KONECRANES

INDUSTRIAL SERVICE

Steel Structure Analysis

Know the condition of the steel structure of your crane

The steel structures of your crane shoulder the weight of your lifting operations. Those structures are subjected to fatigue as loads are lifted; and as fatigue life ends, safety can be compromised.

Make informed decisions for the future of your crane
The Konecranes Steel Structure Analysis can give you an accurate picture of the remaining fatigue life of the steel structure of your crane and help identify defects.

The analysis can help you decide between a modernization or new equipment purchase. It can also help determine if you can continue using your crane after the Design Working Period (DWP) of the steel structure is exhausted.

A trained and qualified inspector will investigate the use history of the crane and perform a visual inspection of the entire steel structure. If needed, non-destructive testing (NDT) can be performed. A qualified engineer will use proprietary 3D modeling and calculation software to provide the steel structure fatigue calculation. Calculation of stresses and fatigue is conducted according to EN 13001-3-1 and ISO 12482 standards.

You will receive a list of recommendations for needed repairs or replacements and we'll also provide you with a detailed plan for future inspections.

Understand how fatigue affects your crane structure

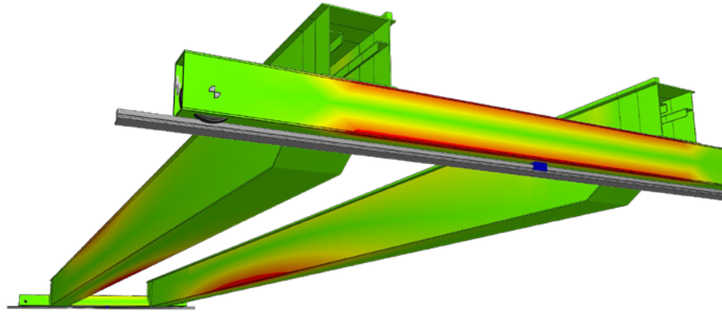
In the process industry and other demanding sectors, operating conditions, load history, and application requirements influence how fatigue accumulates within a crane's steel structure. This can lead to overstressing and challenges related to the remaining service life of the structure.

To support deeper structural evaluations, Konecranes Steel Structure Analysis offers Finite Element Analysis (FEA) to simulate the fatigue behavior of different structural components. This method is designed to assess the stress distribution and fatigue accumulation within the steel structure, supporting estimates of remaining fatigue life.

Calculations are performed using our in house calculation tools, based on crane design data, verified use history, and inspection findings. The analysis complements visual inspection from the survey, providing engineering-based insight into structural performance under actual operating conditions.

Steel Structure Analysis supports decision-making in the following situations:

- **Crane modernizations:** To support decisions related to structural suitability and life extension.
- **Capacity increase or decrease:** To evaluate the effects of changed loading conditions on fatigue life.
- **Crane Reliability Study (CRS):** As part of a broader engineering assessment of crane condition and future use.
- **Lower classification cranes:** When detailed fatigue calculations are required to support continued operation beyond original design assumptions.
- **Investment and life-cycle planning:** To support investment decisions based on the estimated remaining service life of the steel structure.



BEAM	USED FATIGUE LIFE	END OF FATIGUE LIFE
Main girder 1	132%	2018
Main girder 2	94.1%	2028
End carriage 1	4.06%	After more than 25 years
End carriage 2	2.31%	After more than 25 years

Example results of a fatigue life analysis on a double girder crane

Benefits of a Steel Structure Analysis

- Provides detailed information of the condition and remaining fatigue life of a crane steel structure.
- Can help determine the applicability of crane modernizations.
- Provides an inspection plan for continued safe use of the crane.

Konecranes is a global leader in material handling solutions, serving a broad range of customers across multiple industries. We consistently set the industry benchmark, from everyday improvements to the breakthroughs at moments that matter most, because we know we can always find a safer, more productive and sustainable way. That's why, with around 16,500 professionals in over 50 countries, Konecranes is trusted every day to lift, handle and move what the world needs. In 2025, Group sales totaled EUR 4.2 billion. Konecranes shares are listed on Nasdaq Helsinki (symbol: KCR).

KONECRANES Moves what matters.