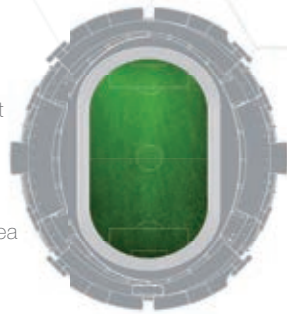


SMALL BUT GIGANTIC! – A vast surface.

While aerogels are ultra-light and almost completely transparent, they have a vast surface. Due to the internal web-like structure of the aerogel, its surface area exceeds its size by many multiples.

Thus, 1g of aerogel has a surface area similar to that of an entire football pitch.



EXTREMELY FINE! – 1000 times thinner than spider silk.

In order to truly comprehend how fine the structure of an aerogel really is, the following comparison may prove insightful. While the pores can be measured on a nanometer scale, the threads inside the aerogel are up to 1000 times thinner than a spider's silk.



It is only this fine structure that makes it possible to tightly enclose the air molecules inside the aerogel, resulting in an exceptional insulation performance.

A fascinating material.

A GEL? – From gel to aerogel.

Aerogel is indeed a gel. Only, it has forgotten that it is one. Using an elaborate process, the liquid content is removed from the material. This is done so skillfully that the gel has no opportunity to dry out and shrink, as would normally be the case. In this way, the solvent in the gel is replaced by air without changing the web-like structure. This process turns the gel into an aerogel.

The micropores in an aerogel restrict the heatconducting air molecules in their movement to such an extent that the transfer of energy to other air molecules becomes impossible.

This property makes the aerogel a superinsulator of extremely low thermal conductivity.

UP TO 99% AIR! – A frozen mist.

After the solvent is replaced by air in the gel, the aerogel becomes a highly porous and extremely light-weight solid. With a material content of about 1% across their entire volume, aerogels are the lightest solids in the world. One can not only feel this, but see it as well. Visually, the almost milky-gray, transparent aerogel block can best be compared to frozen mist.

With the light barely refracted by the fine-pored structure of the aerogel, interesting light effects are the result.

Placed before a dark background and a lateral light source, the aerogel shows its typical blue shimmer.

www.wall-systems.com/aero



AEROGEL

The beginning of a revolution in thermal insulation.

High tech developed for space travel

Aerogels are highly porous solid materials which can consist of 99% air. Comparable to an ultra-fine sponge, this miracle material has its origin – like many other inventions – in space technology.

As highly efficient insulators and extremely fine filters, aerogels have made important contributions to space research for years.

Thanks to the latest manufacturing technologies, aerogels are now entering our everyday life in the form of extremely efficient insulation materials.

Applied to the facade

Aerogels open a new chapter in the development of new, extremely powerful exterior insulation finishing systems.

With a trailblazing range of products, we at HECK – the leading innovator in the field of thermal insulation – have now succeeded in making all advantages of this miracle material available for practical use in the construction sector.

AERO
ULTRA-THIN INSULATION &
FIRE PROTECTION SYSTEM



Download the brochure from our website now.

NOW

BROCHURE

Scan QR code with suitable smartphone app.

Get your own copy of the brochure with detailed information on HECK AERO – including system components, application guidelines and anchor layouts – by downloading it from www.wall-systems.com/aero or requesting it by fax (09231 / 802-515) or mail.



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Expert advice

A technical consultant from HECK is looking forward to providing you with in-depth advice – by phone, at your office, or at the property and without any obligation on your part.

Yes, I would like free expert advice. Please contact me.

AERO
ULTRA-THIN INSULATION &
FIRE PROTECTION SYSTEM

HECK Wall Systems GmbH & Co. KG

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AERO

ULTRA-THIN INSULATION &
FIRE PROTECTION SYSTEM





ULTRA-THIN

New dimensions.

HECK AERO is the insulation material of superlatives. The sensational thermal conductivity value of only 0.018 W/(m*K) now makes it possible to obtain the required or desired insulation levels even with extremely thin layers.

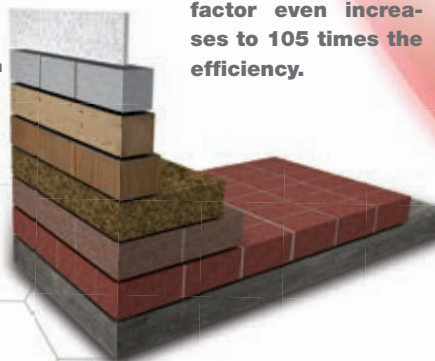
Now, compromises in terms of space usage or visual appearance can easily be reduced to an absolute minimum.

HECK AERO makes it possible for EIFS to go where until now they simply could not for aesthetic or constructional reasons.

Thermal insulation increases floor space

Thermal insulation with HECK AERO is about 29 times more efficient than solid brick. When compared to concrete, **this factor even increases to 105 times the efficiency.**

- HECK AERO 1.0 cm
- Lightweight concrete block 6.0 cm
- Coniferous timber 6.5 cm
- Porous brick 8.0 cm
- Cob 23.5 cm
- Vertically perforated brick 29.5 cm
- Facing brick 90.0 cm
- Concrete 105.0 cm



FLEXIBLE

Limitless possibilities.

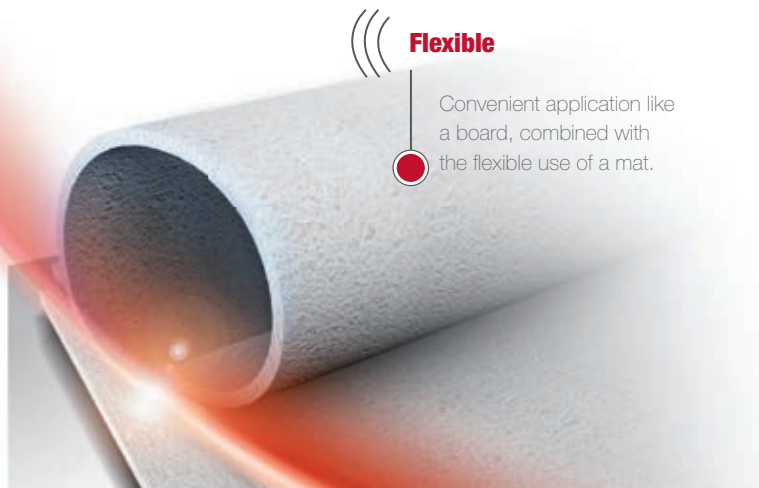
Until now, thinking about an exterior insulation finishing system (EIFS) conjured up boards or blocks made from polystyrene or mineral wool, and a design and application process that followed a block-by-block principle. A challenge for many architects, aesthetes, heritage protectors, and house owners.

Until now, the wish for a solution that was at once economical, ecological and visually appealing was just that – a wish.

Now, HECK AERO is ushering in a new era. Composed of several layers of flexible fiber mat, HECK AERO can easily be attached to facades like a second skin.

Flexible

Convenient application like a board, combined with the flexible use of a mat.



FIRE PROTECTION

In the worst of cases.

HECK AERO effortlessly exceeds all requirements of the relevant building and building material categories. The unique combination of aerogel and the enveloping fiber mat makes HECK AERO an extremely fire and heat-resistant miracle material.

HECK AERO supports meeting the most stringent fire-protection standards even in areas where traditional solutions require compromises in design and execution.

Non-combustible and heat-resistant

An impressive test. Even extreme heat cannot pass through the superinsulator. The surface remains cool.



DIFFUSION

No chance for moisture damage.

Water-repellent but not waterproof – is this possible? Of course – with HECK AERO. The secret, again, is in the nanostructure of the aerogel. This structure makes the aerogel completely hydrophobic, that is, water-repellent.

Even the smallest drops of water cannot precipitate inside the aerogel, nor can they attach themselves to its surface.

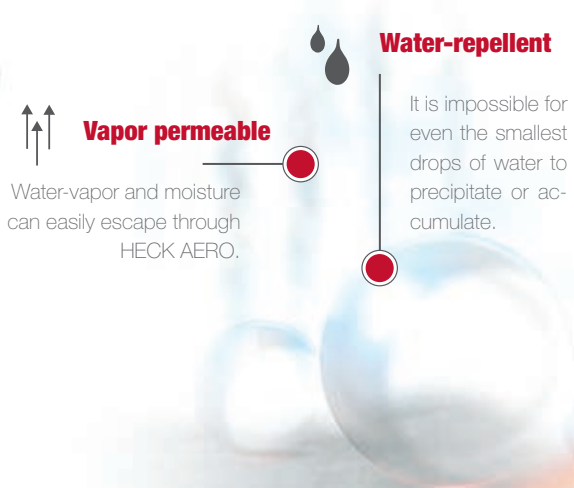
At the same time, water vapor can easily escape through the structure without being retained in the insulation material itself. In this way, HECK AERO puts an end to moisture where until now extreme conditions made the installation of an exterior insulation finishing system (EIFS) a doubtful endeavor at best.

Vapor permeable

Water-vapor and moisture can easily escape through HECK AERO.

Water-repellent

It is impossible for even the smallest drops of water to precipitate or accumulate.



SOUNDPROOF

Silencing the noise.

Often seen only as a nice sideeffect of exterior insulation finishing systems, sound protection is an important issue, especially in cities, near highly frequented roads, and close to airports or railway lines.

Thanks to their fine-pored nanostructure and vast surface area, aerogels also function as highly effective sound absorbers and can therefore significantly reduce noise levels.

Thus, HECK AERO also combines its insulating and water-repellent properties with effective noise protection.

Halving noise levels

Despite the low thickness of the material, HECK AERO provides exceptional sound insulation of up to about 10 decibel.

