



Simulate
Validate
Deliver



How can we help you?

1. Pressure equipment calculations

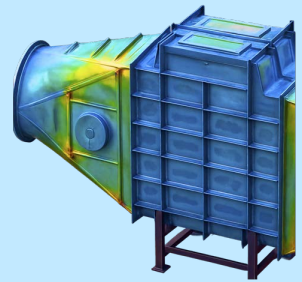
We ensure full compliance with key standards (i.e. PED, ASME, EN 13445, AD 2000, EN 13480).

Our work covers **vessels, heat exchangers, pressure housings and piping**, securing safe operation and smooth approval by notified bodies worldwide.



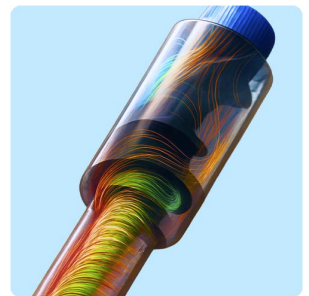
2. FEM structural analysis

We verify and improve structural integrity to reduce failure risk and material use. We work on **steel structures, frames and skids, as well as advanced vehicle and aerospace components**. FEM simulations help secure product safety and longterm reliability.



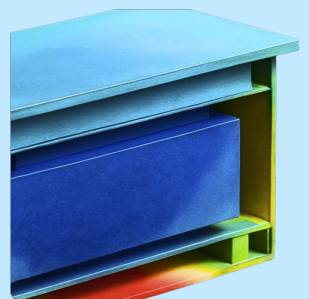
3. CFD flow simulations

We analyze and resolve fluid-flow issues to enhance system performance. Our work includes verification of **pressure losses in piping and valves**, as well as simulation of **multiphase flows**. We also conduct aerodynamic studies for **vehicles**.



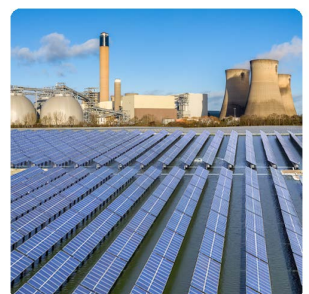
4. Thermal analysis

We predict and verify temperature fields to prevent thermal damage and failures. Using FEM and CFD, we optimize **heat exchangers** and **industrial furnaces** and validate cooling performance to ensure stable operation in all conditions.



5. TRNSYS energy system simulations

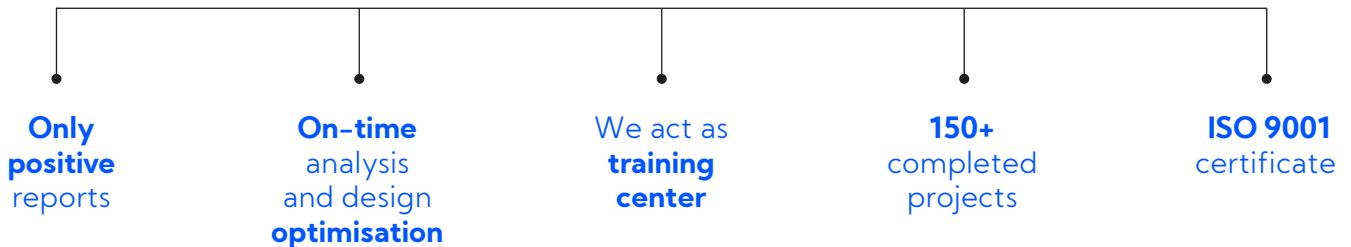
We build dynamic models of **HVAC, renewables and hydrogen systems** to evaluate performance across seasons and control strategies. The result is a datadriven basis for component selection and sizing, energy use, OPEX forecasts, and “whatif” studies that derisk investment before procurement.



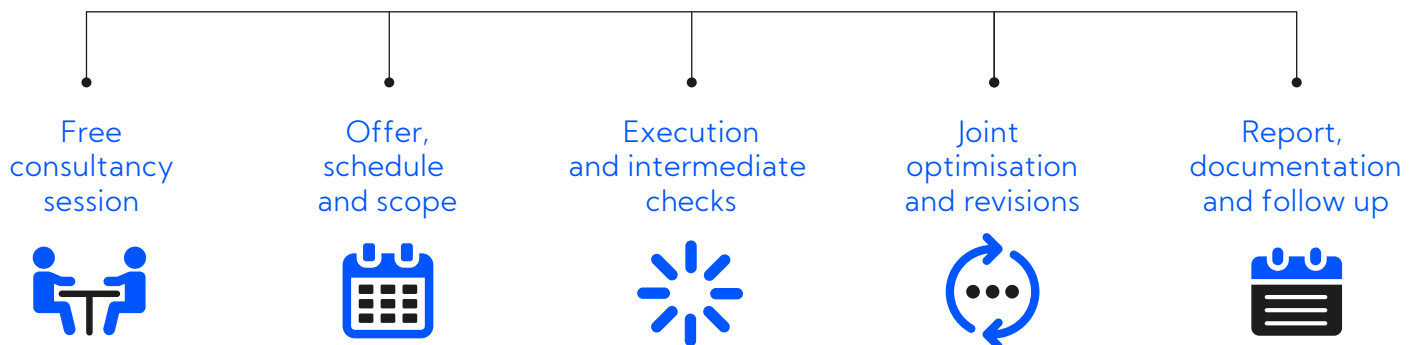
Who are we?

For over 30 years we have been a research and engineering partner for industry, combining hands-on design experience with advanced simulation tools (FEM, CFD, TRNSYS).

We support teams from early scoping through to reporting and certification, providing results that enable safe, efficient and compliant products. We work as an integrated part of your projects – clarifying requirements, running analyses and documenting outcomes – backed by experience gained in numerous R&D assignments.



How do we work?



• • • You have our support all the way through and beyond the project • • •

This is how we have worked

(sample projects)

Case Study – blast furnace project

Cooling a blast furnace is a critical system: thousands of measurement points, extreme thermal loads and limited water resources require an approach that combines process data with the physics of phenomena. In a project of this scale, it was crucial to capture the impact of the geometry and topology of the cooling network on furnace reliability and to be able to test many scenarios without the risk of production downtime.

See how we approached this task and what conclusions our clients obtained.

Check the details by scanning the QR code.



Case study – heat exchanger housing analysis

A flat heat exchanger housing was to operate at high pressure and temperature, and standard formulas did not provide an answer as to whether the design would withstand the loads. An additional challenge involved mass and space constraints for reinforcements, as well as the need to meet EN 134453 requirements with an atypical geometry.

See how we solved this problem and what conclusions the designers drew.

Scan the QR code to read the whole story.



Our analyses are not just calculations. They are strategic support for the technical department, translating into tangible benefits: lower costs, optimised projects and guaranteed safety.

Virtual prototypes. Real savings.

Instead of building costly physical prototypes, test concepts in a digital environment. Our **FEM simulations** allow quick verification and optimisation of designs, which drastically shortens time-to-market and reduces development costs.

Compliance with standards. Approval guaranteed.

Concerned about rejection by inspection bodies? With our analyses compliant with standards (such as **PED, Eurocodes, ASME**) you secure technical approval and minimize the risk of costly failures and production downtime.

Check performance before you invest.

Investing in HVAC or RES systems without certainty about real efficiency? Our **CFD and TRNSYS simulations** make it possible to precisely optimize energy performance already at the design stage, ensuring lower operating costs (OPEX) in the future.

Flexible support for your R&D.

Is the R&D team overloaded with timeconsuming analyses? We act as a team of experts, offloading engineers and giving them space to work on key development tasks, without the fixed costs of permanent hiring.

Knowledge that stays in your company.

Want to make better use of the team's potential and existing licenses? Our dedicated training, delivered by engineerpractitioners, builds real competencies and gradually makes the company independent from external subcontractors.

CIMmes is a company that provides expert support and the necessary calculations in a very short time, which repeatedly accelerates our work and design decisions. We value working with them – it is substantive, fast and predictable at every stage.

Filip Ljubas

Lead Engineer in **Kelvion**

Among the others, we were trusted by

BUCHER
unipektin

esa

SECO/WARWICK

PGNiG

ORLEN

Kelvion



Ready for the next step? Contact us, and we will help define the scope of work and align with your project requirements.



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You wish to discuss your project?

Schedule a free technical consultation with our engineer.

Scan the QR code to book a slot.

