

# Inspections and Preventive Maintenance

**KONECRANES®**  
Lifting Businesses™



A photograph of two workers in safety gear (hard hats, safety glasses, and gloves) inspecting a large industrial crane mechanism. The worker on the left is a man with a beard, wearing a white hard hat and safety glasses, looking up at the crane. The worker on the right is a woman wearing a white hard hat, safety glasses, and a red safety vest over a dark shirt, also looking up. They are standing on an orange metal structure, likely part of the crane. The background shows the complex machinery of the crane and the structural elements of a building or industrial facility.

# Improving safety and productivity

An active inspection and preventive maintenance program is crucial to improving safety and productivity. Regular inspections and preventive maintenance activities help identify risks and opportunities for improvement while supporting compliance.

We can help you create a proactive, customized maintenance plan based on your equipment, application and duty cycle to reduce downtime and increase reliability.

# Inspections for safety and compliance

Crane inspections are designed to assess the safety of equipment, detect wear and tear and identify maintenance needs for safe, productive operation.

Inspections can also verify that your equipment complies with current local standards and regulations, helping you avoid costly fines and disruption of operations.



# Inspections for overhead cranes and hoists

## Compliance inspections

We offer many types of inspections that are designed to satisfy your local regulatory requirements. And in countries where there are no statutory requirements for compliance inspections or when you need an inspection to simply determine the condition of your equipment, we offer various inspections based on the manufacturer's recommendations and our industry experience and expertise.

## TYPES OF INSPECTIONS WE OFFER

- Initial inspection
- Periodic inspection
- Frequent inspection
- Major inspection
- Electrical inspection
- Mechanical inspection
- DWP calculation
- Load testing
- Below-the-hook inspection

# CARE Preventive/Predictive Maintenance program

An effective preventive maintenance can help you comply with regulations, follow manufacturer's recommendations for maintenance, and to reduce the likelihood of failures that result in unplanned downtime.

Our CARE program has been designed to improve your equipment safety and productivity with preventive maintenance inspections, compliance inspections where applicable, routine maintenance, and TRUCONNECT® Remote Monitoring.



# Foundation of a CARE program



## 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.



## Remote Monitoring

Remote monitoring is used to collect equipment condition and usage data which combined with your inspection and maintenance information enables a comprehensive view and analysis of equipment condition, maintenance and operation.

## Further optimize your maintenance activities

Incorporating predictive maintenance elements – such as Oil Analysis or Gear Case Inspection – as part of a CARE program can further optimize maintenance activities, reduce unplanned downtime and improve equipment safety, productivity and lifecycle value.



# Predictive maintenance elements

| PRODUCT  | DESCRIPTION  |
|--|--|
| <b>TRUCONNECT<br/>REMOTE MONITORING</b>                        | Collects condition, usage and operating data from control systems and sensors on an asset and provides alerts of certain anomalies. Remote Monitoring data is used in maintenance planning and in predicting possible component or equipment failure.                        |
| <b>TRUCONNECT<br/>BRAKE MONITORING</b>                         | Uses a condition monitoring device to collect the status of brake air gap, mechanical and electrical faults from the electromagnetic disc brakes. The service provides visibility into current brake condition, estimates remaining service life and indicates brake faults. |
| <b>OIL ANALYSIS</b>  | Assists in deciding the optimal oil change timing for hoisting, traveling and traversing gears. The service may also provide useful information regarding the condition of internal gear components.   |
| <b>GEAR CASE INSPECTION/<br/>ADVANCED GEAR CASE INSPECTION</b> | Designed to determine the condition of your crane gears and related components. If a deficiency is detected, an Advanced Gear Case Inspection where the gear case is disassembled may be recommended for further analysis.   |
| <b>COUPLING INSPECTION</b>                                     | Designed to uncover issues that may lead to coupling failure. Load-bearing couplings are critical components for the safe operation of lifting equipment.  |
| <b>ROPEQ MAGNETIC<br/>ROPE INSPECTION</b>                      | Designed to assess the condition of a wire rope, including the core and inner wire strands that are not readily visible. RopeQ determines the condition of a wire rope based on a visual and magnetic inspection.  |
| <b>HOOK/SHANK INSPECTION</b>                                   | Designed to uncover issues that may lead to hook or bottom block failure.  |
| <b>DESIGN LIFE ANALYSIS</b>                                    | Designed to calculate the remaining design life of crane structures and machineries based on usage history and the standards used in their design.   |



# 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.



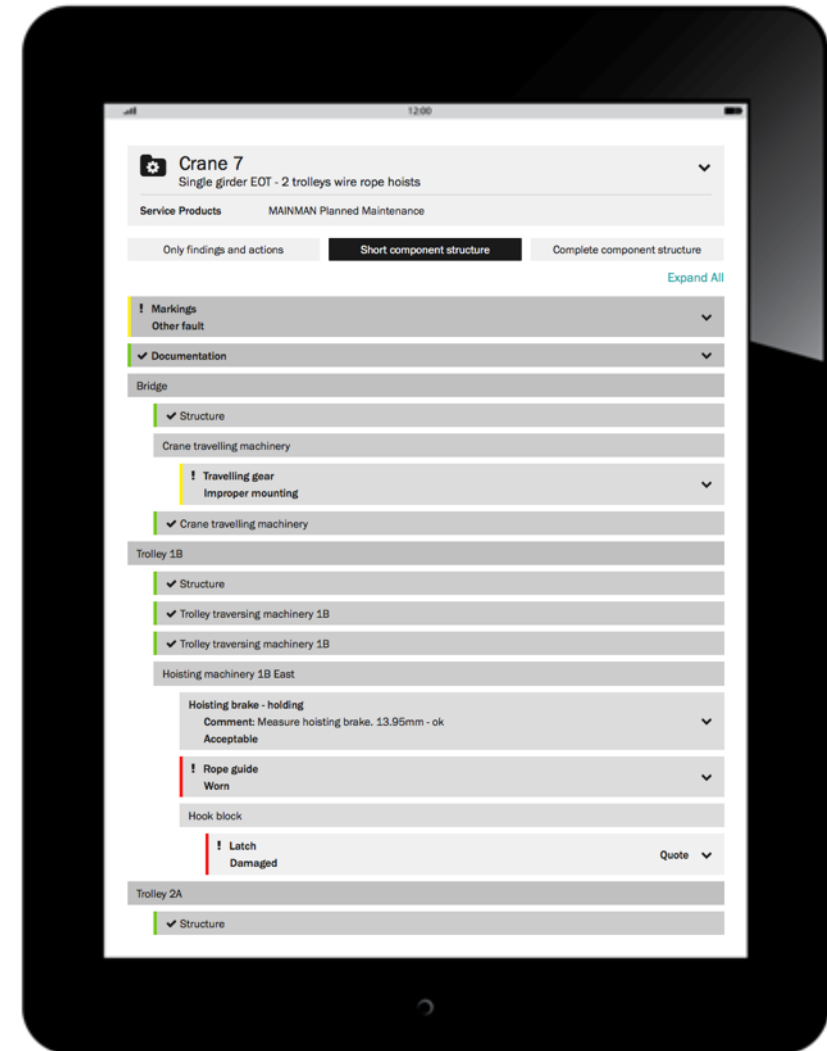
# Risk & Recommendation Method

## 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

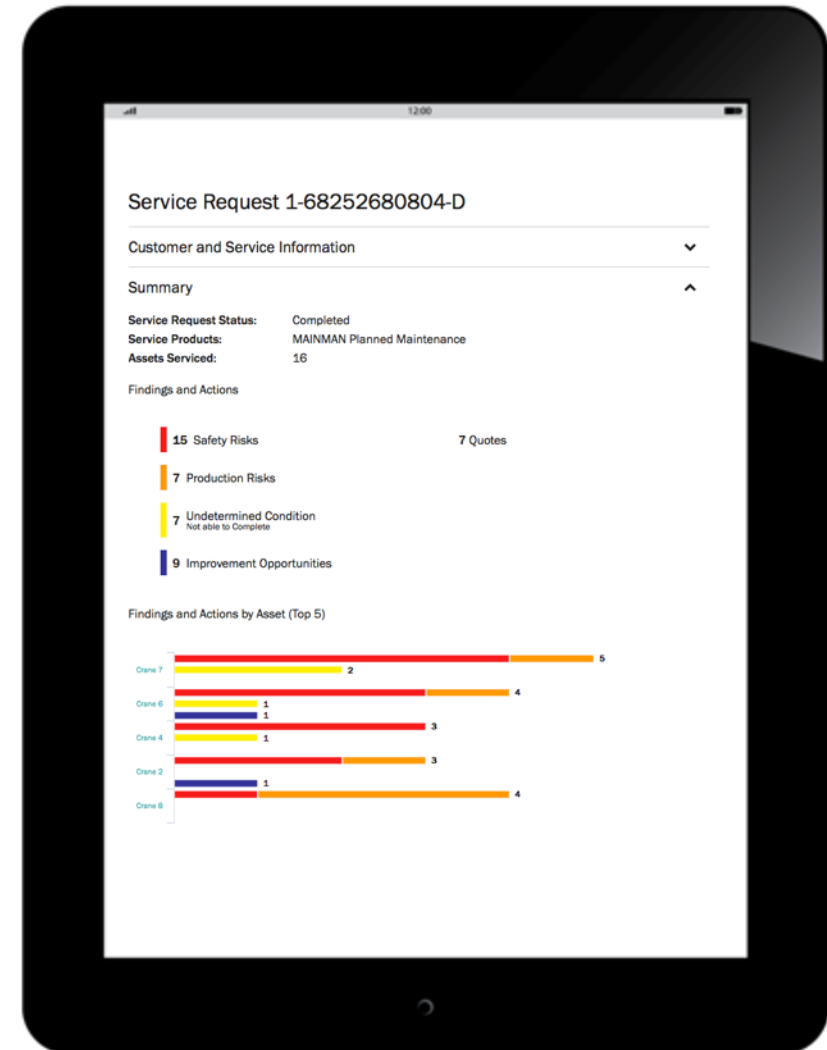
Indicates an unsafe condition. Failure to remedy such condition before continued operation of the identified asset may result in personal injury, including death, or property damage.

## 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, the local branch will follow up with a Service Review in person, 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. The Service Review is performed using live data on yourKONECRANES.com.



## Business Review

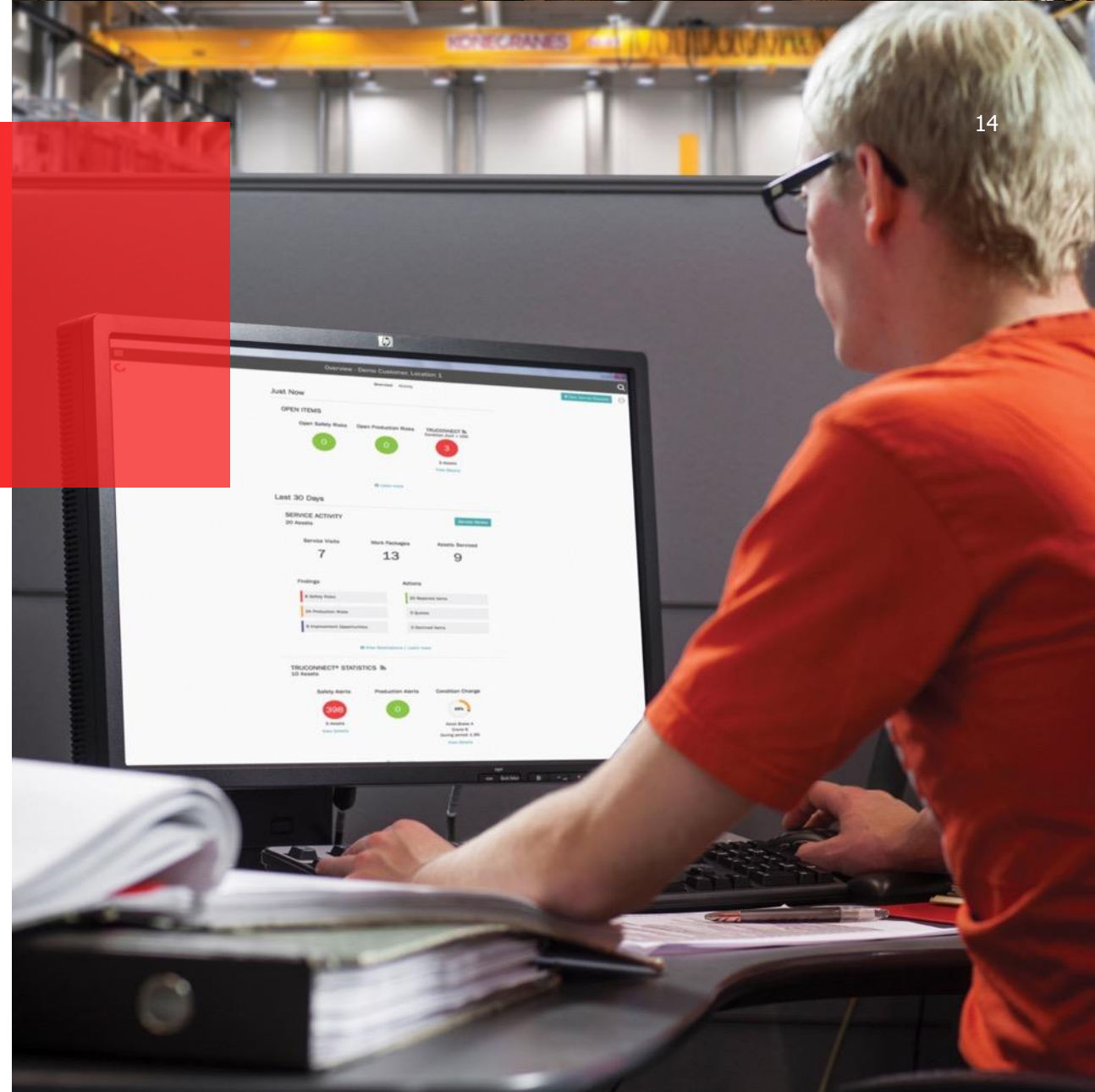
Once a year or as needed, we'll conduct a Business Review at our customer's management level. This is an in-depth review of our service relationship – looking at progress, feedback and documented value. We'll discuss recommendations and plan jointly. The Business Review is performed using live data on yourKONECRANES.com.

# yourKONECRANES.com customer portal

Our customer portal, yourKONECRANES.com, gives you quick and easy access to your crane maintenance information, asset condition and usage data, and agreement details.

The portal gives you a transparent view of all maintenance activities, TRUCONNECT alerts, and even spend over any selected time interval.

Aggregated data can be viewed, analyzed and shared quickly, for a single asset or an entire fleet.



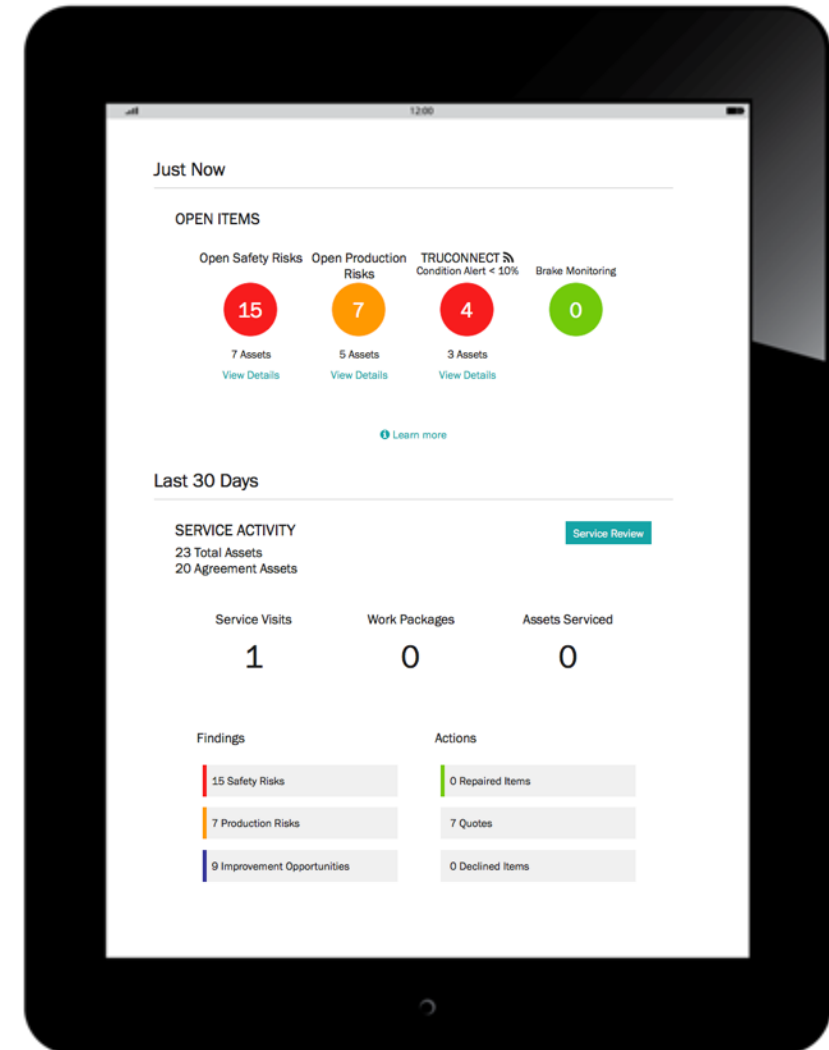
# Crane maintenance information on yourKONECRANES.com

## 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.



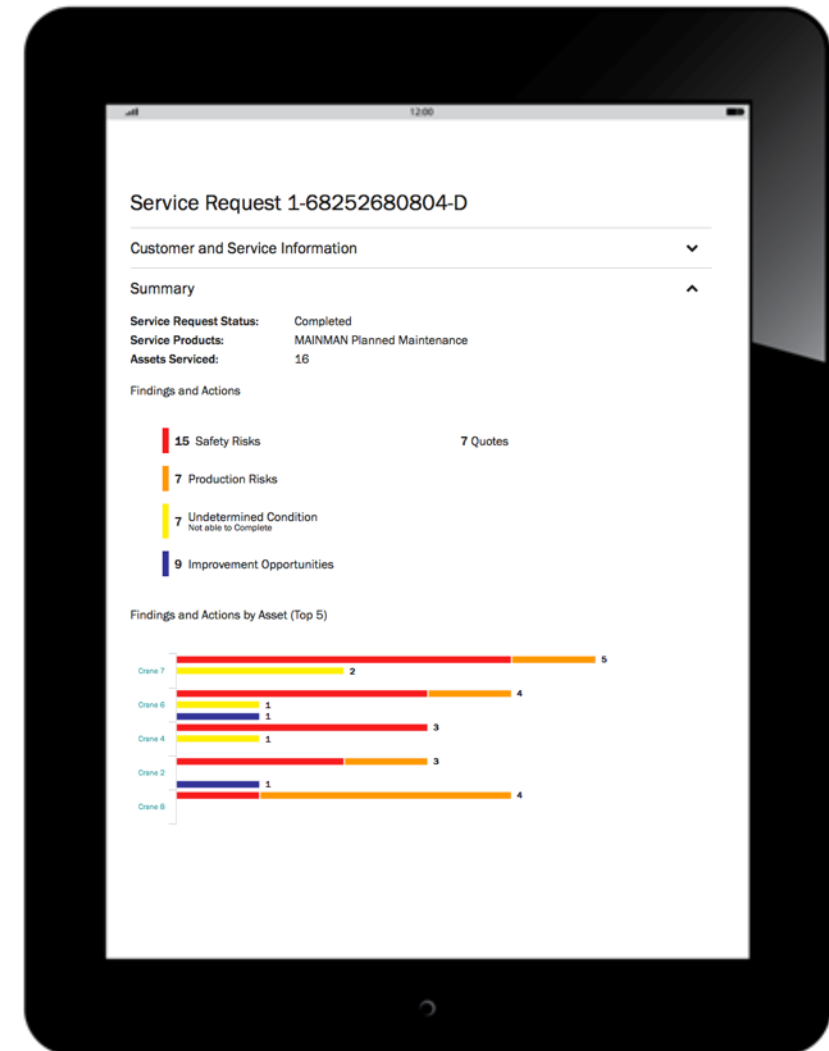
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## Service Review

**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.



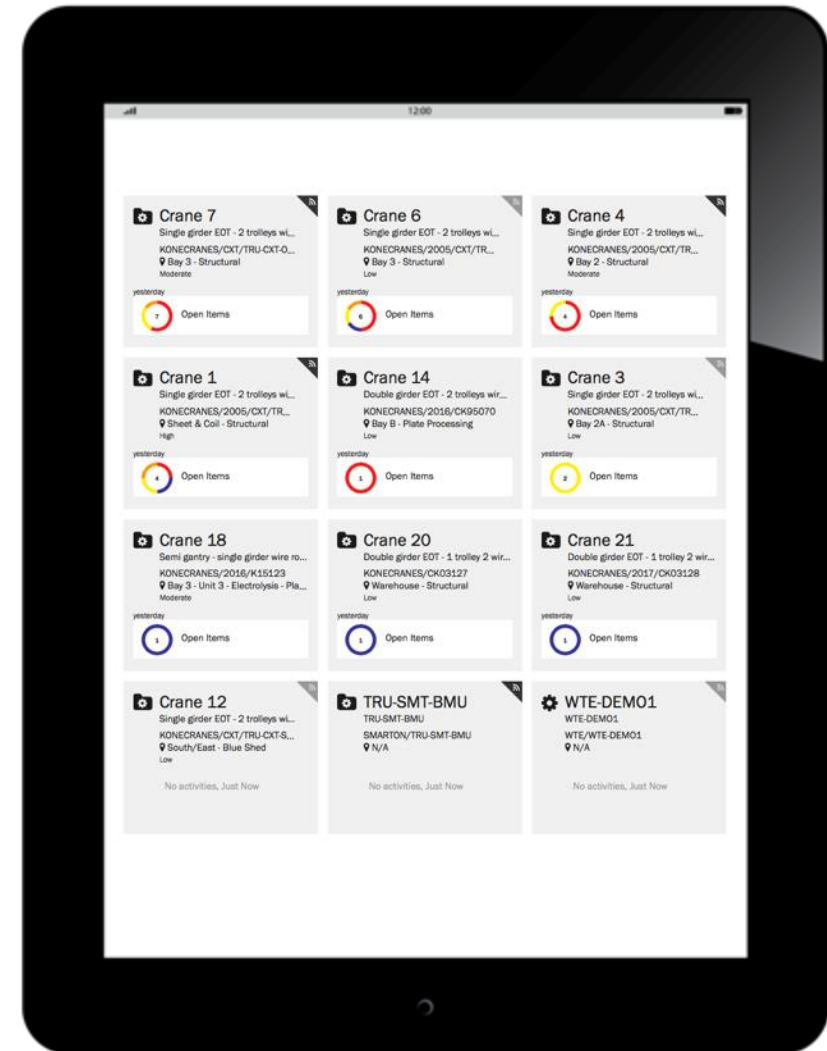


# Crane maintenance information on yourKONECRANES.com

## 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

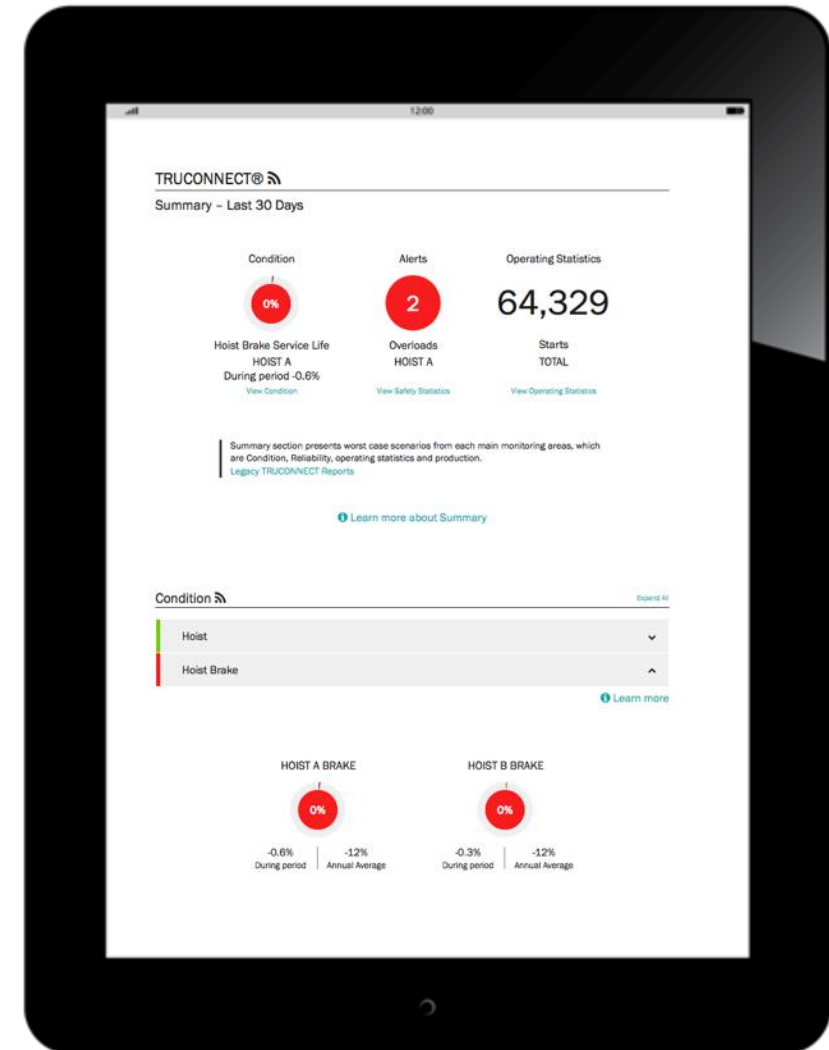
## TRUCONNECT

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.





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

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