

How much  
time does your  
crane have left?



# Cranes and their components are not designed to last forever

Welded structures and machinery components experience fatigue and wear-and-tear whenever a crane is working.

These components have a finite service life – which is correlated to usage, not calendar time.

Structures consume their design life in work cycles, while machineries consume their design life in running hours.

Both structures and machineries take the load into account – half the rated load consumes design life by a factor of 0.125.

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**EXHAUSTED  
DESIGN LIFE**



**WORK CYCLES  
RUNNING HOURS  
ACTUAL/DESIGN LOAD**

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# Design class determines usable design life

Design class indicates how many times a load can be lifted, and how many operational hours the machinery is rated to endure.

Lifting the same load repeatedly, a lower class of crane will not last as long as a higher class of crane.



## 10t

### A8/M8\*

Structure = 1,000,000 lifts  
Machinery = 12,500 hours

### C8/M8\*\*

Structure = 1,000,000 lifts  
Machinery = 12,500 hours

### F/ISO-M8†

Structure = 2,000,000 lifts  
Machinery = 12,500 hours

VS.

### A4/M4\*

Structure = 64,000 lifts  
Machinery = 800 hours

### C4/M4\*\*

Structure = 64,000 lifts  
Machinery = 800 hours

### C/ISO-M4†

Structure = 20,000 lifts  
Machinery = 800 hours

\*According to ISO, FEM and BS with full nominal load

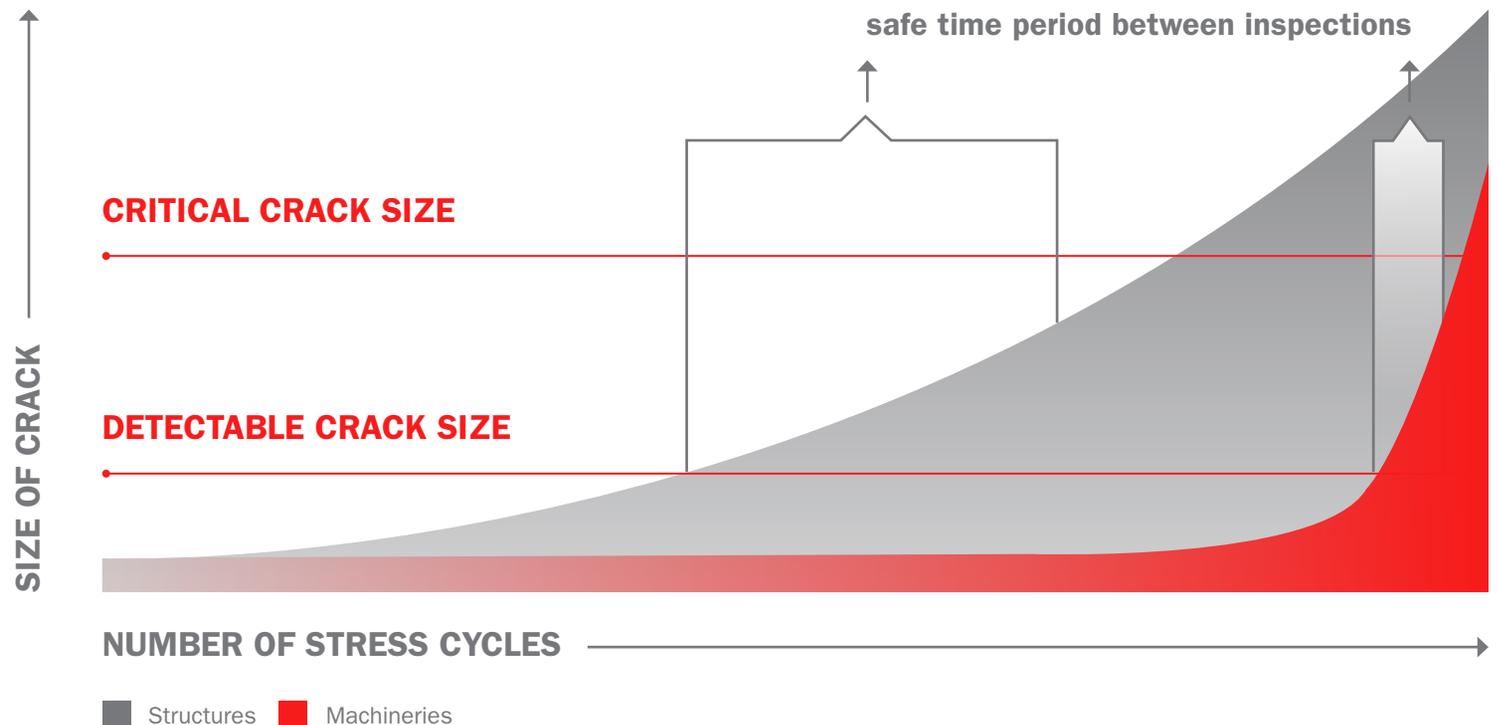
\*\* AS 1418.1

† CMAA #70

# Understanding the design life of your crane is critical

Regular inspections help identify risks and support compliance, but their frequency and scope are not enough to catch failures caused by fast crack propagation in machineries. The likelihood of such failure increases closer to the end of design life.

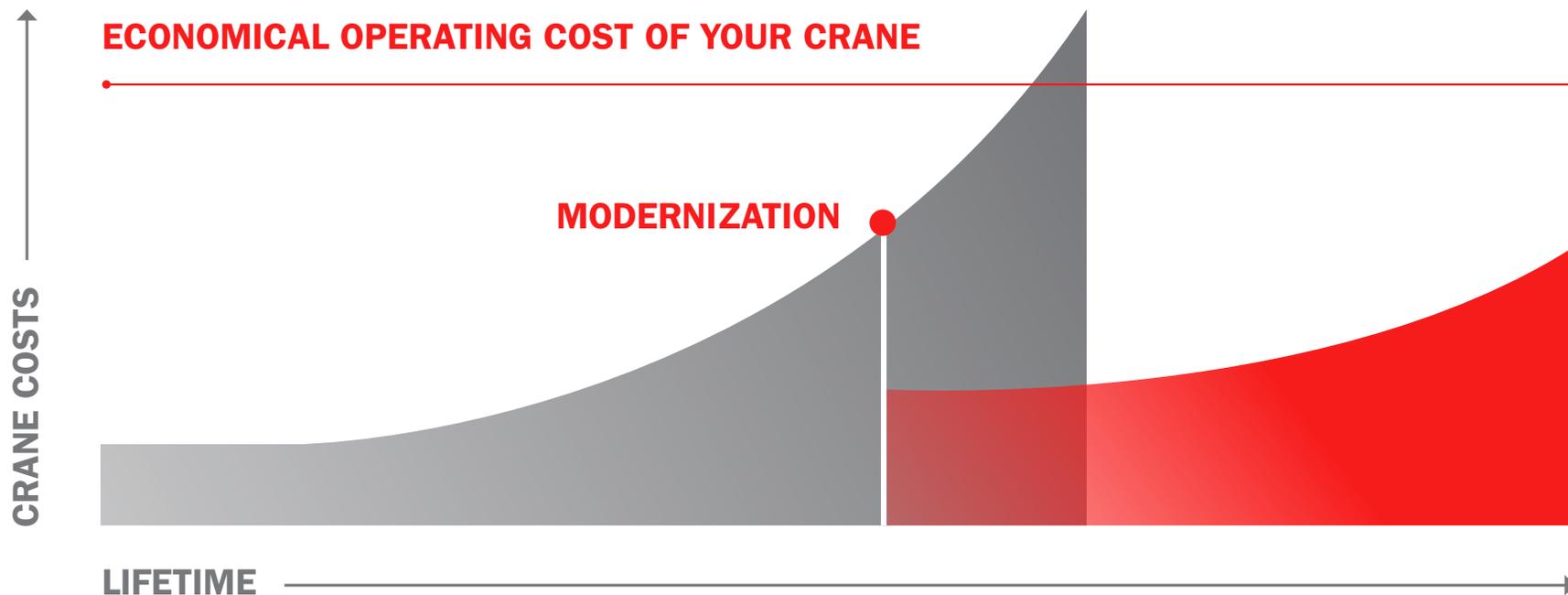
Knowing the remaining design life of your crane and its components gives you an estimate of the limit for safe operational life, based on actual usage.



# Determining design life is especially important for older cranes

Operation costs increase over time as the crane needs more frequent maintenance and spare parts.

Knowing the design life of your crane allows you to plan timely modernizations, general overhauls and component replacements. All of these reduce operational costs and safely extend the useful life of the crane.





## Design life analysis is not just a matter of economics. It's industry standard.

Determining the current status of remaining design life is now a **yearly requirement** for crane owners, according to ISO 12482-2014 and AS 2550.1:2011.

This regulation calls for the design working period (DWP) calculation for both the structures and machineries of a crane, in conjunction with periodic inspections at 12-month intervals.

When the design life of the crane or any of its components will end before the next scheduled inspection, an engineering assessment such as a Crane Reliability Survey (CRS) is recommended to provide a detailed plan for the future of the crane.

# Where to find expert analysis of the remaining design life of your crane

Our approach to crane maintenance is called Lifecycle Care in Real Time – a comprehensive and systematic approach, supported by world-class tools and processes.

Konecranes crane experts apply a systematic Risk and Recommendation Method and a consultative, planning and review process to drive continuous improvement in safety and productivity.

We have specially trained professionals who translate past crane usage into an analyzable format, then use state-of-the-art software to calculate the remaining design life.

Konecranes can provide this analysis for all makes and models of cranes and their components.





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Design Life Analysis**

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