

SARENS ENGINEERING

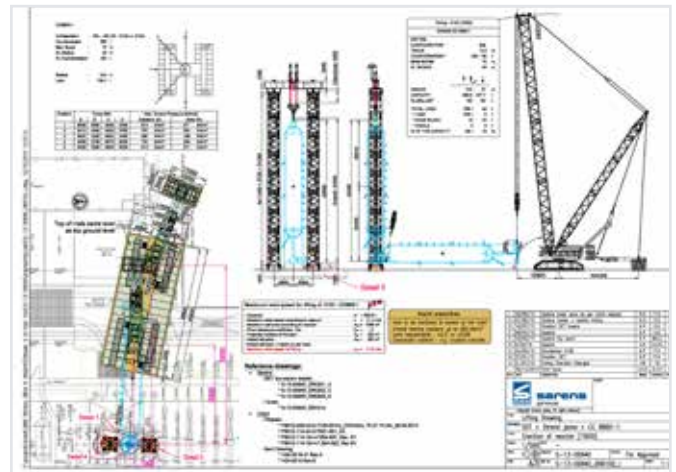
• DISCOVER OUR DEPARTMENT

From a basic 2D lifting drawing to entire 3D animated operation sequences, from a standard transport calculation to full-out F.E.M. calculations of tower gantry systems: the Sarens Engineering teams at various locations worldwide are able to deliver to the Sales and Operations departments - and above all the clients - all it takes to technically support their needs.

• KEY BENEFITS

The experience and dedication of our team of draftsmen and engineers ensures correct and thorough technical evaluation and preparation of projects as well as the ability to conceive, design, and validate new equipment for the Group.

Thanks to these people, Sarens is able to solve problems and transfigure them to opportunities. To achieve this, our engineers make use of tools and software that we have diligently developed over the years for our clients' projects.



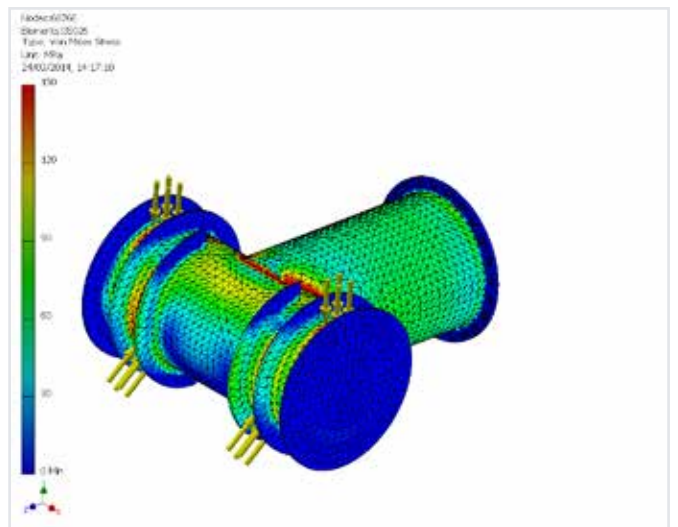
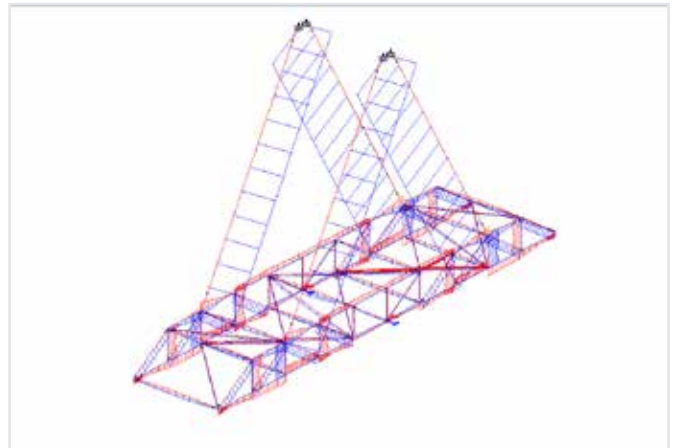
$$\begin{aligned}
 P_{1\text{plate}} &:= 38.5\text{kg} & F_{1\text{plate}} &:= 0.38\text{ kN} \\
 F_{1\text{plate}} &:= P_{1\text{plate}} \cdot g & f_{n_plate'm} &:= 0.25 \frac{1}{m} \cdot \text{kN} \\
 f_{n_plate'm} &:= n b_{pl'm} \cdot F_{1\text{plate}} & M_{sw_d} &:= 1.42\text{ kNm} \\
 M_{sw_d} &:= \frac{(f_{t\text{ube}} + f_{n_plate'm}) \cdot L_{\text{tube}}^2}{8} \cdot \gamma_{dyn} & I_{\text{tube}} &:= 5.85 \times 10^7 \text{ mm}^4 \\
 I_{\text{tube}} &:= \left(\frac{\pi}{64} \right) \cdot (\phi_{\text{tube}}^4 - \phi_{\text{int}}^4) & y_{sw_dflx} &:= \left[\frac{5 \cdot (f_{t\text{ube}} + f_{n_plate'm}) \cdot [L_{\text{tube}} + (2 \cdot L_{\text{head}})]^4}{384 \cdot E_s \cdot I_{\text{tube}}} \right] = 0.33\text{ mm}
 \end{aligned}$$

• REFERENCES

- 2D lifting and transport drawings
- 3D animations
- engineering of special lifting devices
- route studies
- equipment design
- hand calculations
- structural analysis
- software development

• TOOLS

- 2D Autocad
- 3D Inventor
- Staad.Pro
- Scia Engineer
- Mathcad



*WITH STATE OF THE ART EQUIPMENT
AND BESPOKE, COST EFFECTIVE
ENGINEERING, SARENS PROVIDES ITS
CUSTOMERS WITH CREATIVE SAFE
SOLUTIONS TO TODAY'S HEAVY
LIFT AND TRANSPORT CHALLENGES.*