



RIGA TECHNICAL  
UNIVERSITY

# Technical Situation

# Aries PoC

## Overview of Concept Design

Adrian, Morales Casas

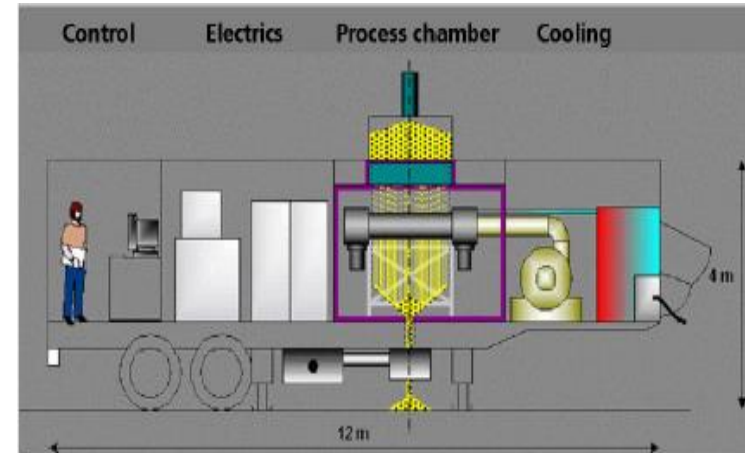
Guntis, Pikurs

Senior Experts

03/04/2019

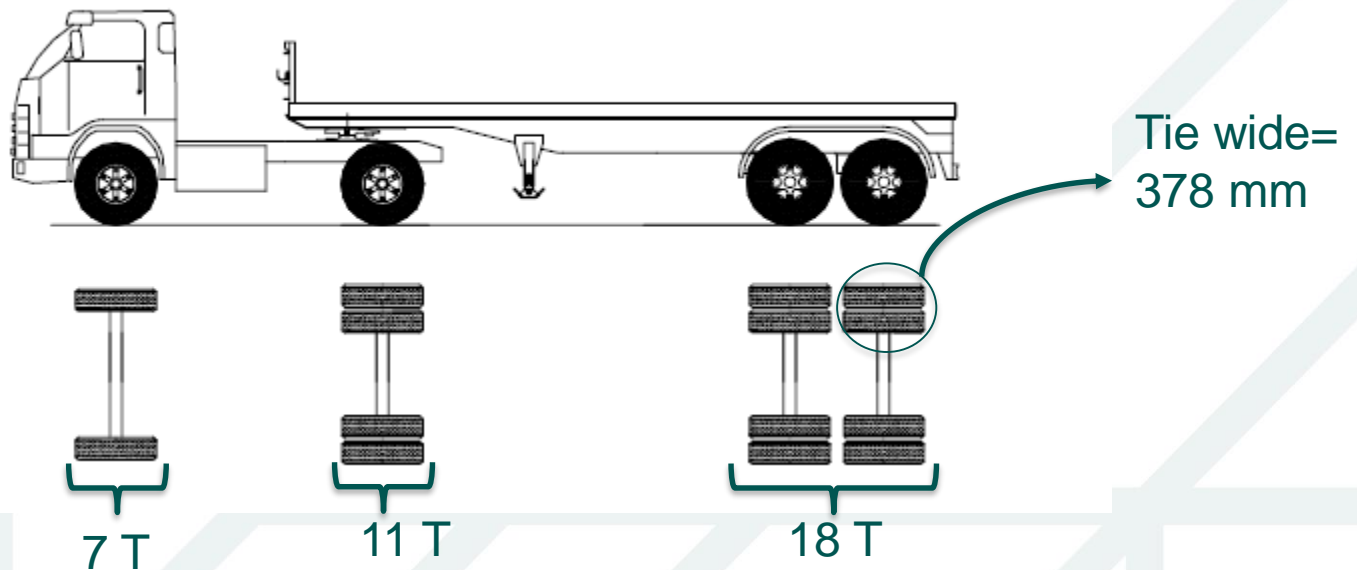
# The particle accelerator

- WESNIT 2 is a mobile irradiation unit.
- Technical Specifications:
  - Weight 30 T
  - Dimensions: 12 x 3 x 4 m
- The container is internally divided in 4 section:
  - Control area
  - Electrics
  - Process Chamber (Particle accelerator)
  - Cooling system



# Trailer Configuration and weight distribution

Trailer type: T2S2 with a maximal length of 20,5 m and a maximal load capacity of 36 T



# Lifting Frame

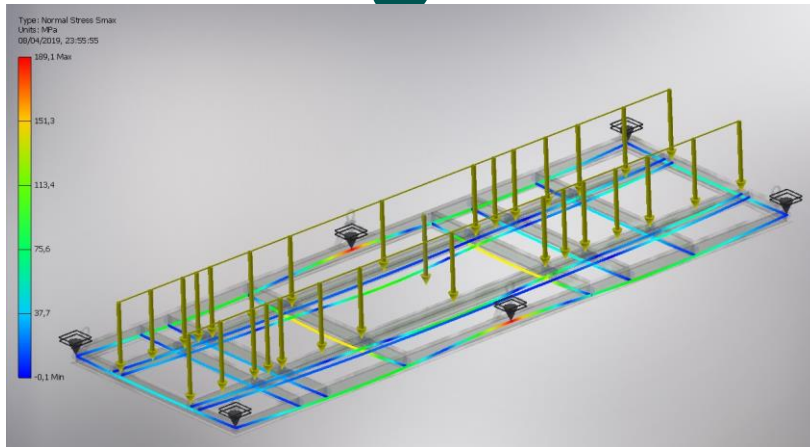
M64 x 6 Shackle-Lok  
Hoist Ring – Metric



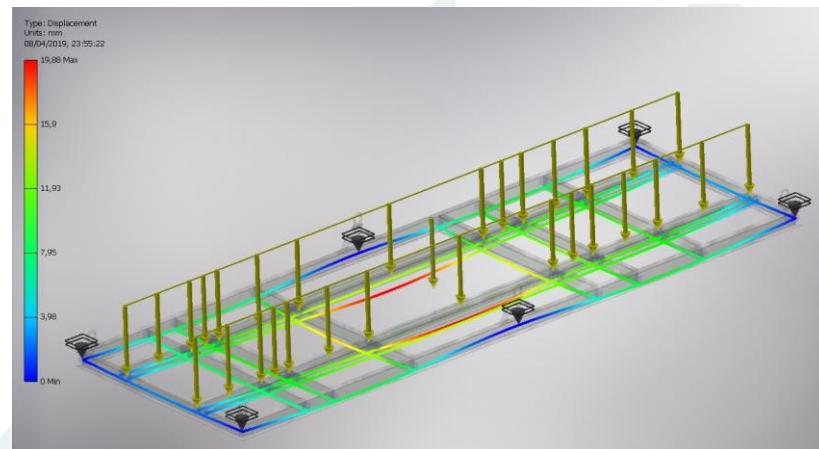
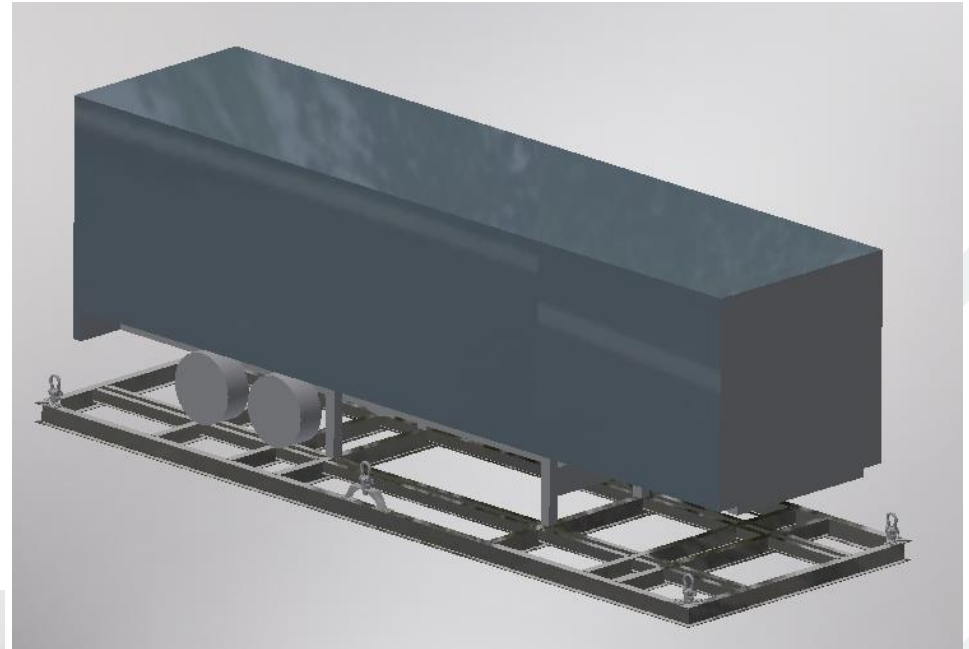
IPE 270 and IPE 180

Each fixation point  
can carry 22,5 T

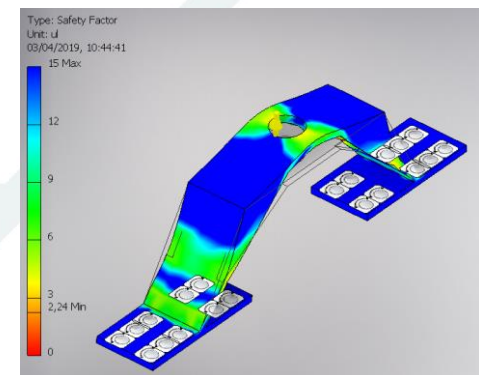
# Lifting Frame



Normal Stress analysis



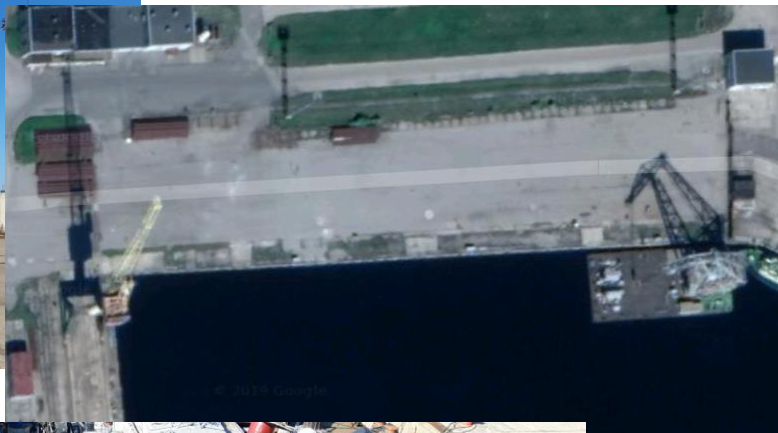
Displacement analysis



Safety factor analysis



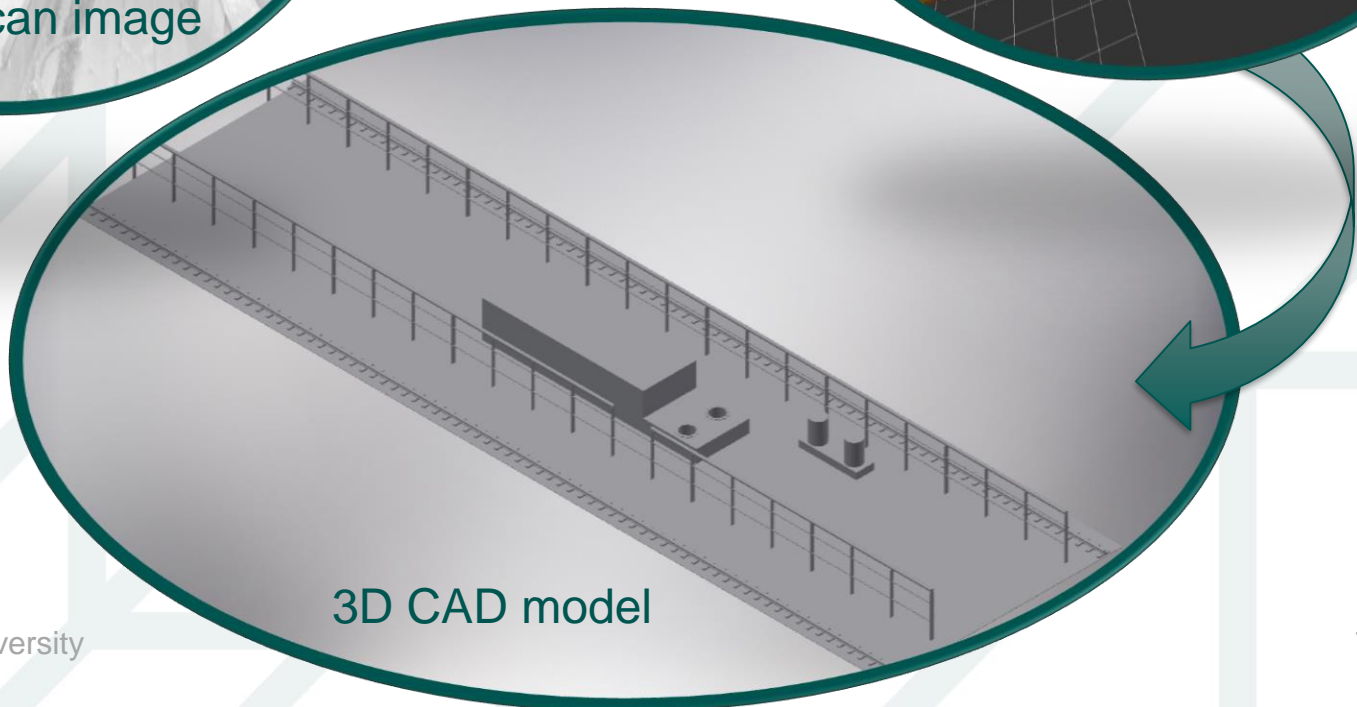
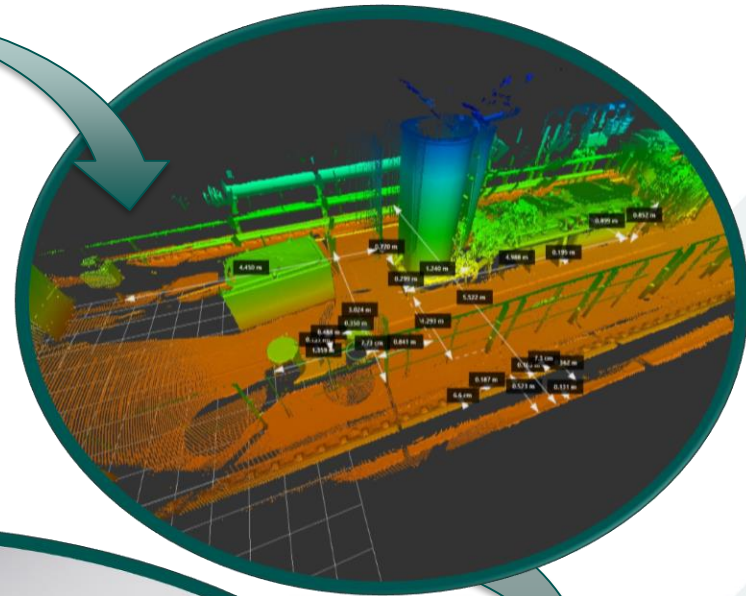
# Lifting Strategy



- The area is easy accessible.
- Flat and no obstacles.
- The crane can lift 100 T.
- The caring area is sufficient

# Roof RKB

Point cloud

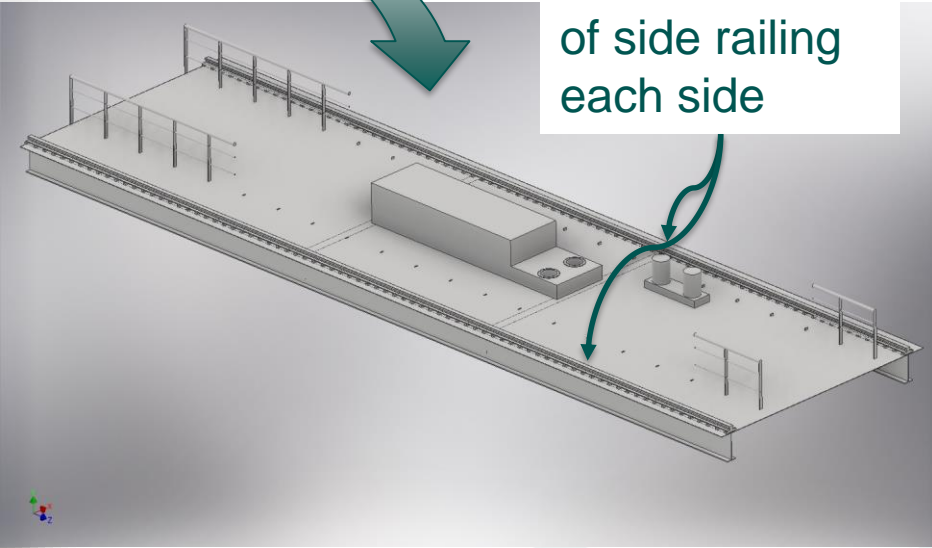
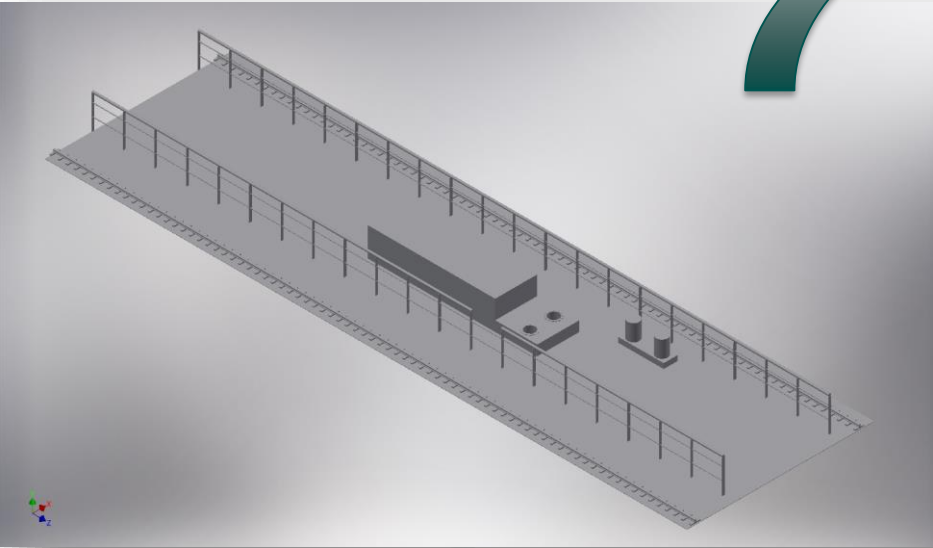




# Roof RKB



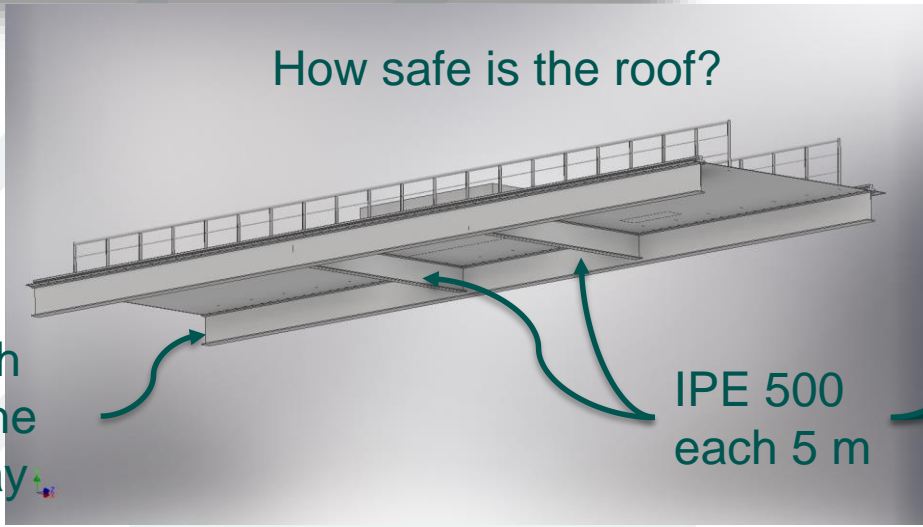
Remove 12 m of side railing each side



How safe is the roof?

IPE 600 each side under the crane rail way

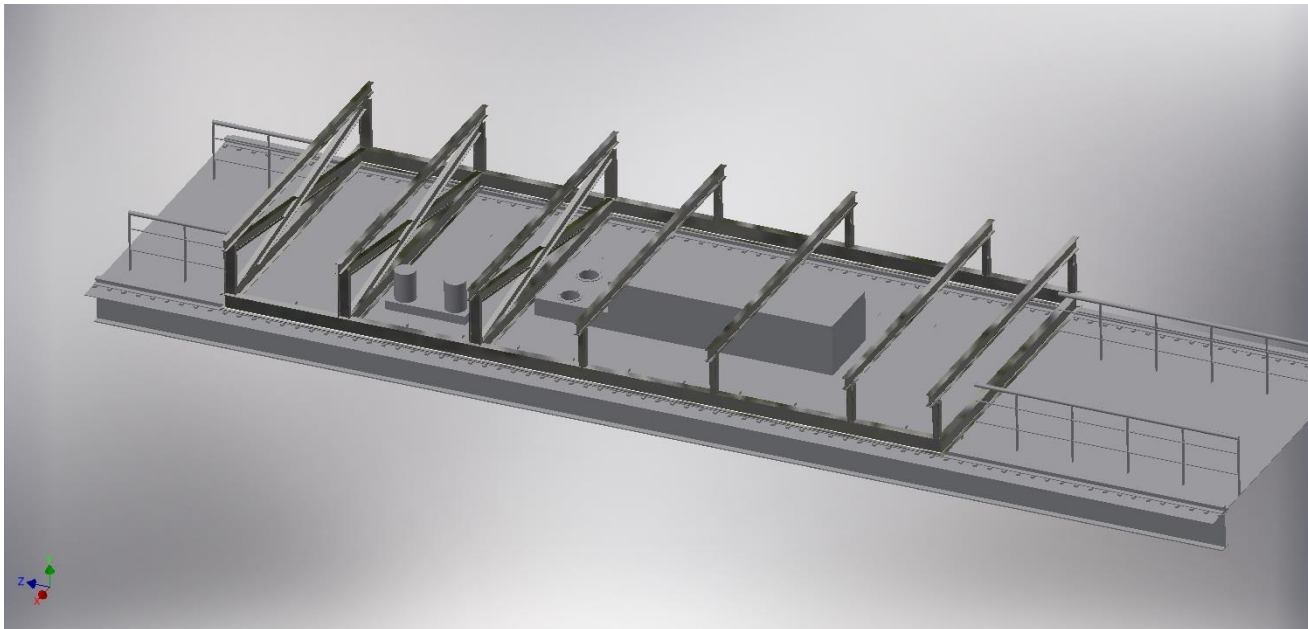
IPE 500 each 5 m





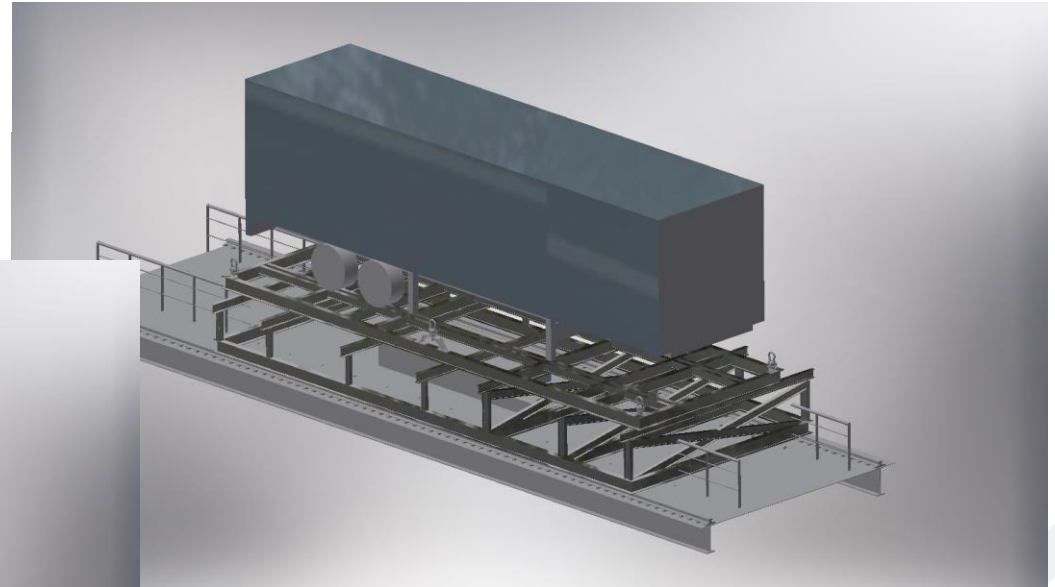
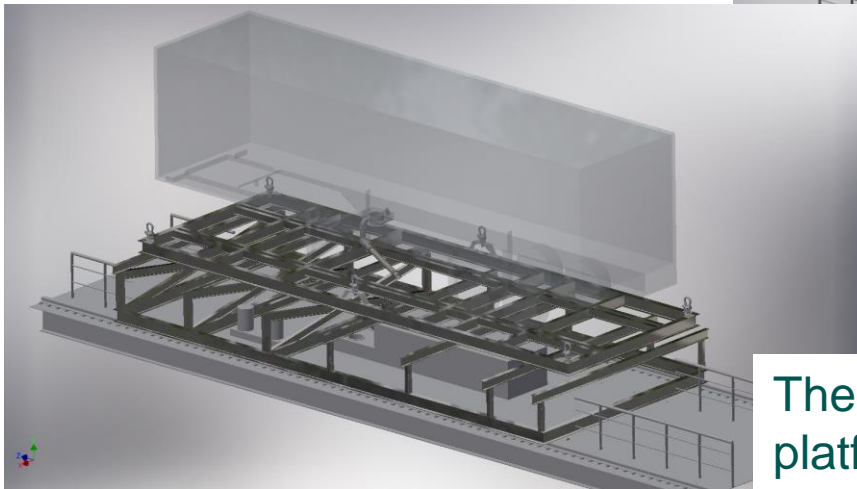
# Platform on the Roof of RKB

- Functions:
  - Lift the frame over the RKB roof to avoid obstacles.
  - Distribute the load on the on the Dry dock's roof.
  - Place the container over the exhaust pipe chimney.



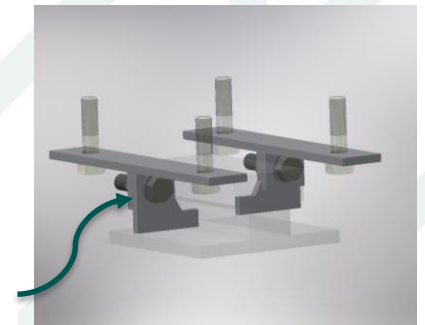
# Platform + Lifting frame + roof

- Platform + Lifting frame= 4T
- 30 T container



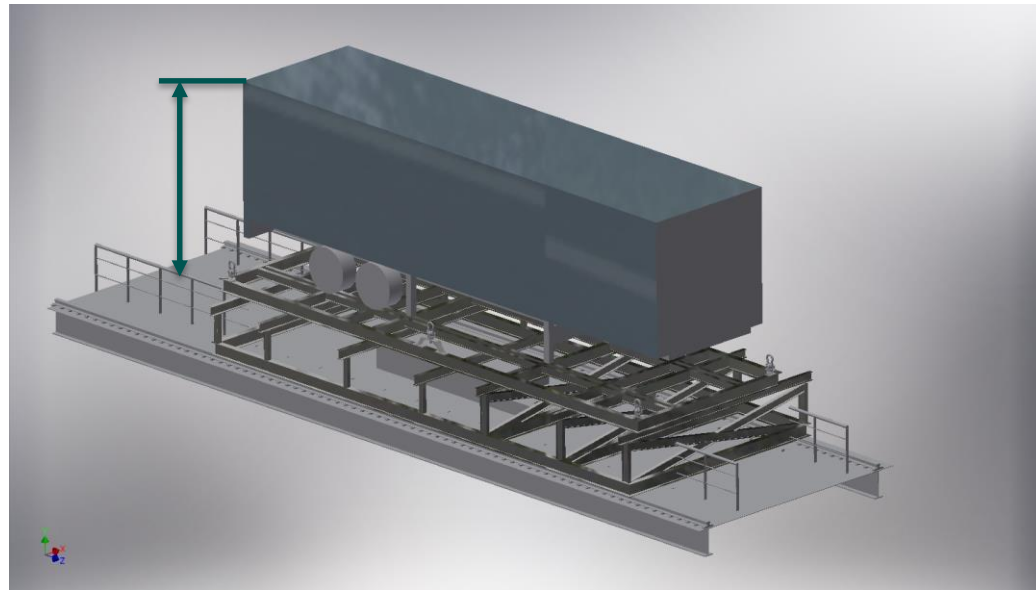
The position of the platform is over the rails

Fixation system for the platformer on the rails.



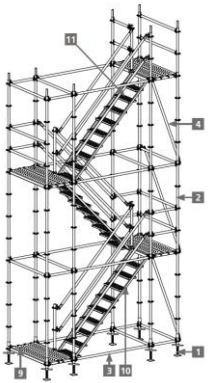
# Access to the Container

- At this point, the top height of the container is 5,85 m.
- This height is unavoidable as we can remove the window next to the chimney.



# Access to the Container

► **Quick and easy** assembly, with a single hammer blow.



Scaffolding  
construction



1.- Hook in the horizontal ledger



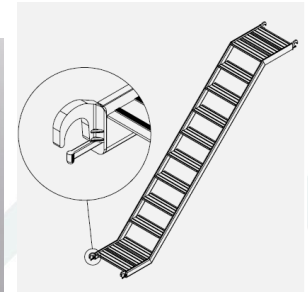
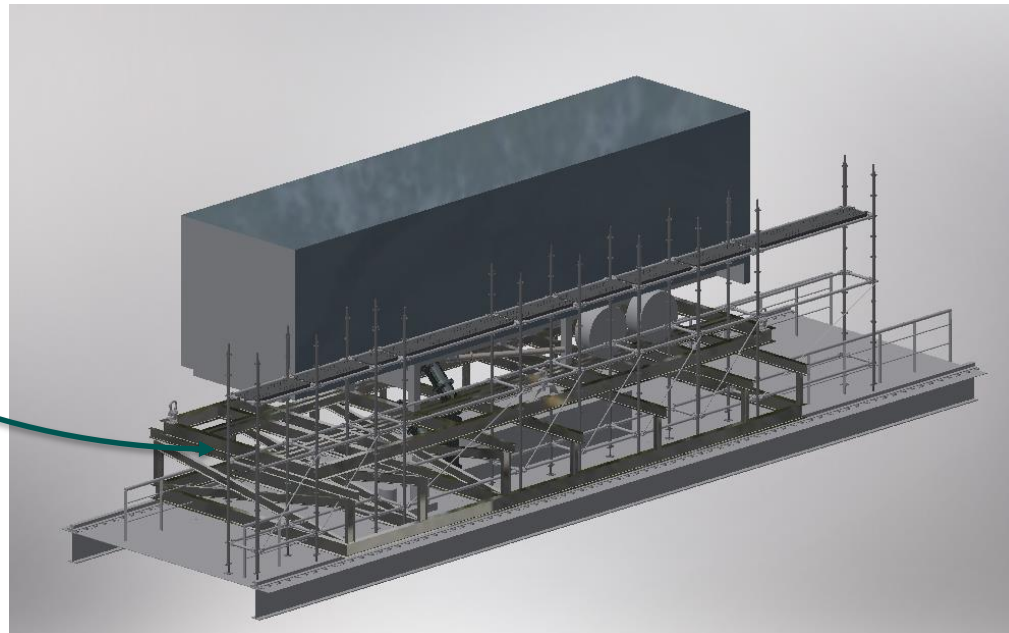
2.- Insert the wedge



3.- Fix the wedge



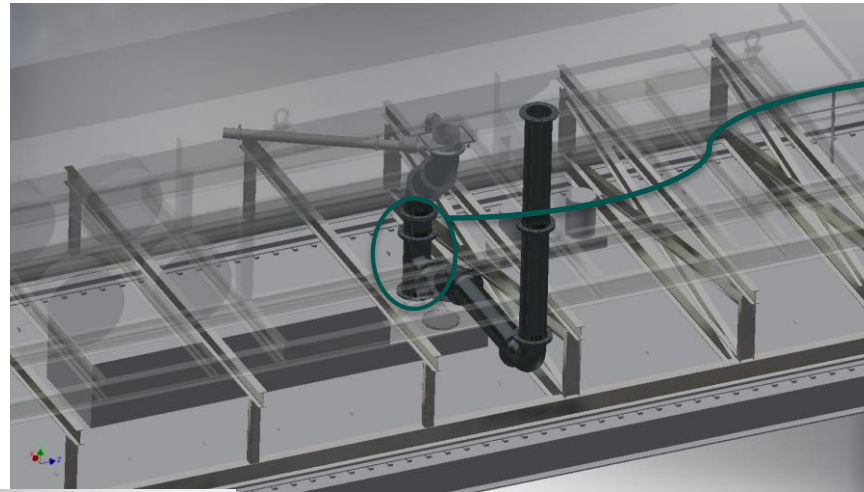
4.- Stand and ledger are joined



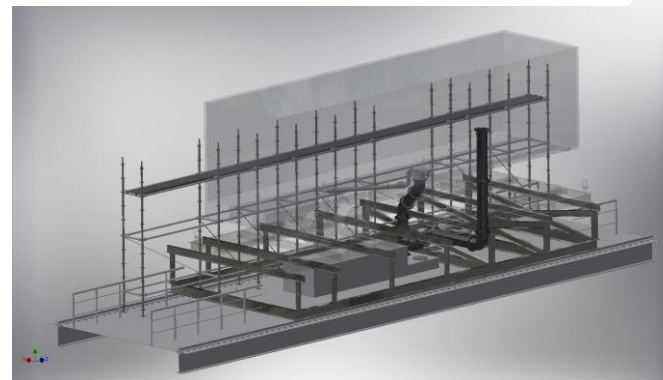
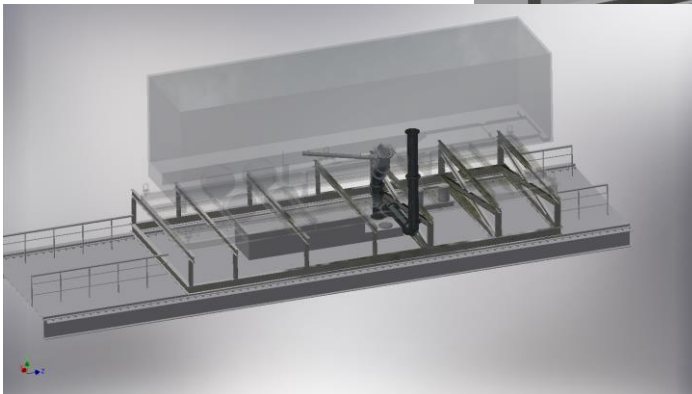


# Pipe connection to the container

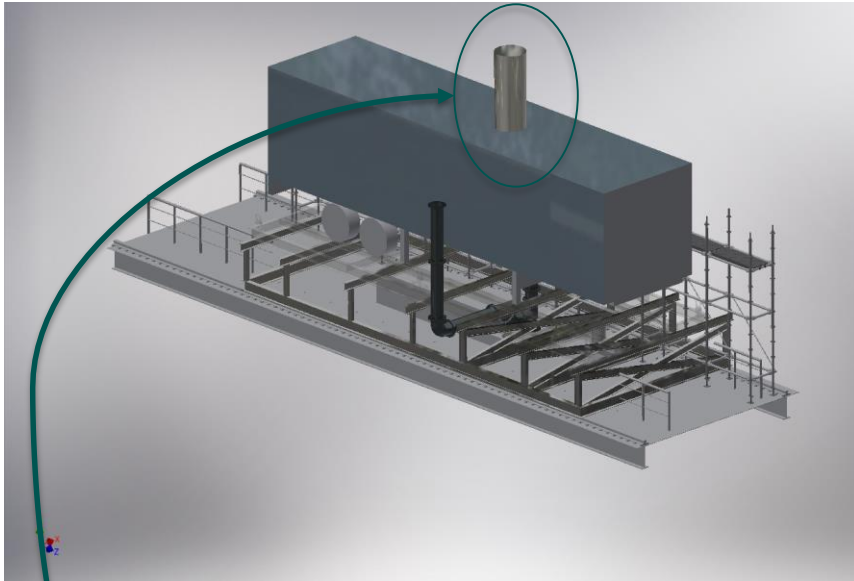
Standard pipes according to ISO 2527 and ISO 2531



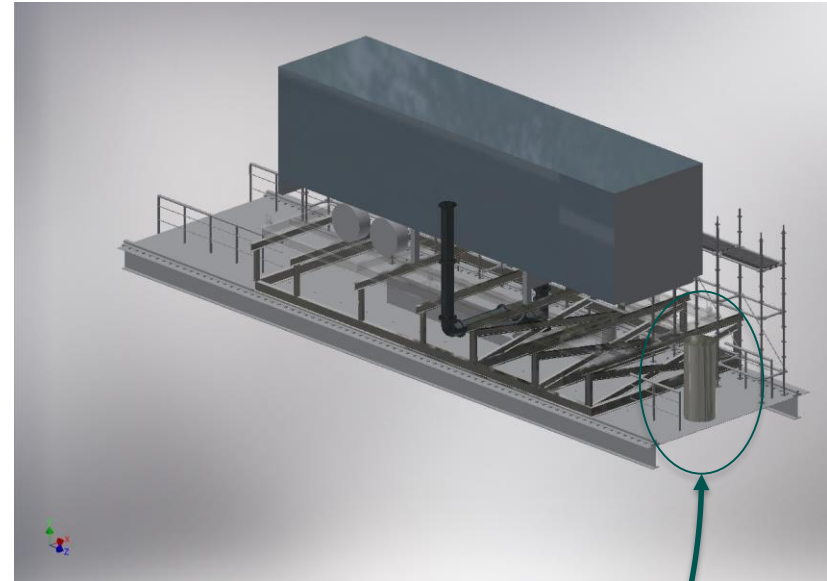
Three Way Diverterter Damper



# Pipe connection to the container: Where to place the scrubber?

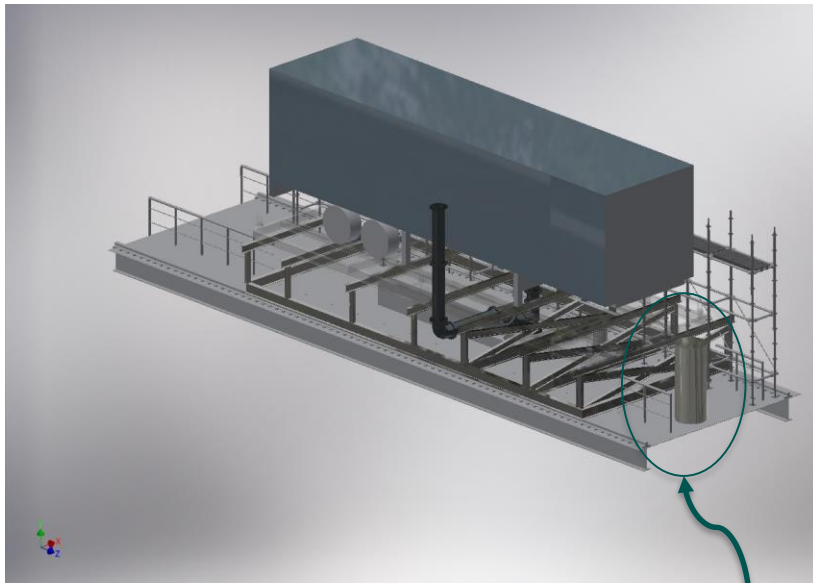


Option A: On the top of the roof of the container (on a caring platform).



Option B: we place the scrubber on a side of the roof.

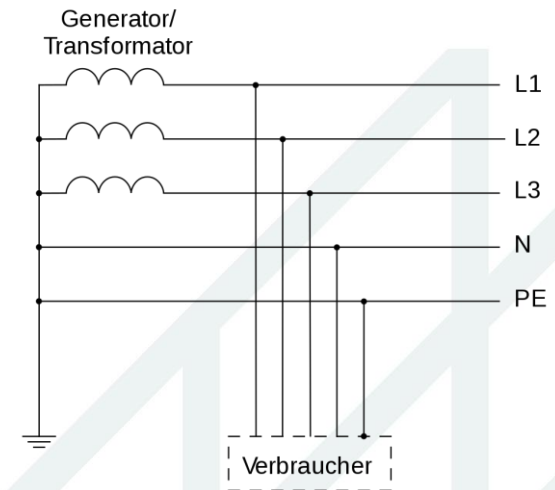
# Pipe connection to the container: Where to place the scrubber?



Option B: we place the scrubber on a side of the roof.

# Energy supply

- RKB can supply:
  - 400 V 3ph
  - 100 A 50 Hz
  - 230 V 1ph
- The connectors:
  - 3x CEE125A plugs;
  - 1x CEE32 plug ( using the N-conductor)
- The 400V Voltage need to be  $\pm 10\%$ 
  - RKB can provide  $\pm 5\%$





**Thank you.**