

Experienced German SME offers physical and data based modeling and simulation services for complex thermal energy systems

Summary

Profile type

Technology offer

Company's country

Germany

POD reference

TODE20230619021

Profile status

PUBLISHED

Type of partnership

**Research and development
cooperation agreement****Commercial agreement with
technical assistance**

Targeted countries

• World

Contact Person

Rita ELSTE - TOMSONE

Term of validity

19 Jun 2023**18 Jun 2024**

Last update

19 Jun 2023

General Information

Short summary

A German SME specialized in modeling and simulation for energy technologies, supporting industry and research. They perform complex simulations for various sectors, aiming to improve product efficiency and support research and development. Their expertise includes thermal energy systems, ventilation, and more. The SME offers their complex simulation services in areas such as power plants, aviation, shipping and automotive. Cooperation partners especially in renewable energies are sought.

Full description

The use of energy is highly related to two factors: the environment and human comfort. By addressing both aspects, the SME from northern Germany seeks to support industry and research in improving energy technologies.

The German SME contributes to that by performing complex computational simulations with state-of-the-art software for buildings, plants, engine and vehicles. Especially in the field of thermal energy systems, ventilation or a combination of several elements. The overall goal is general product improvement, increasing economic efficiency or research- and development.

Highly qualified teams of engineers, mathematicians and physicists perform complex system simulations using numerical methods in order to solve technical energy problems. Beyond that, the client regular takes part in joint research projects with universities and institutions. With this scientific foundation knowledge transfer from theory into

practical application significant experience linked and offered to their customers.

With its long-term experience the SME offers modelling and simulation for thermo-hydraulic systems, computational-fluid-dynamics (CFD) simulation, (sector coupled) energy supply systems, heating, ventilation and cooling (HVAC) systems, power plant processes, multi-domain systems (i.e. electrical, thermodynamic and mechanical systems and their control) and building simulation (see detailed list below). Among its customers are many major companies from the automotive sector. The SME is now seeking customers active especially in the field of renewable energies.

Simulation calculations in:

- Buildings
- power plants
- aviation
- the shipping industry
- process and plant engineering
- the automotive sector

Modeling and simulation areas:

- thermohydraulic systems
 - coupled energy plants
 - Heat and cold generation in buildings and in mobile applications, compressed air generation and supply
 - Power plant processes
 - multi-domain systems (linking of electrical, thermodynamic and mechanical systems and their control)
 - Building and ventilation systems
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Advantages and innovations

- Analysis of system dynamics, behaviour and dynamic operation scenarios for existing and planned systems
- Economic savings
 - by identification of problems before they occur
 - by optimising and calculating all effects before anything is put into practice
- Digital Twin creation for overall energy systems
- Model based support sensitivity evaluation for measurement campaigns, virtual test rigs
- Hybrid modelling of data driven AI and physics based models
- Design and dimensioning of buildings and plants
- System optimization with state-of-the-art numeric methods
- Sector coupled energy supply systems
- Design and evaluation of control strategies
- Efficient knowledge transfer from research to industrial applications
- Support for partners with their research and development activities over the whole product cycle

Technical specification or expertise sought

Stage of development

Already on the market

IPR Status

IPR granted

Sustainable Development goals

- **Goal 9: Industry, Innovation and Infrastructure**
- **Goal 11: Sustainable Cities and Communities**
- **Goal 7: Affordable and Clean Energy**

Partner Sought

Expected role of the partner

The partner's role can extend over a wide area. From the commissioning of a specific task (classical business cooperation) to a joint development in research and development phase to the support of products for the full life cycle.

Type of partnership

Type and size of the partner

Research and development cooperation agreement
Commercial agreement with technical assistance

- SME 50 - 249
- University
- Big company
- R&D Institution

Dissemination

Technology keywords

- 02001 - Design and Modelling / Prototypes
- 01003016 - Simulation
- 01005006 - Visualisation, Virtual Reality
- 01003012 - Imaging, Image Processing, Pattern Recognition

Targeted countries

- World

Market keywords

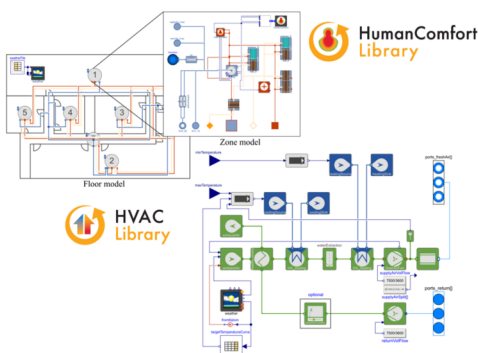
- 02001002 - Scientific computers
- 02007011 - Manufacturing/industrial software
- 02007001 - Systems software
- 02002003 - Graphics software

Sector groups involved

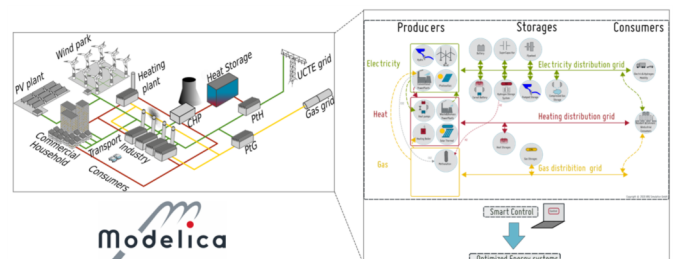
- Renewable Energy
- Mobility - Transport - Automotive
- Digital

Media

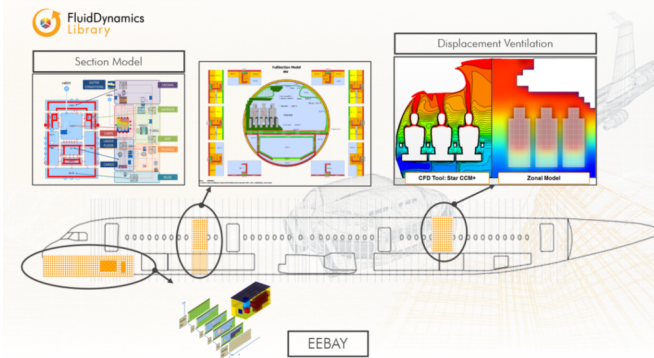
Images



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