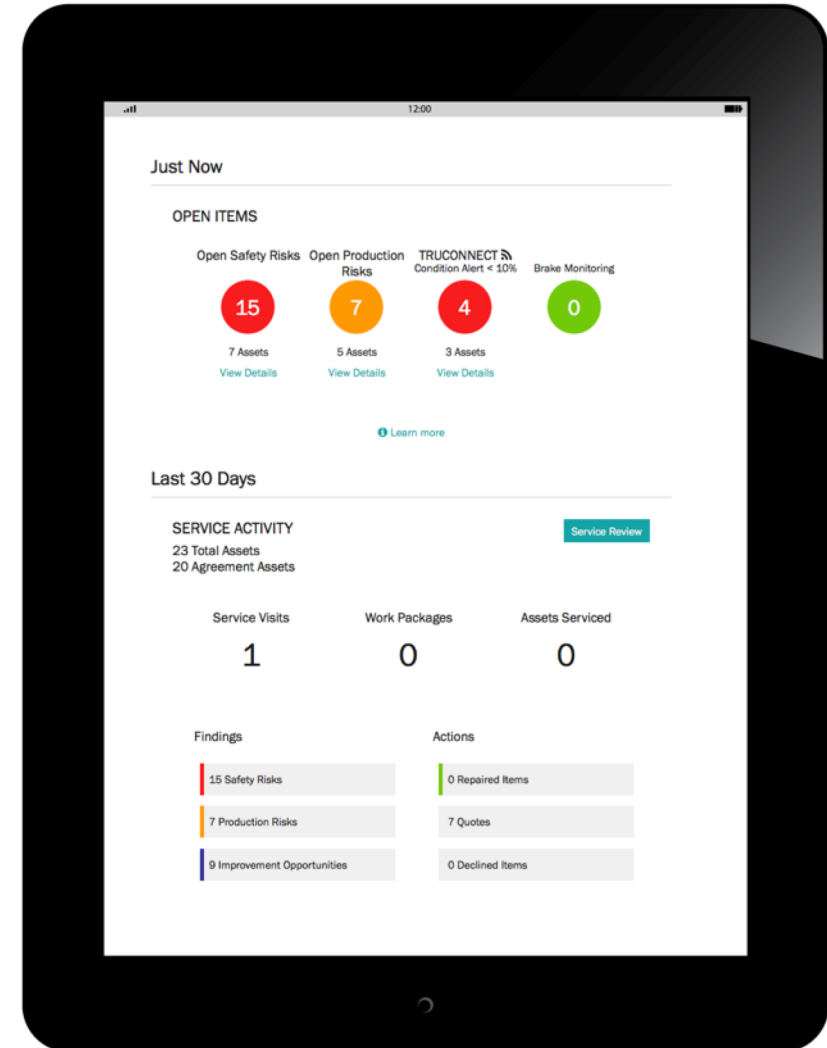
# Crane maintenance information on yourKONECRANES.com

## Overview

**Open items** shows the number of open safety risks, production risks and TRUCONNECT statuses that require immediate attention.

**Service activities** highlights findings and actions for the selected timeframe. Findings include safety risks, production risks and improvement opportunities.

**TRUCONNECT statistics** shows the number of safety alerts, product alerts and condition change for select components.



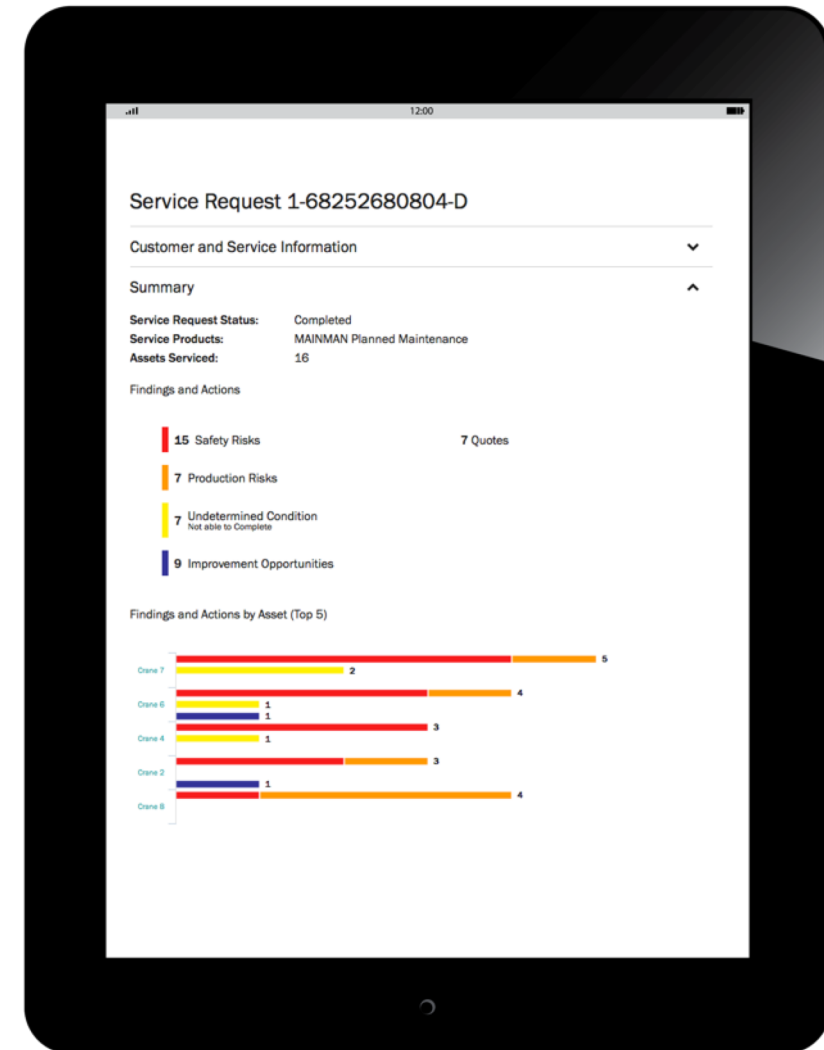
# Crane maintenance information on yourKONECRANES.com

## Service Review

**Summary** highlights the findings and actions from the service visit. Safety risks, production risks, undetermined conditions, improvement opportunities, repaired items and if available – quotes and declined items – are listed. A graph shows findings and actions by asset and the details of those findings are listed below.

**Finding and Actions** reported by the Konecranes service technician are shown under each asset. If needed, the full component structure including all the reported tasks can be viewed.

**Undetermined Condition** indicates that the component condition could not be directly verified through visual inspection without further disassembly and/or the use of other inspection methods. These advanced services are generally excluded from the scope of typical compliance and preventive maintenance inspections. Consultation Services may be added to a Service Program or offered on a stand-alone basis to assess the condition of these components.



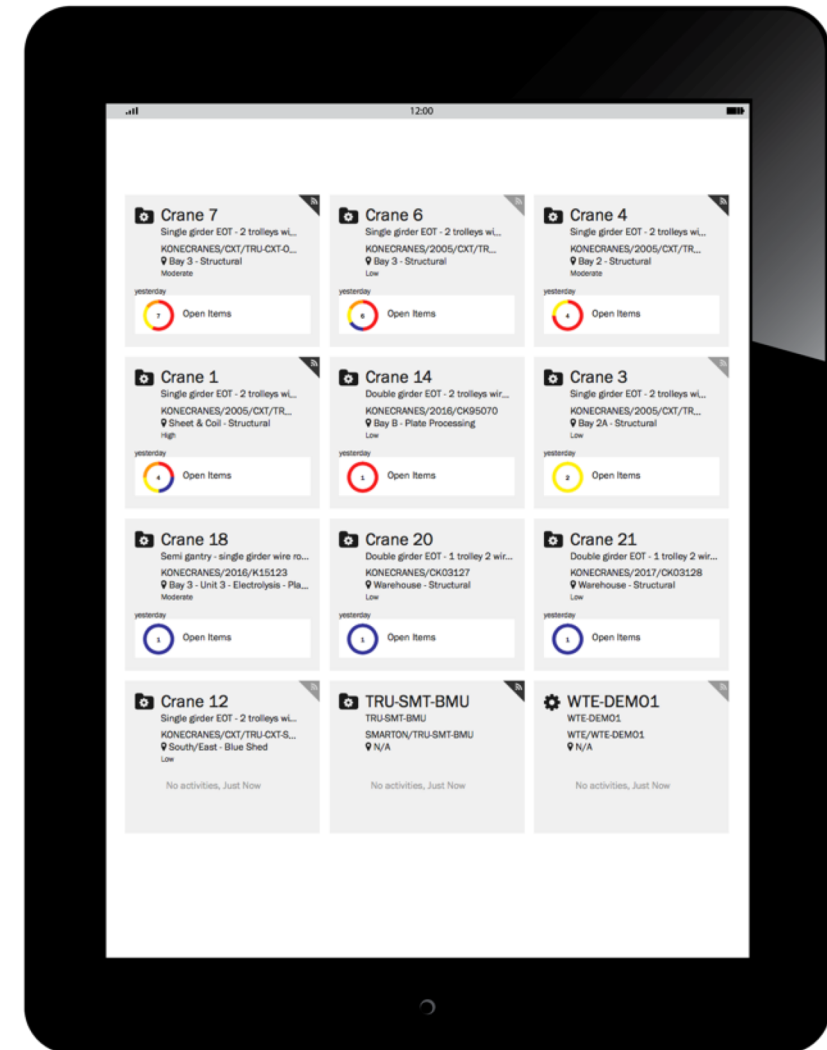


# Crane maintenance information on yourKONECRANES.com

## Assets and Agreement

**Assets** shows all assets in your fleet that have been serviced by Konecranes. Here you can sort by priority or asset criticality or you can filter for open items, findings or TRUCONNECT status. Asset reports allows you to see components, faults, risks and recommendations for each asset in one place.

The **Agreement** page allows you to see all the products and assets covered by your service agreement. A list of covered assets includes serial number, capacity and location. You can also see how many assets you had serviced that were not under agreement.



# Crane maintenance information on yourKONECRANES.com

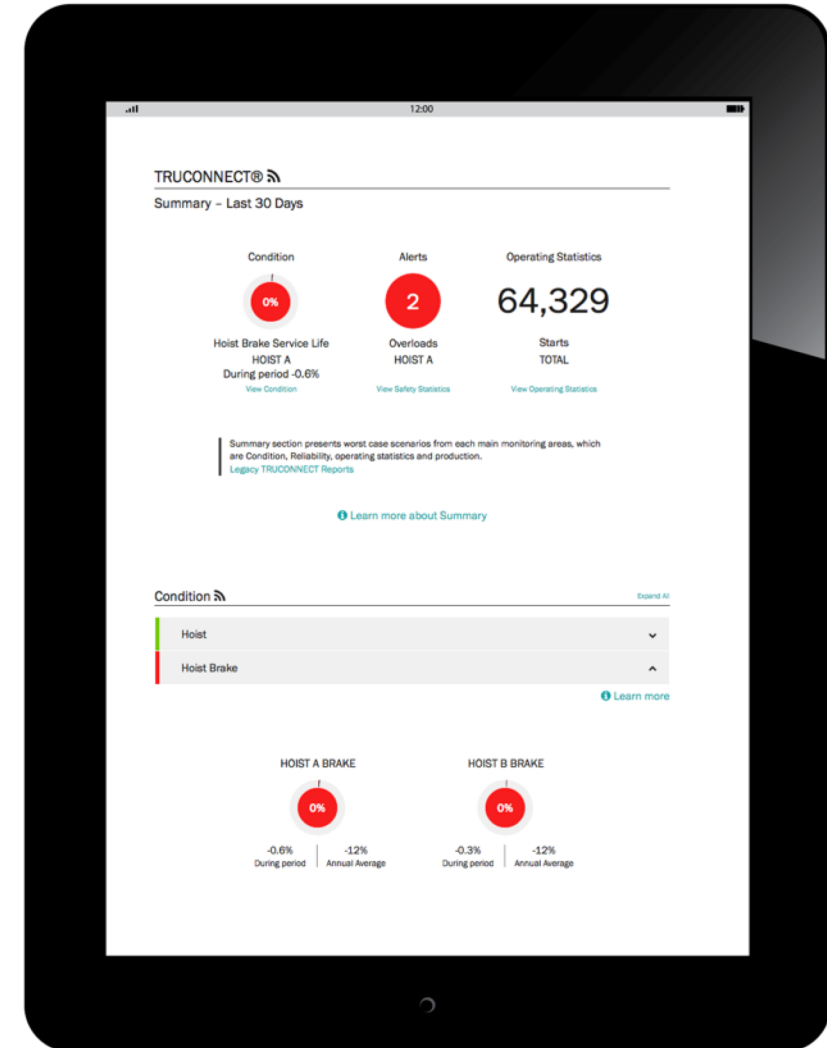
## TRUCONNECT

The **Summary** section contains the main items that require attention in each category.

**Condition** monitoring shows the current condition of the components, any risks related to safety and production, and the estimated remaining service life based on the usage history.

**Alerts** shows the number of safety and production alerts as well as a Pareto analysis which displays and ranks the most important causes of alerts related to safety and the usability of the crane.

**Operating Statistics** show how different crane operating patterns affect the safe operation and condition of the crane and the service life of critical components.





# Supplement your inspections and Preventive Maintenance program

Some components that are not readily accessible for inspection without disassembly may pose an undetermined risk. Konecranes uses advanced technology and non-destructive testing (NDT) to uncover latent or hidden defects.



# Gear Case Inspection

Cranes that have been used heavily, or that have been in service for many years, can develop cumulative fatigue and other adverse characteristics. In extreme conditions, a gear case might fail catastrophically, resulting in a load drop.

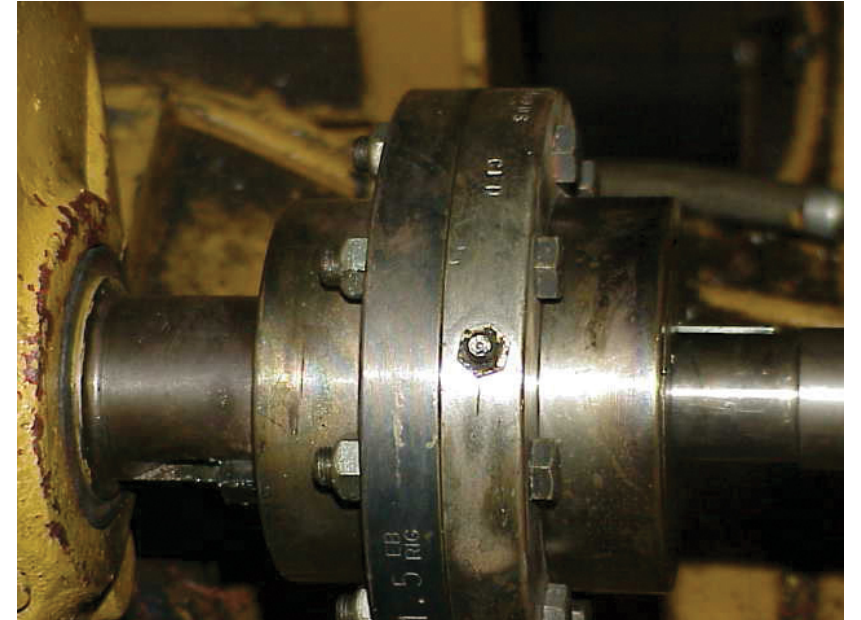
In a Gear Case Inspection, internal components are assessed using an endoscope and oil analysis. In some cases the gear case is disassembled to perform non-destructive testing on the internal components.



# Coupling Inspection

Couplings are critical components for safe crane operation and in some cases need to be disassembled for inspection.

Proper alignment, assembly and lubrication are crucial for proper coupling life.





# Hook/Shank Inspection

Non-destructive testing is available to uncover latent defects in the hook and shank.

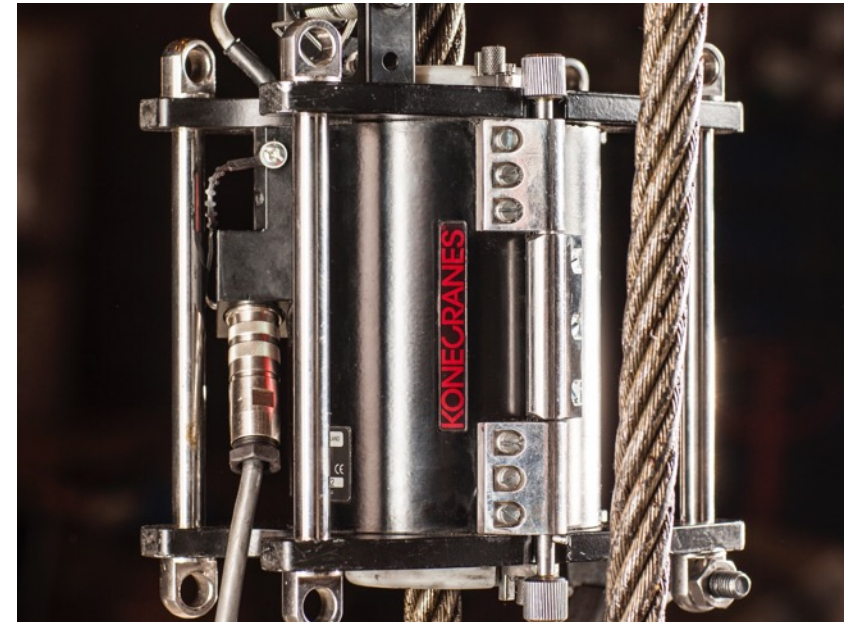
We utilize various proven non-destructive testing techniques such as dye penetrant, magnetic particle and magnetic rubber, in addition to the visual inspection and measurements normally performed during a hook inspection.



# RopeQ Magnetic Rope Inspection

The internal wires, strands and core that are not readily visible are inspected with an electromagnetic device.

RopeQ is recommended for any wire rope application and is particularly useful in process cranes in constant use, cranes that are used only occasionally, ropes that are particularly hard to inspect visually and in post-accident inspections.





**NOT JUST LIFTING  
THINGS, BUT ENTIRE  
BUSINESSES**

Learn more at [konecranes.com](https://www.konecranes.com)