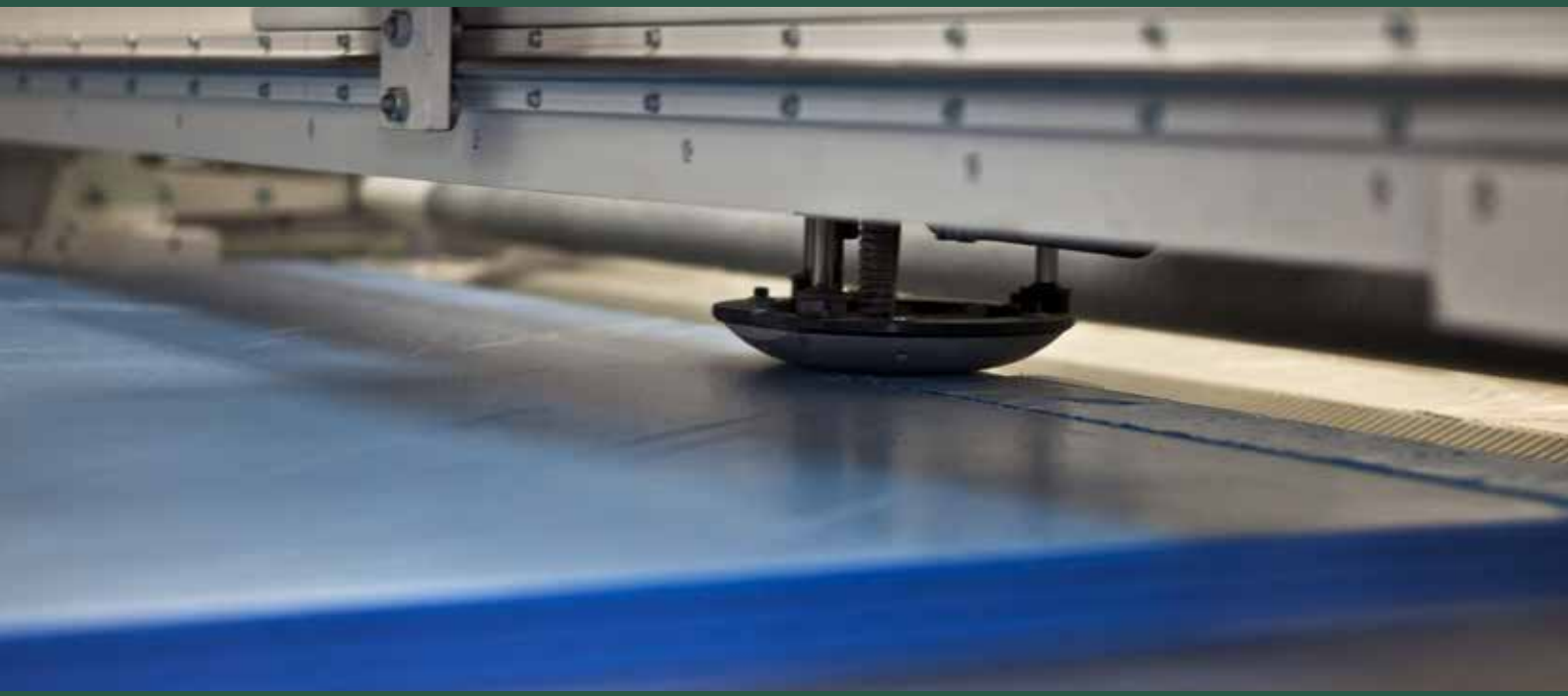
Spacetherm

CUSTOM INSULATION SOLUTIONS



Proctor Group

NASA was at the forefront of investigating different aerogel types for a variety of uses. Now A. Proctor Group are assisting on ESA collaborative projects insulating CubeSat's.

THE KNOWLEDGE TO PRODUCE THE SOLUTIONS THE MARKET NEEDS

The A. Proctor Group Ltd has been proudly pioneering thermal solutions for over half a century.

Our expert research and development team works closely with partners and distributors throughout the world to provide thermal solutions for our clients.

We take a distinctively client-led approach to product development, delivering sound commercial results for businesses across a wide range of sectors.

We pride ourselves on being the UK's most knowledgeable provider of aerogel-based thermal innovations. We have provided support, knowledge and solutions in markets as diverse as automotive, rail, marine and appliances. We manufacture and supply engineered aerogel products for challenging applications.

AEROGEL: EXPLAINED

Aerogel is the world's lightest solid material; in its raw form its composition is over 90% air. A highly effective insulator, it has the lowest thermal conductivity of any solid known to man, and has broken over 15 world records.

Aerogel was first created by scientist Samuel Stephens Kistler in 1931, the result of a bet with a colleague over who could replace the liquid in "jellies" with gas without causing shrinkage.

It has been used in thousands of applications since its invention, for example NASA discovered that in its raw form, aerogel was capable of collecting stardust from space. This material's history is captivating, but perhaps even more fascinating is how it has been employed to meet the requirements in everyday applications, producing much-needed solutions to people across the globe.

The name 'aerogel can be misleading however, as it is in fact, a dry, rigid solid. The name stems from the fact that aerogel is derived from a wet gel, the liquid component having been replaced by a gas in most cases. The result of this process is a solid with extremely low density, and crucially, very low thermal conductivity.

The conductive insulation properties of aerogel are unrivalled.

SPACETHERM: PROPERTIES

The A. Proctor Group's Spacetherm® Aerogel combines a silica aerogel with fibres to produce a flexible blanket solution. This material is affordable for a wide range of challenging applications where thermal performance is crucial. The A. Proctor Group has, for over 10 years, been developing and supplying an array of products that are precisely suited for a variety of applications. As part of this, we are proud to be pioneers in the use of aerogel for insulation in UK construction. With thermal conductivity from 0.015 W/mK, Spacetherm Aerogels performance credentials qualify it as one of the lowest thermal conductivity available worldwide. They are engineered by the A. Proctor Group to offer unmatched thermal performance in space-critical applications.

Spacetherm can provide a number of different solutions - dependent on the application - due to its hydrophobic nature, flexibility and ease of use. Aerogel's low thermal conductivity, compression strength and breathability have made it the insulation material of choice for many clients.

Spacetherm Aerogel Properties

	STANDARD SPACETHERM	HIGH TEMPERATURE VERSION
Thermal Conductivity (EN12667)	0.015 W/mK	0.021 W/mK
Reaction to Fire (EN13501-1:2007)	Class C - s1, d0	Class A2 -s1, d0
Compressive Stress / Strain	8psi (5kPa) @ 10% Deflection	11.4 psi (78.3kPa) @ 10% deflection
Specific Heat Capacity	1kJ/kgK	-
Vapour Resistivity (EN12572)	37 MNs/gm	37 MNs/gm
Density	150 kg/m^3	200 kg/m^3
Thickness	5/10mm (or multiples)	5/10mm (or multiples)
Surface Burning Characteristics (ASTM E84)	Flame spread index = <5 Smoke development index = 20	Flame spread index = 0 Smoke development index = 0
Maximum operating temperature	200°C	650°C

CE

AVIATION

INDUSTRIAL

SPACE

Spacetherm Aerogel provi
for developing insu
vast range

MARINE

WINDOWS & DOORS

SPACE

OIL & GAS

THERM

des unlimited opportunites
lation solutions in a
of sectors.

RAIL

AUTOMOTIVE

Case Study

RAIL INNOVATIONS

We are proud to be providing multiple thermal innovations to Network Rail such as their latest de-icing carriage pictured above.

The A.Proctor Group were asked to develop a thermal solution that would ensure the temperature of steam travelling from a generating unit would remain as constant as possible before making contact with frozen tracks. Bespoke Spacetherm® Aerogel sections were cut at our fabrication facility and supplied for wrapping round the ducts that carry the steam. Our simple and cost effective solution, boosted the performance of the unit with a minimal increase in thickness.

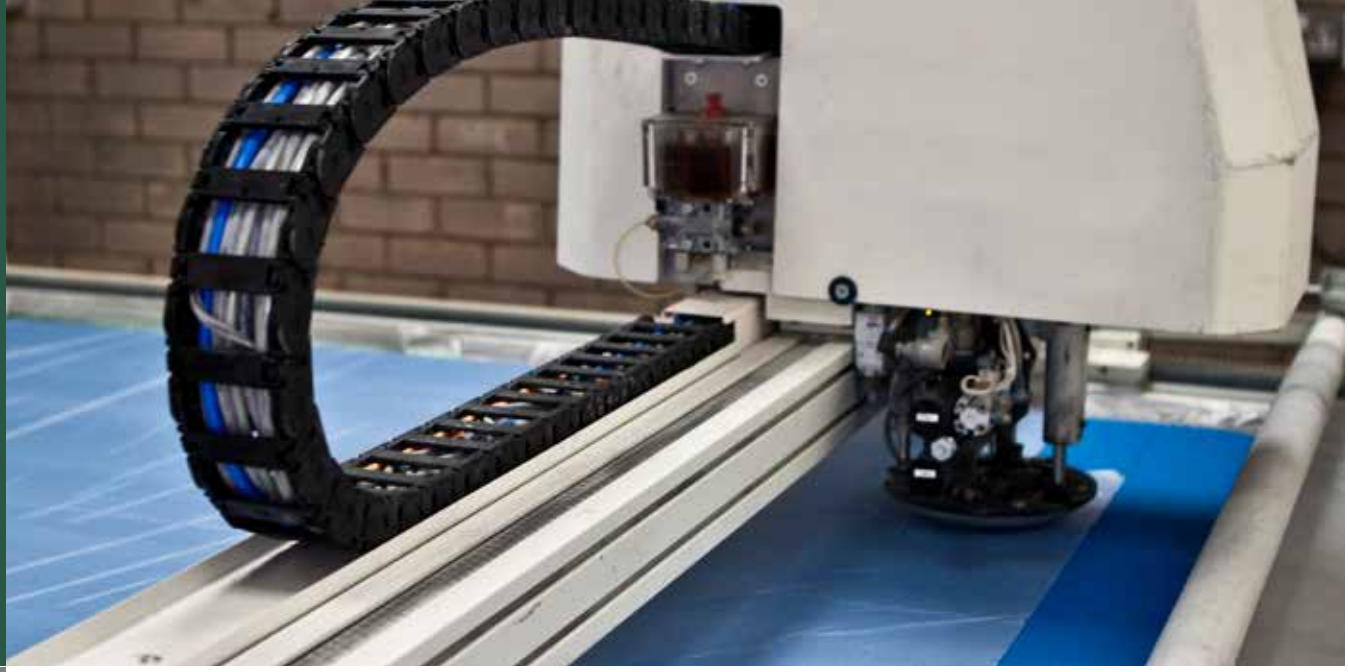
CUSTOMISED SERVICE

At the A. Proctor Group Ltd, we are committed to providing a dedicated, tailored service to our customers. Our aerogel-based thermal product solutions are supported by a dynamic team of technical employees. Their key objective is to continually review current and potential applications, as well as to work with our customers to overcome challenging thermal requirements, be it in the context of an existing, or new, product.

The in-house Research & Development team is based at our premises in Scotland, and exhibits enthusiasm as well as professionalism in reviewing product applications, fabrications and solutions.

Over 8 years experience of fabricating, cutting and laminating Spacetherm Aerogel Blanket has provided us with a vast library of suitable materials and adhesives for an array of applications. This, twinned with project based trials and applications over the same period, gives The A. Proctor Group a strong claim to be the UK's most experienced company and solution provider of customised aerogel solutions.

The requirement for encapsulation technologies for aerogel-based products is something we deliver across a number of sectors. We have proven knowledge of working with the available materials for encapsulating Spacetherm Aerogel Blanket, and have the capabilities to produce a finalised product in our purpose built Aerogel manufacturing facility. (Choice of encapsulation materials may depend on conditions such as temperature, exposure, surface finish and fire, to name just a few).



CUTTING NO CORNERS ON CREATIVITY

Our cutting facilities enable consistently high accuracy, and complex profiles and contours to be formed. The fully compatible software offers maximum flexibility to designers and specifiers.

Supplying bespoke-cut aerogel solutions, we can advise at project creation stage, or supply our Spacetherm Aerogel Blanket cut to any shape or size as requested by the client for a finalised, bespoke product. No project is too big or too small to investigate.

As some of our customers are at the leading edge of technology, the nature of their businesses does not always lend itself to A. Proctor Group being involved in their in-house development work. The need for confidentiality is always treated with the utmost respect in such cases.

Our team has a genuine thirst to work with new and existing customers to provide bespoke Spacetherm Aerogel Blanket solutions which precisely meet their needs.

AN INVITATION TO EXPLORE OUR CAPABILITIES

We are always looking for exciting projects to work on that will demonstrate Spacetherm's versatility. If you have a project whose key objectives include space-saving insulation, please email us with your project details, and we would be happy to work with you on realising your concept.

Contact us today to speak to one of our Spacetherm team, who will be happy to help

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" I believe the success of the A. Proctor Group is down to a solid foundation of innovation backed up by an excellent, loyal and committed team, every one of them playing an important role in our continued success. Scotland provides us with a unique platform to launch our ideas, systems and products. I am fiercely proud of this heritage and our brand."

Keira Proctor
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