

INDUSTRIAL CRANES
NUCLEAR CRANES
PORT CRANES
HEAVY DUTY LIFT TRUCKS
SERVICE
MACHINE TOOL SERVICE

KONECRANES[®]
Lifting Businesses[™]

Geometric Assessment **RAILQ RUNWAY SURVEY / CRANE GEOMETRIC SURVEY**



**FASTER, SAFER
AND MORE
ACCURATE**



LET KNOWLEDGE IMPROVE YOUR PERFORMANCE

Cranes should travel or track along their runway rails with a minimum of skew and without binding. Improper tracking leads to premature wheel and rail wear, resulting in costly repairs and downtime as well as inefficient and sub-optimal crane operation.

There are many reasons why a crane does not travel correctly on the runway:

- > Rail may be misaligned or worn
- > Clips may be missing
- > Pads may be worn
- > Runway structure itself may be uneven, bent or twisted due to column settlement, overloads or impacts
- > Corrosion
- > Improper original installation

Improper tracking is normally investigated by performing a traditional runway survey; however, these surveys may result in days of costly downtime, and the results may not be accurate or clear and may not offer corrective actions.

Konecranes offers a unique solution not offered by other crane service providers

RailQ is an advanced survey technique that typically utilizes a remote controlled robot trolley (Roborail), which runs along the rail equipped with a 360-degree prism. This proprietary piece of equipment enables a high precision Total Station to collect and feed information to a Survey Controller. Konecranes R&D has designed a proprietary analysis and visualization software producing interactive reports that help visualize the problem areas. Konecranes structural engineers also review the data and provide professional recommendations and solutions. A comprehensive report is provided with each survey along with the opportunity to discuss the results with one of our experts.

Rail Q can be performed on virtually any runway including those for overhead cranes, port cranes and woodyard cranes. This technology can be used to further assess trolley rails and bridge girders for deflection, twist, camber and straightness and square.



Konecranes Technology Saves Time, Increases Safety, Improves Reliability

RailQ literally reduces the time it takes to perform a runway survey from days to hours, minimizing costly downtime. RailQ is typically performed with the aid of an automated robot, which increases accuracy and effectiveness. The robot is also safer since there is no need for a person to walk the runway positioning targets. RailQ produces accurate and repeatable data that can be easily interpreted and visualized through our interactive tools.

There are times when the tracking problems can be caused by the crane itself or may be a combination of both the crane and runway. Along with any runway survey, Konecranes may recommend performing a geometric survey of the crane itself. Konecranes verifies the crane for "squareness," meaning the end trucks must be parallel to each other and perpendicular to the bridge girder for the crane to track properly. In addition, the geometry of the end trucks themselves is verified as is the alignment of the wheels within the end trucks. Finally, the girders for the crane are measured for camber. The results of the geometric survey are reported utilizing similar techniques and tools used in the RailQ Runway Survey and boast similar benefits and advantages.

No matter what the survey results and recommendations are, Konecranes can provide the appropriate solution including:

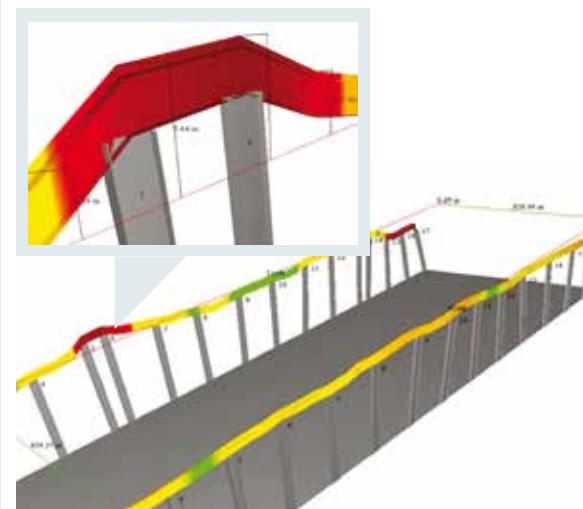
- > Structural repairs and upgrades
- > Mechanical repairs and replacement parts and components
- > Engineered comprehensive solutions that may include anti-skew control technology
- > Engineered prescription wheels that specifically address tracking/wheel wear issues

Konecranes also offers a Crane Life Extension Study (Crane Reliability Survey) and a Critical Components Assessment that complements the RailQ Runway and Crane Assessment.

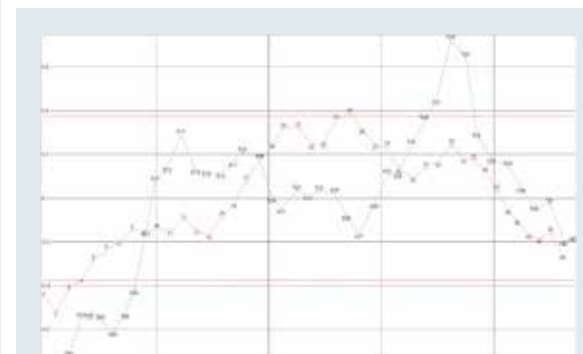
Ask your Konecranes Representative for more information by calling 800.933.3001 or visit www.konecranesamericas.com.



We serve our customers by helping them enhance the safety and productivity of their operations through innovative technologies, customized maintenance programs and dedicated people. We seek to first understand our customer's business before applying our industry-wide experience and expertise. We then prove value through periodic performance reviews of mutually agreed upon goals. In essence, we are not just lifting things, we are "Lifting Businesses."



Above is a representation of a 3-D graph of the rail elevation.



Above is a representation of a 2-D graph of the rail elevation.

WE SET THE BENCHMARK





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CRANES



NUCLEAR
CRANES



PORT
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HEAVY-DUTY
LIFT TRUCKS




SERVICE



MACHINE
TOOL
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Konecranes is a world-leading group of Lifting Businesses™, serving a broad range of customers, including manufacturing and process industries, shipyards, ports and terminals. Konecranes provides productivity-enhancing lifting solutions as well as services for lifting equipment and machine tools of all makes.

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