

Specialist Thermal Management Engineering Design and Development



European Thermodynamics Limited
Intelligent Thermal Management

Our mission is to provide a full thermal management service, from initial problem definition through to the supply of high integrity thermal components and systems. This includes mechanical design, thermal analysis, prototyping and production.

TECHNICAL EXPERTISE

Our engineering team design, analyse and test all components using the latest software and machinery to ensure that client performance requirements are consistently achieved.

With a skilled design team and forward thinking R&D department our aim is to provide design and development recommendations that meet and exceed our customers requirements.

RoHS approved products



SOFTWARE

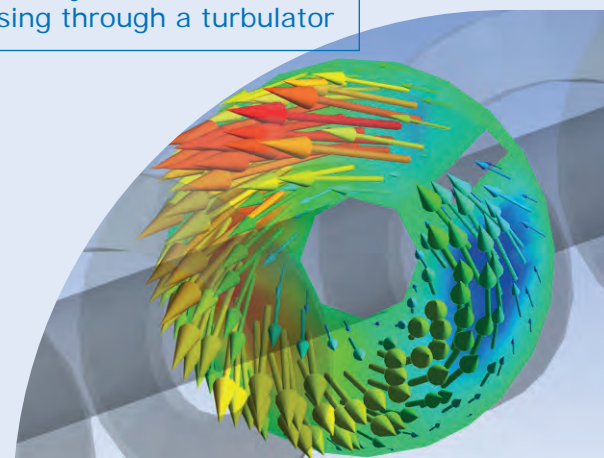
Computer Aided Design (CAD) and Simulation

We use SOLIDWORKS® to produce our designs but CAD drawings and performance data can be sent in any format necessary. We can also take your model and simplify it for simulation purposes to resolve any geometric issues, saving time and money for simulations.

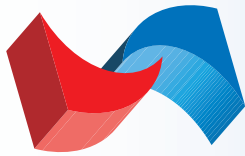
Thermal Analysis

Analysis and Computational Fluid Dynamics (CFD) simulations are carried out on our dedicated HPC cluster computer server. Parallel processing enables us to carry out and solve very large and complex thermo-fluids problems and get results in relatively short periods. The computing power is backed up by dedicated thermal management test facilities that we use to verify our simulations.

CFD analysis of water passing through a turbulator



www.eurothermodynamics.com



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SOFTWARE AND SYSTEM DESIGN

- Mechanical CAD - SOLIDWORKS®
- Thermal Analysis - CFD using ANSYS CFX, Fluent and Icepak®
- Stress analysis and multi-physics modelling - FEA using ANSYS Mechanical Enterprise and COMSOL
- Embedded electronics - schematics and pcb layout design in Altium environment
- Embedded firmware design and programming in C, C++ and Python
- Core platforms MSP430™ and ARM®
- Windows-based GUI programming

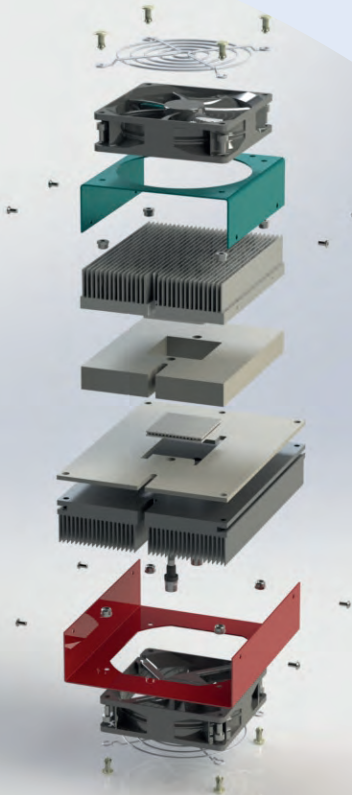
Stress Analysis

Finite Element Analysis (FEA) in the early stages of a project ensures that costly mistakes are avoided at the prototyping or build stages.

Embedded Electronics Systems

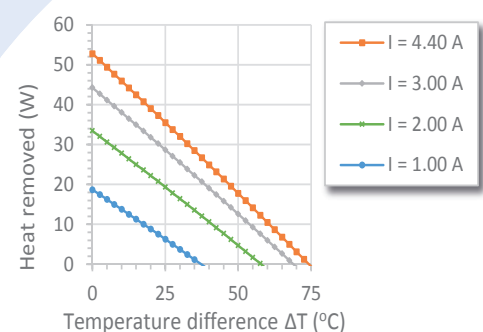
We design and develop embedded electronics systems from design to supply for a variety of applications such as temperature or speed controls for a fan or for optimisation of thermoelectric energy harvesting.

Our skilled in-house electronics team can take an idea or a concept from design through to production with strict testing, ensuring that all performance requirements are met throughout the process.



An exploded thermoelectric cooling assembly modelled with Solidworks

Performance characteristics of a thermoelectric module





Our specialist prototyping and testing facilities allow us to fully evaluate designs both for performance and for suitability for full scale manufacturing.

HARDWARE AND MACHINERY

- Environmental test chamber - Heraeus Vötsch HC-4057
- Thermal imaging, airflow and temperature monitoring
- Embedded electronics onsite SMT board assembly line
- CNC lathe - DMG MORI CLX 350
- CNC milling machine - DOOSAN DNM 650
- Keyence dimension measuring system – IM7000

Prototyping

Our workshop contains 2 CNC machines. One is a 2.5 axis milling machine and the other is a CNC lathe (delivered in May 2018) part funded by Leicestershire Business Growth fund.



European Union

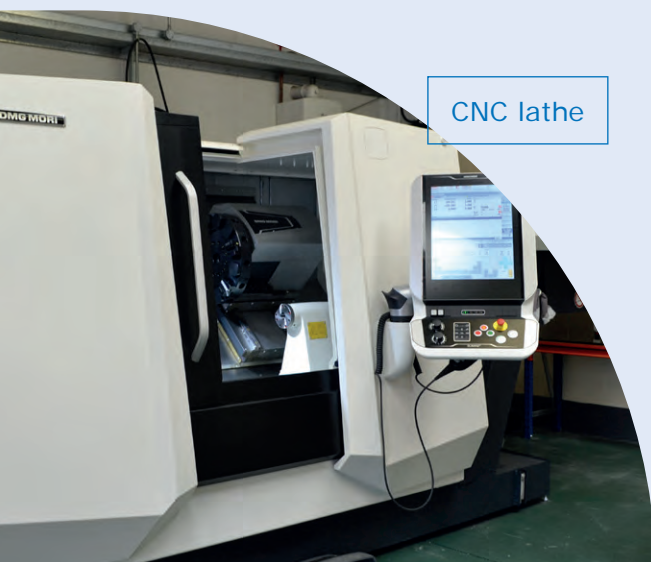
European Regional
Development Fund

Testing

The Heraeus Vötsch HC-4057 environmental test chamber is capable of simulating temperature conditions between -40 to +180C with relative humidity of up to 98%.

Thermal imaging
camera

CNC lathe



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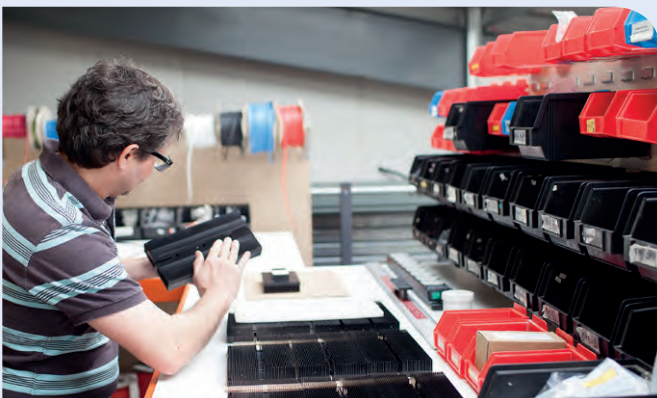
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QUALITY AND THE ENVIRONMENT

European Thermodynamics are committed to protecting and minimising adverse impact on the environment and providing compliant products to all relevant EU and worldwide regulations and safety standards.

- ISO 9001:2015 certified
- RoHS approved products



A visual quality control check on heatsinks

Heraeus Vötsch HC-4057 environmental test chamber

RESEARCH AND DEVELOPMENT

We have links with most major universities in the UK and invest in research and development so that customers can take advantage of the very latest advances in thermoelectrics, improvements in thermal energy harvesting and the latest manufacturing techniques.

We work with customers, universities and various partners. Many of our R&D projects are part-funded by EU Horizon 2020 and Innovate UK.

Laboratory research and development facilities

