

Unloading machine case study

parts of the machine covered by patent Nr. EP 1 944 255 A

Consult. Develop. Operate.

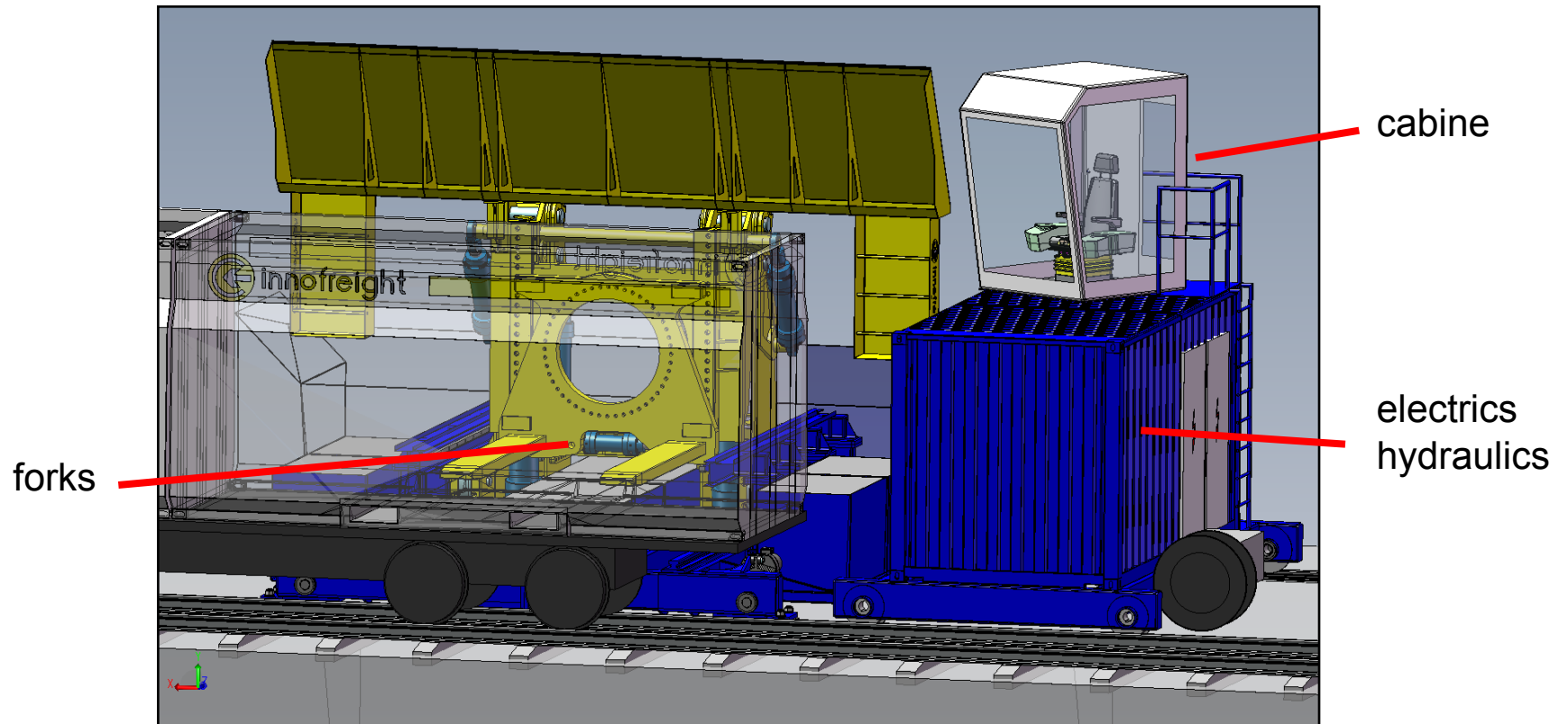


Project task

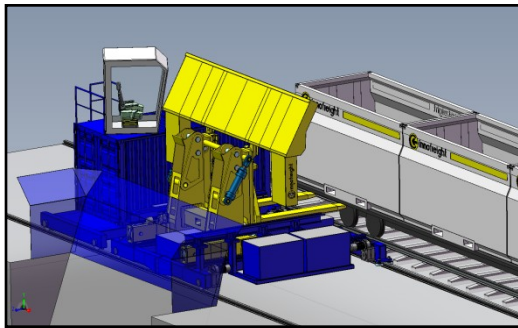
- unloading of containers with wood chips
- minimize operating times
- minimize occupied space
- minimize overall costs per unloaded cubic metre
- functioning without permanent operating personnel



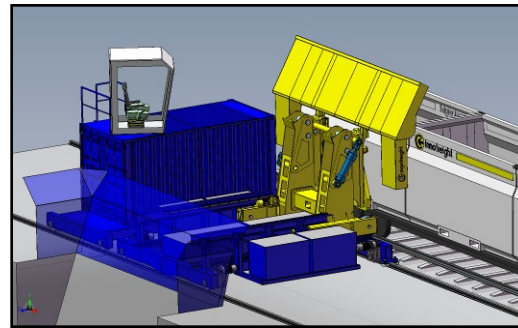
Overview



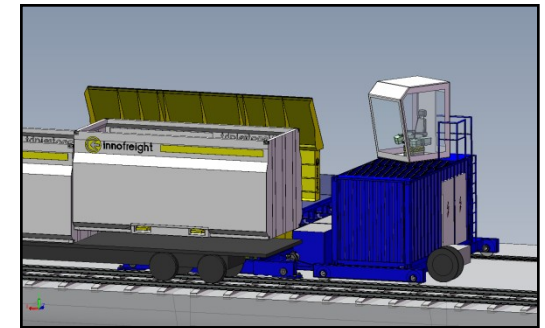
Working cycle (step by step)



1 – Basic position



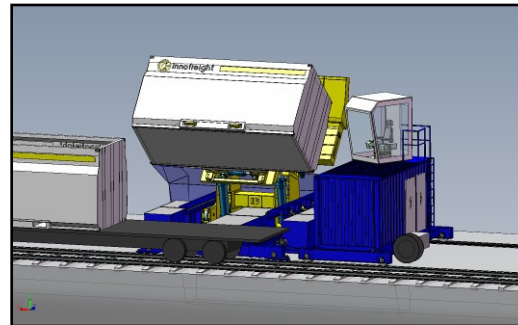
2 – Forks in tunnels



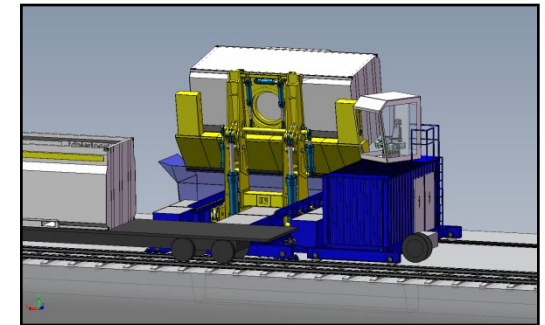
3 – Container lifted



4 – In tipping position



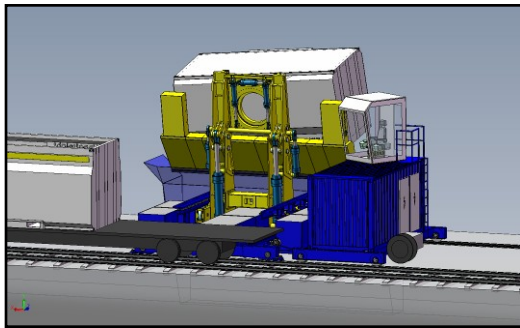
5 – Tipping - stage 1



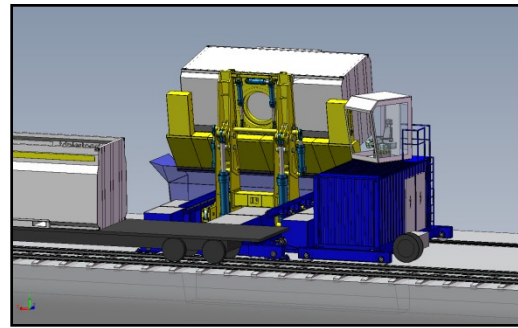
6 – Tipping - stage 2



Working cycle (step by step)



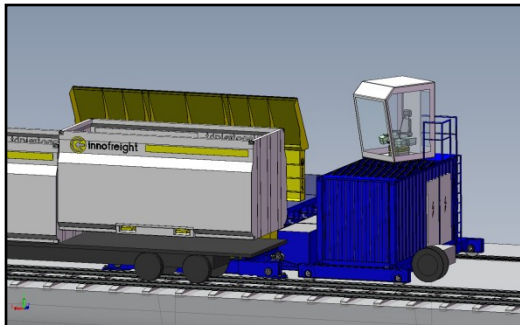
7 – Shaking



8 – Empty container



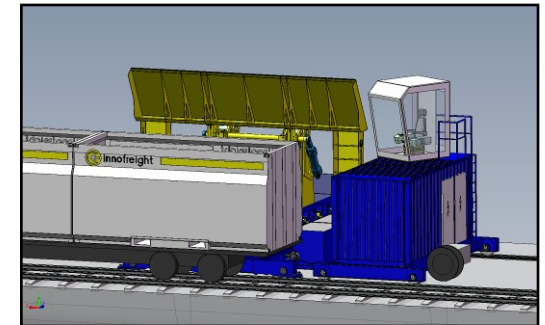
9 – Tipped back



10 – Container above the wagon



11 – Container layed down



12 – Basic position



Main advantages

- high variability
- no special foundation necessary
- quick on-site assembly
- low operating costs
- low maintenance costs
- long life-time
- fully automatic operation possible



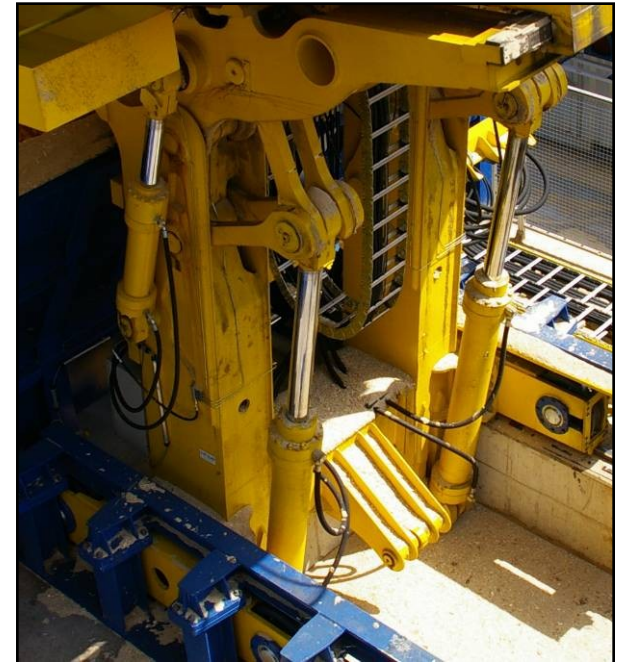
Main features

- controlled by industrial PLC
- proven components (electrics, hydraulics)
- carriage position measurement (laser sensor)
- container position detection (laser sensor)
- all critical components equipped by diagnostics
- remote diagnostics – teleservice
- usage statistics – better maintenance planning



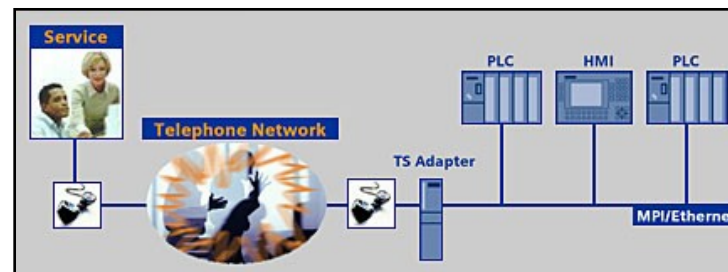
Components selection

- hydraulics – Bosch Rexroth
- drives – SEW Eurodrive
- frequency inverters - Telemecanique
- industrial PLC – Siemens S7-300
- remote I/Os – Wago



Guarantee, maintenance and services

- 24 months guarantee at minimal
- teleservice – quick remote diagnostics 24/7
- long-life components, high availability (industry standard)
- components with minimum maintenance required
- variable service intervals = long-term planning



Advantages in comparison with fork-lift (Kalmar)

- lower TCO
- longer life-time
- minimal operational space required
- automatic operation = no permanently working operator required



Other applications

- energy sector
 - coal
 - waste
 - peat
- recycling industry
 - recycling glass
 - light scrap
 - paper
- steel industry
 - iron ore



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