

Flint engineering

Carbon Reducing solutions



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Director

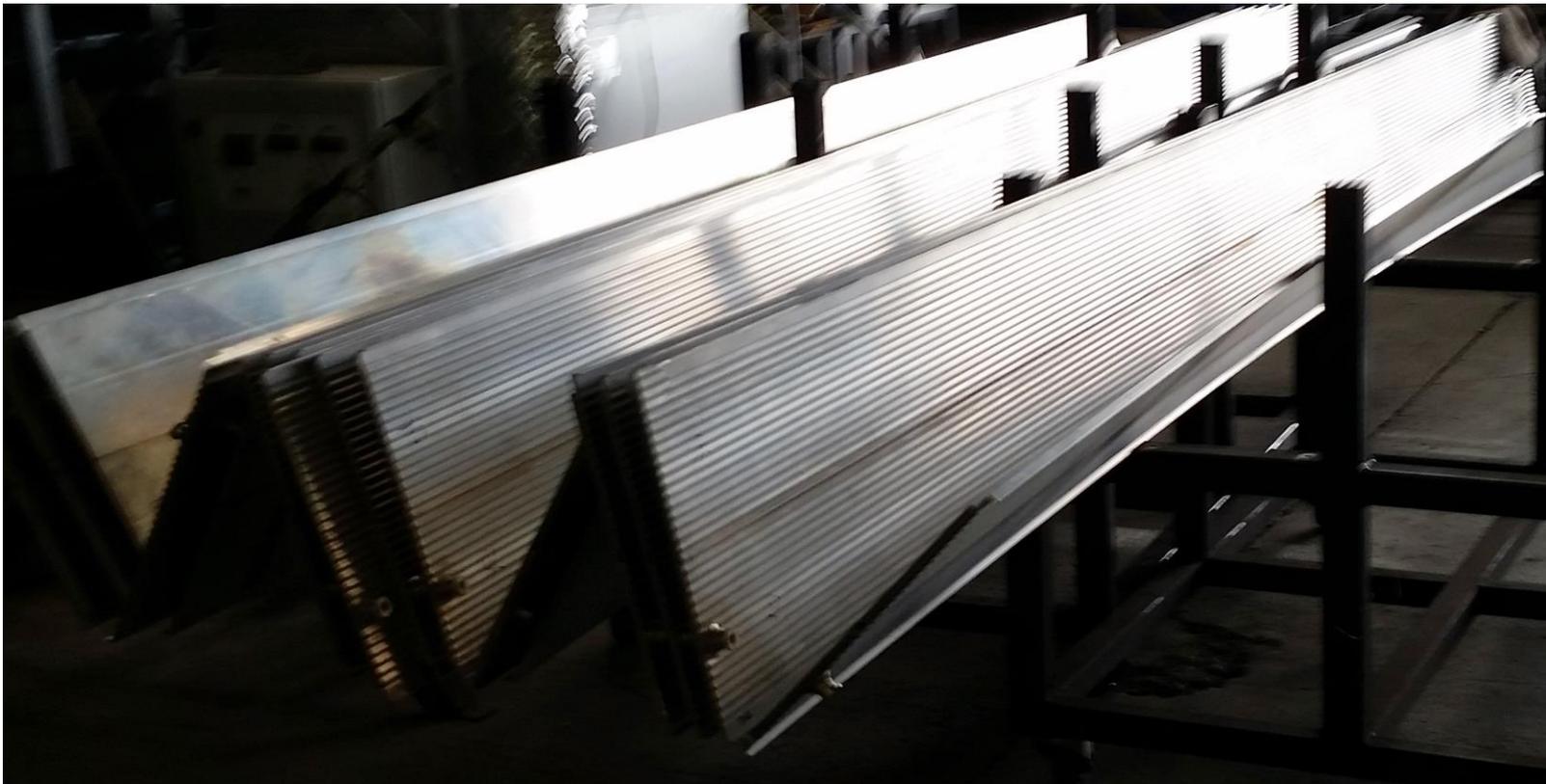
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The Isomat

Flint Engineering holds multiple patents filed around the technology required to make the Isomat™ and its applications. The Isomat is an aluminium extruded heat pipe technology, delivering an Isothermal surface in any sizes up to 6m long and 2m wide. The Isomat is novel in several ways, including low cost of manufacture, very high thermal transfer properties and common temperature delivery



Isomat uses

The Isomat technology has potential to bring energy reduction solutions to many markets. Some of these are:

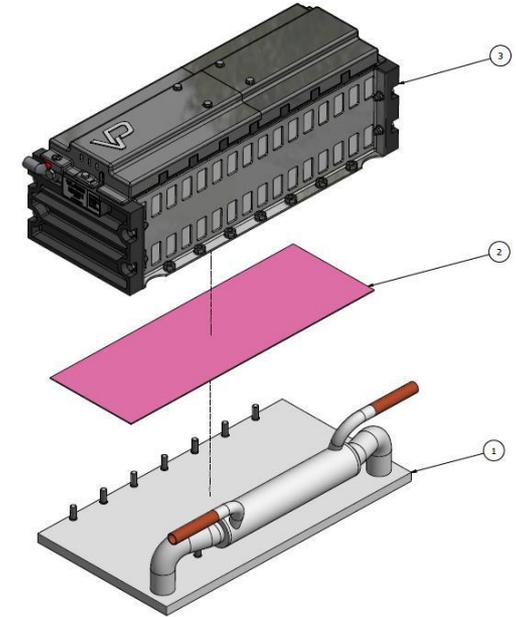
- Transport
 - Temperature stabilisation of battery packs and components
 - Cabin heating and cooling
- Refrigeration
 - Reducing the running costs of display refrigeration cabinets
 - Improved food shelf life
- Built environment
 - As the outer skin of building turning the weather protection in to a energy source
 - Improved internal thermal management with high efficiency radiators



Automotive battery

Flint are currently working on its third Innovate UK Faraday challenge project with the objective of getting a heat mat solution to TRL8 working with Allison transmissions

- 1) Overheating and risk of fire when charging
 - 2) Overheating under load
 - 3) Hots spots on separate cells
 - 4) Longevity effected by temperature cycling
 - 5) Limitation of energy density
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- Test results delivering
 - Faster charging rates
 - Higher power rates
 - Closer more stable temperature control
 - Isothermal battery packs



Prototype Isothermal base cooling solution



Refrigeration shelves delivering cooling, currently on test with Haier & CSSC in China and Jordon refrigeration in the UK

- Supermarkets in the UK responsible for 1% of energy use and refrigeration is half of this
- The Flint shelves can cut the refrigeration load by 25% or 0.125% of the UKs total energy load
- Delivering a Return on Investment of less than 2 years
- Improve food shelf life reducing food waste.
- Cut store heating costs



Isomat in the built environment

The Isomat when used as the outer skin of a building is able to convert the building to zero carbon. This is achieved by

1. using the strength of Isomat as a watertight skin
2. supporting and improving PV performance
3. harvesting and decapitating heat
 1. Supporting building and DHW requirements
 2. Providing passive cooling
 3. Snow clearance

Within the building. The Isomat is 150% more efficient at thermal transfer per M² than standard building radiators, particularly at lower temperatures making them ideal for retrofitting alongside heat pumps when replacing traditional boilers.



Flint is currently part of a research project funded by the European Horizon 2020 fund. As part of this £10m project 7 locations across Europe are being fitted with Isomats to provide test results demonstrating reductions in CO₂ production on both retrofit and new builds.

Commercial propitiation

- Flint engineering is a Research and Development company developing CO2 reduction products based on its patented Isomat technology.
- The company is looking to take its developed products to market by licencing, forming Joint ventures or sell its IP.
- This can be achieved at the highest level involving Flint Engineering Limited keeping all of the IP in a single basket or by the individual developed products being considered as separated entities. In the later case Flint engineering would hold the core IP whilst market specific companies would be developed, working on either a global or regional basis
 - Building products with responsibility for the exterior building panel and internal heating and cooling plates
 - Refrigeration covering the shelf product with its improved food storage and reduced running loads
 - Battery temperature management, covering commercial EVs, private transport, marine and stationary battery packs



What and why

- Flint is a small, fast flexible company with some great technology however to maximise on this technology we require the skills of a larger more experienced partner. One with:
- Manufacturing expertise
- Supply chain both up and down stream
- Funding

With such a partner we believe that we can turn this Game changing technology into a world leading business.

