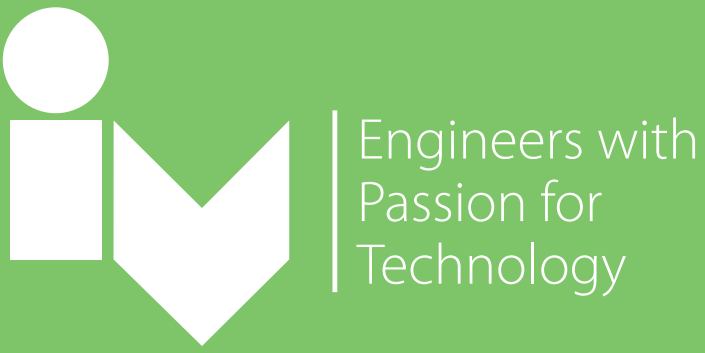
Engineers with
Passion for
Technology

CRANES


Engineers with
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Engineers with Passion for Technology

Iv-Groep is a globally operating multidisciplinary engineering company. Since 1949, Iv has been devising technical solutions for projects of any size and complexity within the following sectors: Industry, Infrastructure & Traffic, Buildings & Installations, Handling, Maritime, Offshore & Energy and Water. No challenge is too complicated for us. We are a team of specialists with a genuine passion for our specialisms: with our knowledge of technology, we can achieve the most for our customer.


APM
TERMINALS

Iv-Consult

Within Iv-Groep, Iv-Consult is the specialist when it comes down to Mechanical and Structural design. Our Passion for Technology, which translates into innovative and sustainable solutions, makes Iv-Consult the ideal partner for projects of any size and complexity. From concept to management, Iv-Consult is knowledge-driven and market-leading.

Our vast experience with cranes and other handling equipment is well appreciated by our customers. We have engineering experience with all types of cranes:

- Super heavy lift
- Container handling cranes such as, STS, RMG, ASC, etc.
- Bulk handling cranes such as, Grab cranes, rail mounted and floating Lemniscate cranes, stacker/reclaimers, etc.
- Overhead Traveling Cranes
- Offshore cranes such as lemniscate cranes; gangways and vessel cranes

STS-cranes

A brief overview of STS-crane projects:

- Design & Engineering up to including Workshop-drawings of approximately 20 STS-cranes
- Problem solving
- Life time checks
- Procurement assistance
- Project management
- Upgrades, refurbishment, modifications, etc.


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2201
AMMOET
arentis.com

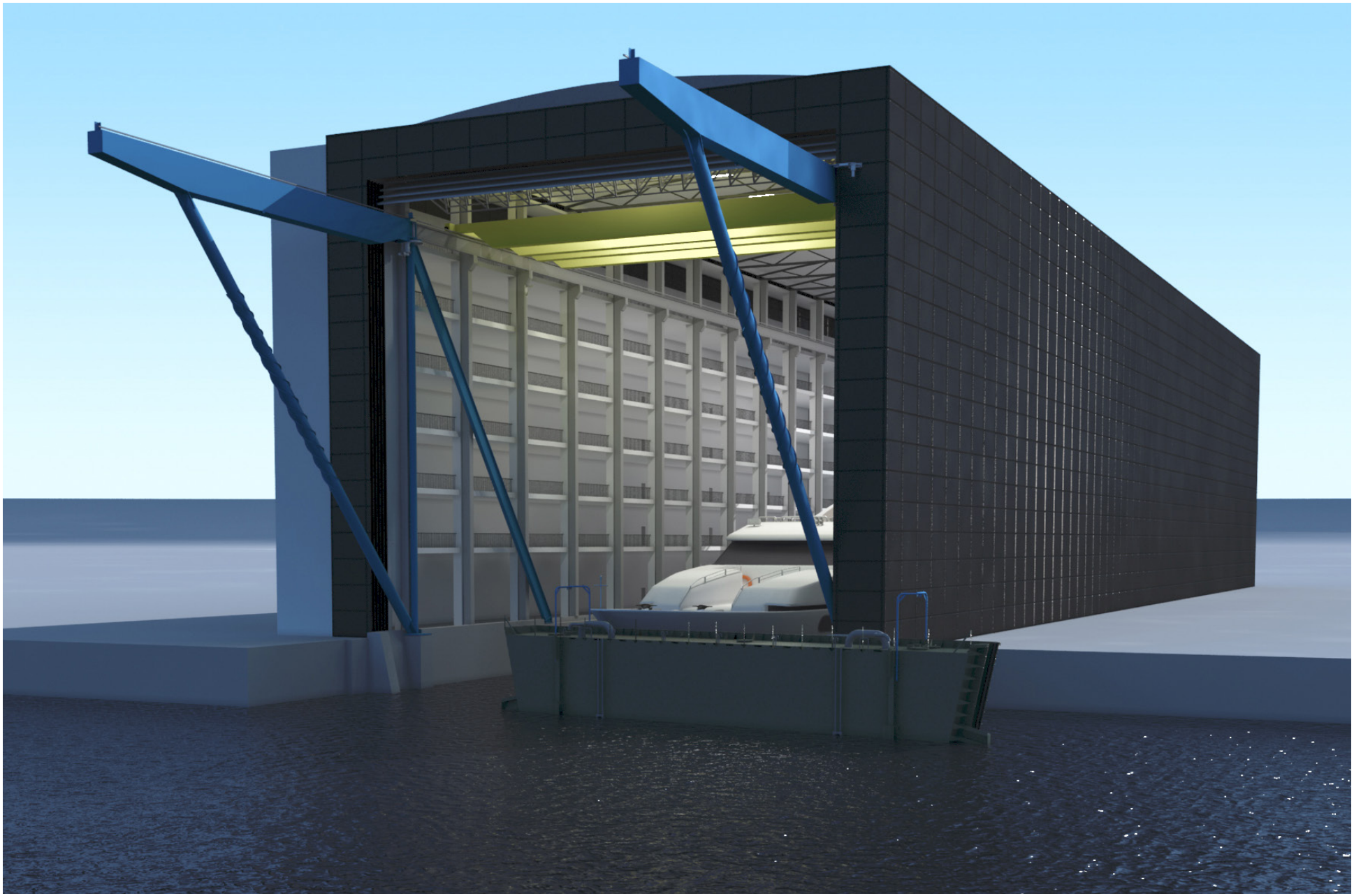
Mammoet PTC 120 DS and 160 DS

Iv-Consult put together a project team to develop this special construction in collaboration with Mammoet. The biggest challenge was to create a strong and reliable construction within the limitation of containerization (with respect to weight and size). The design and workshop drawings were produced in Inventor. The calculations (both linear and non-linear) were made with Scia Engineer and Ansys software.


HHLA
Kalmar
CTB

RMG's for the port of Hamburg

New design of 10 Inner Stacking cranes and 5 Outer stacking cranes for Hamburg. Iv was hired to help out our client with the design of the 10 inner stacking cranes and the 5 outer stacking cranes. We were involved in both the structural and the mechanical design.



Oceanco dry dock

Our customer required the cranes to go outside the hall in order to pick up big components in front of the dock gate. Their building permission did not allow for a permanent rail construction outside the hall structure, therefore Iv-Consult developed a fold-out rail system. We also engineered the Dry-dock and pertaining floating dock gate for this customer.


SWL
MAIN HOIST 2-fall
1t at 10.0m to 25.3m
KEHZ
X-WING

Offshore cranes and (Walk to Work) gangways

An Offshore Motion Compensated Gangway assures safe transport of people and goods between a ship riding the waves and an offshore installation. The movements of the tip of the gangway are completely 3D-compensated by an advanced hydraulic system. Iv-Consult designed the complete installation from the ship integration, main frame, gangway parts and bumper, making structural calculations, the mechanical engineering part of the project and the workshop drawings.

Allseas – Audacia buoy handling system

For the Audacia, a pipe laying vessel of Allseas, Iv-Consult has designed a retrofit crane solution to handle the buoyancy buoys in the pipe line to reduce pipe stress when lowering PLET'S , etc.

The design needed to be very efficient to allow the safe working load of 35 tons at an outreach of 50 m in seastate 6 to be incorporated into the existing Stinger handling Frame.

Iv-Consult competences

Engineering

- From FEED study, Concept design to Workshop drawings
  - Parametric Calculations; drawings and reports
  - Spectral based fatigue analysis / Cyclic based fatigue analysis
- Component Specification

Assistance

- Procurement assistance
  - Checking the vendors calculations
  - Verifying calculations
- On-site inspections
- FAT and SAT protocols

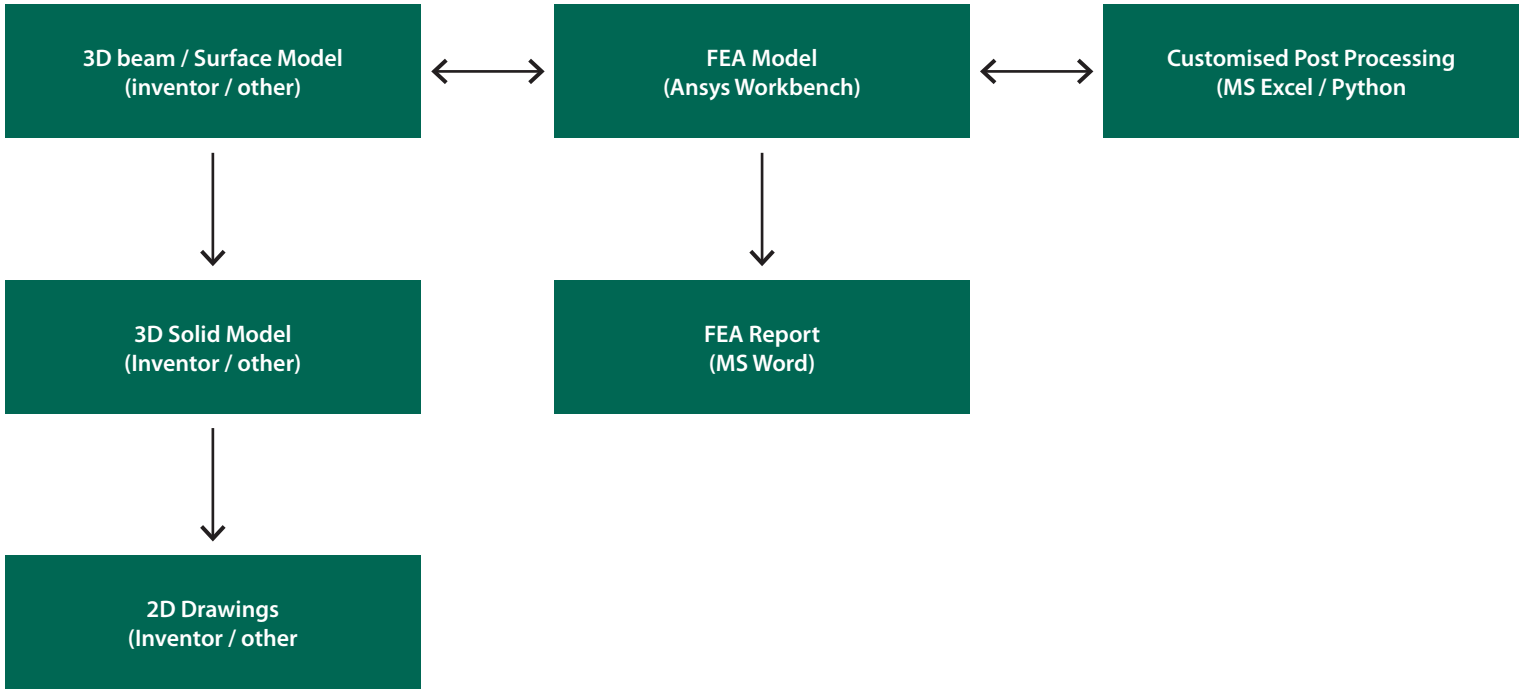
Management

- RFQ Management
  - Writing the RFQ documentation
  - Approaching vendors and answering their questions
- Build management

Software

- Ansys
- Krasta
- Femap
- Inventor
- Autocad
- Etc.

| Parametric workflow

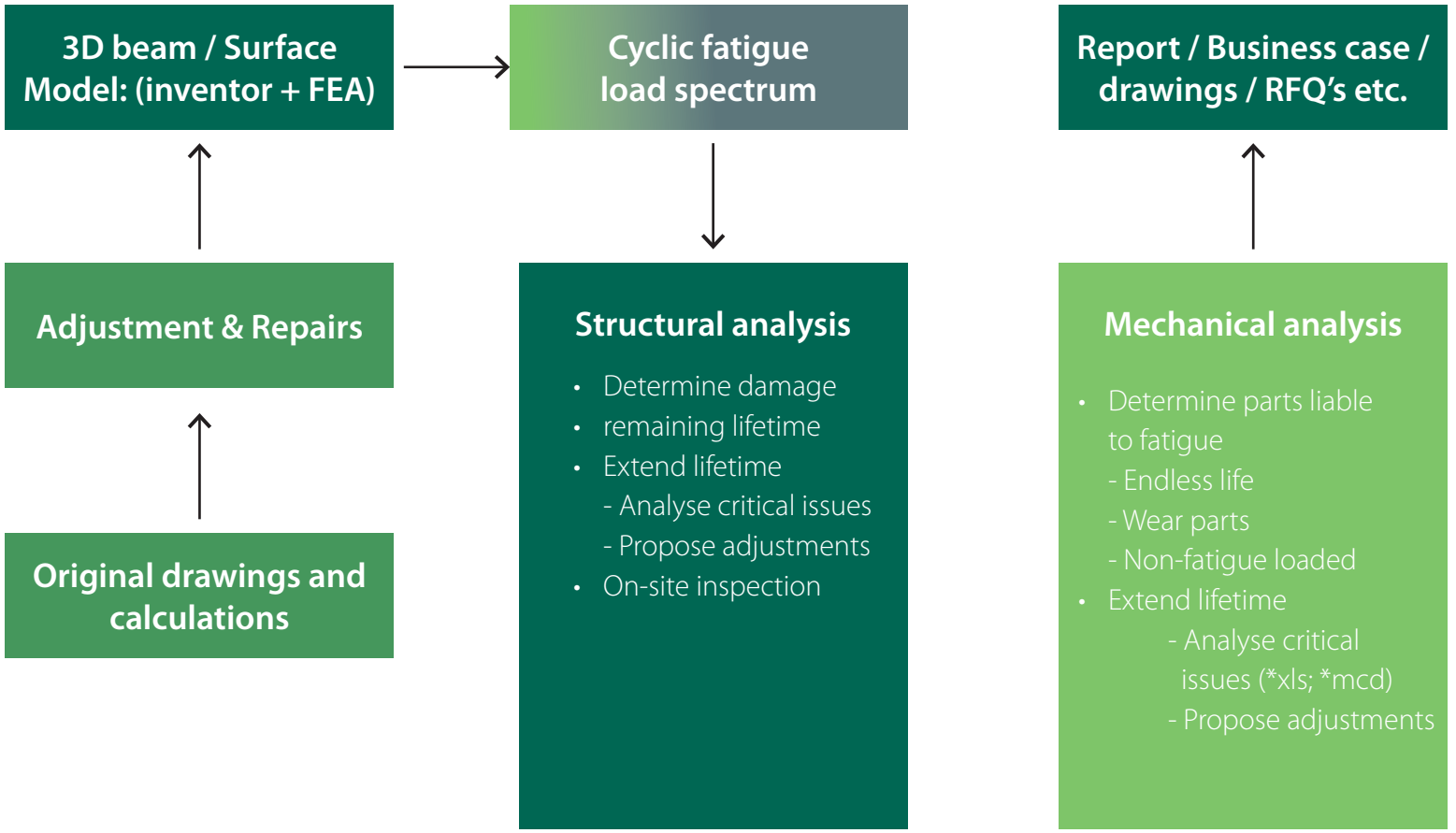


| Parametric workflow

For complex innovative designs we developed a parametric workflow. This leads to several advantages:

- No separate FEA geometry model required
- Models and reports 100% consistent and up to date
- Quick iterations and design changes
- More optimized designs
- Better quality (less manual operations)

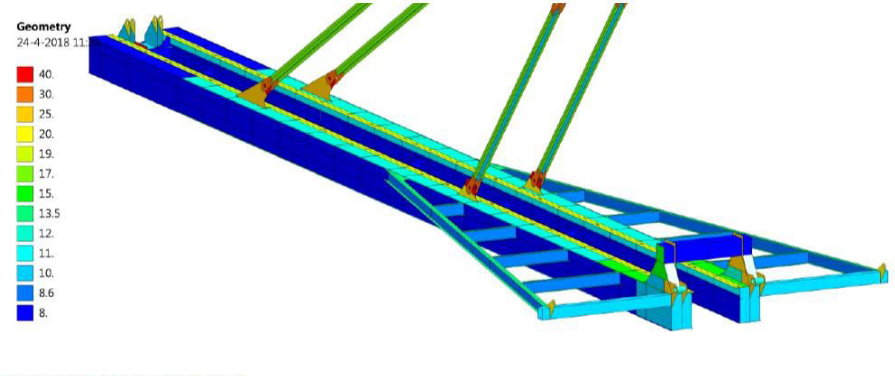
Crane life time

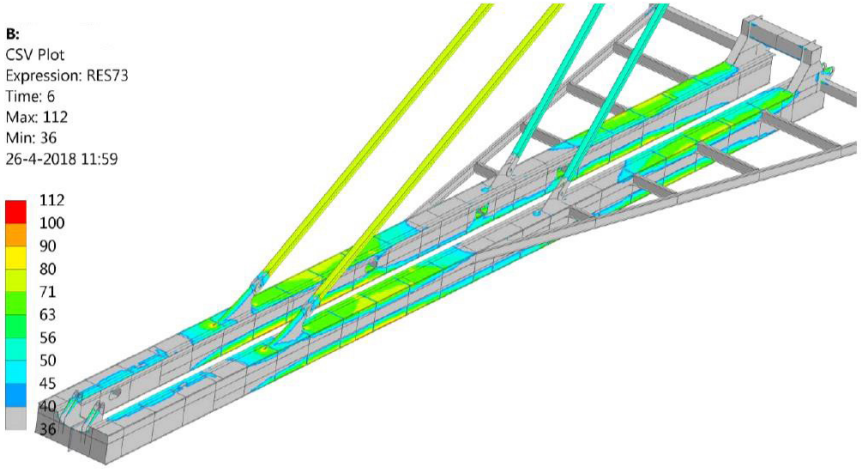


Crane life time

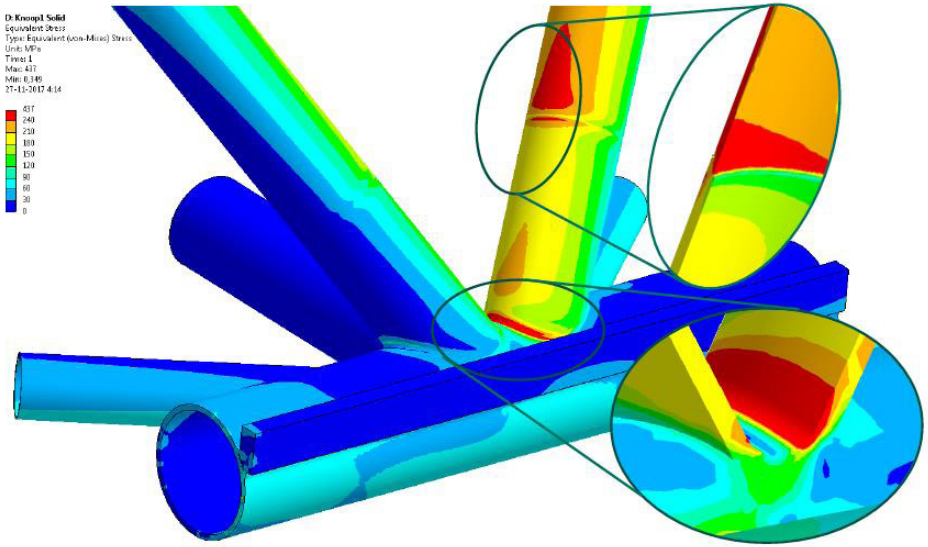
Buying a new crane is a large investment. Extending the life time of the current cranes might be significantly cheaper. Iv-Consult has developed a workflow to analyse the current fatigue damage and to map out the possible adjustments or extra inspection regime to warrant the longer use of the crane.

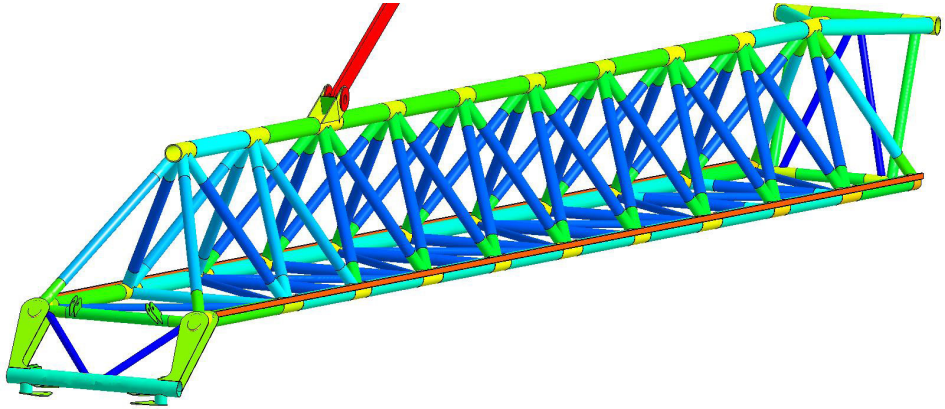
Bulk handling grabbing crane - mass and fatigue analysis

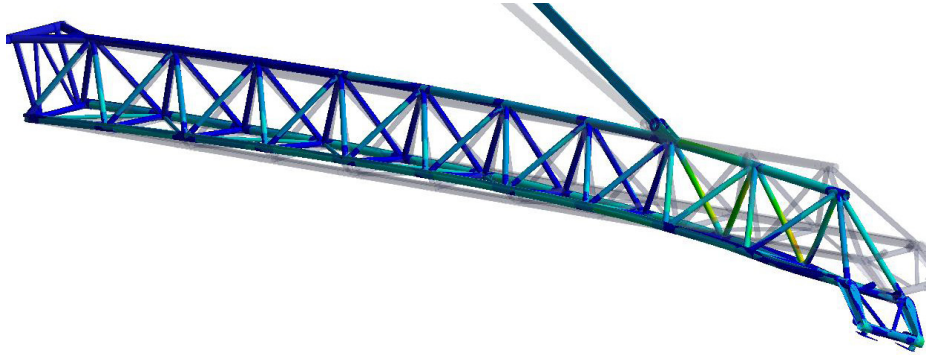




Boom fatigue issues – problem solving







What Iv-Consult has to offer you for your crane related projects

- Conceptual design, Basic Design, Detailed Design
  - Structural engineering
  - Mechanical engineering
  - Interface management
- Erection methodology
- Risk analysis, Evacuation statement etc.
- Procurement (assistance)
- Production management
- Operation and Maintenance manuals, production manuals etc.
- Crane rails and foundations
- Quay walls (in cooperation with Iv-Infra)
- 3D measuring services (in cooperation with Iv-Infra)

Next step

To proceed with your project we would suggest to organize a meeting in which we can:

- Get to know each other
- Discuss project information
- Discuss lessons learned and ways to reduce building and operational costs
- Discuss scope and quotation

We are looking forward to your response.

Yours sincerely,

Jaco van der Schans, MBA BEng

Would you like to know more about the possibilites for your project?

Jaco will be pleased to share ideas about your engineering issues.

E-mail Jaco van der Schans: **j.m.vanderschans@iv-consult.nl** or call **+31 88 943 2522**.

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Iv-Consult is a part of Iv-Groep b.v.

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