FUNCTION FOLLOWS FORM

It takes the imagination of dreamers, the far-sightedness of visionaries, the creativity of ingenious minds and the vast experience of experts to turn established rules upside down and extend the boundaries of what is feasible.

This special moment which can become the occasion for something completely new has now come.

With HECK AERO, the HECK team is changing the principles of exterior insulation finishing systems (EIFS).

For the first time, HECK AERO makes it possible to use an EIFS where so far this was prevented by space restrictions or constructional or aesthetic concerns.

The introduction of HECK AERO marks the beginning of a new era in thermal insulation.

FUNCTION FOLLOWS FORM | NOW
NOW
AEROGEL | The miracle material

Like from another star.
Aerogels are not just fascinating materials visually. They also have properties no other material on earth can match.
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.
AEROGEL

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 heat-conducting 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 lightweight 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.

Conventional insulation materials

Air molecules can touch.
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.

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.

Inside the fine structure of the aerogel, air molecules are prevented from touching. Thus, heat transfer is rendered impossible.
From their original, brittle state, aerogels cannot be used for facade insulation, of course. This is why it was an enormous challenge to develop from the original material an insulation board whose properties combine the advantages of aerogel with the requirements on an easy-to-install insulation board.

**Breakthrough in building insulation**

With HECK AERO, the HECK team has made the breakthrough in the development of reliable and economic building insulation. Offering all advantages of conventional insulation boards in terms of usage and application, it also opens up entirely new possibilities.

**Unique flexibility**

Composed of several layers of fiber mat, the HECK AERO insulation boards offer outstanding versatility when fitting them to the facade. They also provide the required flexibility to adjust them to curves and arches. A unique advantage not offered by any other high-performance insulation material for facades so far.

**Fireproof, water-repellent, vapor permeable and sound-absorbing**

Just for its unbelievable insulation performance and unmatched flexibility, HECK AERO is a revolutionary product for facade insulation. But HECK AERO combines even more cutting-edge performance properties.

- Extremely heat and fire-resistant
- Water-repellent while also permeable to vapor
- Effective sound absorption

FUNCTION FOLLOWS FORM | NOW
1. Ultra-thin
2. Flexible
3. Fire protection
4. Diffusion
5. Soundproof
ULTRA-THIN
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.

FUNCTION FOLLOWS FORM | NOW
Balconies and recessed balconies
For residents, this is about living space and useable area; for landlords, about profitability.

Ultra-thin
With a thermal conductivity $\lambda (r)$ of 0.018 w/(m*K), HECK AERO offers the same insulation level at less than half the material thickness.
GAIN MORE SPACE

When every millimeter counts

Passages, entrance areas, escape routes, backyards or balconies – there are many areas where every millimeter of space is crucial.

Insufficient space for thermal insulation

Until now, traditional insulation was often not possible due to building legislation or resulted in undesired interference with the living space or annoying obstructions.

New perspectives

With HECK AERO, new perspectives will open up here. At less than half the insulation material thickness, HECK AERO can perform as effectively as traditional insulation materials.

Higher profitability

In this way, HECK AERO significantly reduces the loss of living space and through optimal insulation increases value and profitability of a property.

Thermal insulation increases floor space

For new constructions, HECK AERO enables lower exterior wall thicknesses. Wall thickness is reduced to a minimum. Thus thermal insulation is about 29 times more efficient than solid brick. When compared to concrete, thermal insulation actually is 105 times more efficient.

1.0 cm of HECK AERO insulation material = 105 cm concrete wall
FLEXIBLE
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.

FUNCTION FOLLOWS FORM | NOW
Sweeping, extravagant architecture
Until now, there was no way of fitting an exterior insulation finishing system here.

Flexible
Convenient application like a board, combined with the flexible use of a mat.
AESTHETIC DEMANDS AND HIGHEST FUNCTIONALITY

More than just visuals

Architecture, regardless whether modern or traditional, is never just an end in itself. Impressive constructions have always expressed the image a society has of itself. The different architectural styles of each era are valuable documents of the craftsmanship, the technical feasibilities, and the aesthetic sense of that time.

Efficiency before aesthetics

In a society that is learning to deal with its resources with more and more awareness, sustainable solutions are increasingly gaining the upper hand.

While heritage protectors lament the vanishing of historical facades behind the established forms of insulation, many architects and aesthetes are feeling greatly restricted by the use of exterior insulation finishing systems (EIFS) in modern buildings.

New perspectives

HECK AERO breaks through the insulation wall between aesthetics and functionality and opens up completely new perspectives with its unique product properties. Thanks to its flexibility and its extremely low material thicknesses, HECK AERO perfectly aligns with the uneven surfaces of historical facades, retaining their original characteristics. In many cases, this serves to make these types of buildings usable again.

More flexibility

Thanks to its high flexibility, HECK AERO effortlessly follows all curves and arches and, closely following the brickwork, snuggles against the facade almost invisibly.

Essential for the preservation of historic buildings, this also provides entirely new possibilities for modern architecture. With its flexible insulation boards, HECK AERO puts an end to the years of compromise between sustainability and aesthetics.
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.

FUNCTION follows FORM | NOW
Non-combustible and heat-resistant

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

The nightmare
Fire in residential buildings presents the greatest danger for all inhabitants.
BEST-POSSIBLE FIRE PROTECTION AND HEAT RESISTANCE

More safety

The protection of residents is the single most important factor in the design and the construction of residential and business premises. At the center of all such considerations: fire protection.

Simply incombustible

A superinsulator, the aerogel in HECK AERO brings its outstanding capabilities into play where fire protection is concerned. Both the supporting fiber mat as well as the aerogel it contains are completely incombustible, and thus effortlessly meet the relevant fire categories. The all-important blaze test was passed with top results.

Extremely heat-resistant

There is more, however. HECK AERO is not only fire-resistant. Thanks to its special nanostructure, it can also ward off extreme heat for a long time. Here, too, a very low material thickness is sufficient to obtain the maximum protective effect.

Solution for heated situations

In spectacular laboratory tests, HECK AERO has shown how extremely effectively it shields and insulates against fire and heat. This also makes HECK AERO the trump card in areas where insufficient flexibility or space restrictions make the implementation of conventional fire-protection solutions difficult.

Heat-resistant
HECK AERO effortlessly resists both extremely high and low temperatures.

In the worst of cases
HECK AERO can provide those decisive few additional minutes.
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.

FUNCTION FOLLOWS FORM | NOW
Perfect protection
At the particularly critical wall-base area, HECK AERO can bring its water-repellent effect fully into play.

Water-repellent
The structure of HECK AERO makes it impossible for even the smallest drops of water to precipitate or accumulate.

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

Experience this product benefit interactively right now.
Scan QR code with suitable smartphone app.
**NO CHANCE FOR MOISTURE OR MILDEW**

**No moisture problems**

HECK AERO is water-repellent and water-vapor permeable at the same time. Similar to the textile industry’s modern high-tech fabrics, HECK AERO does not allow any moisture to penetrate through its surface. Moisture released from the masonry, however, can easily escape.

This outstanding property also qualifies HECK AERO as building insulation in areas with high residual moisture levels. While moisture on the outer facade simply cannot penetrate the insulation, moisture from within the room can easily diffuse through the wall.

**Additional protection against algae and fungi through system configuration**

Mineral-based renders prevent the formation of a water film on the facade surface. This is due to the combination of two natural effects: The capacity to store heat reduces condensation time, and moisture-controlling (hydroactive) properties absorb existing water and ensure quick drying. Protection against microbial growth by physically regulating moisture levels – on a purely mineral basis!

With organic renders, raindrops roll off quickly due to the water-repellent surface, which keeps the facade dry and removes the growth medium for algae or fungi. The water-repellent (hydrophobic) surface causes raindrops to roll off, keeping facades dry. Algicidal and fungicidal effect through the addition of optimized biocidal agents.
SOUNDPROOF
Often seen only as a nice side-effect 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.

FUNCTION FollowS FORM | NOW
Despite the low thickness of the material, HECK AERO provides exceptional sound insulation of up to about 10 decibel. A decrease in noise level of 10 decibel is perceived by the human ear as a 50-percent reduction in sound volume.
SPACE-SAVING NOISE PROTECTION

**EIFS as sound insulation**

Besides a comfortable interior climate, the quality of living is mainly affected by the level of noise. Therefore, external influences such as traffic noise should remain largely unheard inside a residence.

A well planned exterior insulation finishing system can often make an important contribution here, cushioning a large portion of the sonic wave at the facade and actively contributing to sound protection.

**Significant reductions in noise levels**

Even at the minimum material thickness, HECK AERO can provide a reduction in noise levels of 10 decibel. And, 10 decibels equal a perceived reduction of noise level by more than half.
HECK AERO is more than just an insulation board. Combined with both time-proven and specially developed products from HECK, the result is a complete exterior insulation finishing system (EIFS) whose components ensure optimal performance.

FUNCTION FOLLOWS FORM | NOW
A COMPLETE SYSTEM

Traditional application
To avoid unnecessary training time and errors while handling the new high-tech insulation system, the use and application of HECK AERO largely follows the procedures for conventional exterior insulation finishing systems (EIFS). Therefore, care was taken during development of HECK AERO to ensure many popular and reliable products from HECK are compatible with the new system.

Perfectly complementary
A system can only be strong and efficient if all components perfectly complement one another. This is true for the HECK AERO exterior insulation finishing system as well. The combination with selected products from the HECK and Rajasil brands ensures a premium result and optimum insulation performance.

AERO READY
The top products from the HECK and Rajasil brands had to undergo many tests and extensive trials to check and ascertain their compatibility with HECK AERO. All products which harmonize optimally with HECK AERO receive the AERO READY seal. All products carrying the seal guarantee a perfect interaction of all components, and top-grade insulation performance.

Insulation board dimensions
HECK AERO insulation boards are available in 20 to 100mm thickness, in 10mm steps; supplied with shiplap edge from 30mm thickness upward by default; custom dimensions and position of shiplap edge on request.

Shiplap edge
The flexible boards are supplied with shiplap edge by default.
Insulation boards
The flexible HECK AERO insulation boards are the core of the high-tech insulation system. Their superior capabilities significantly extend the area of application of exterior insulation finishing systems. Ultra-thin, highly flexible, heat and fire-resistant, sound-absorbing, water-repellent, and vapor permeable.

Depending on the performance required, the boards are available in various thicknesses or layers, enabling the adjustment to the specific requirements of a building.

Function follows Form | NOW

Bonding and reinforcement mortar
With HECK AERO K+A, a special-purpose bonding and reinforcement mortar has been developed which delivers optimum results in combination with the HECK AERO insulation boards.

Based on the very popular and reliable HECK K+A, the best bonding and reinforcement mortar of its class has been perfectly adjusted to the requirements of the high-tech insulation system.
### Optimal components
These products from HECK and Rajasil are compatible with HECK AERO.

<table>
<thead>
<tr>
<th>HECK AGG</th>
<th>HECK Dübelsystem</th>
<th>HECK ED</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reinforcement mesh, fine</td>
<td>Complete anchor system</td>
<td>Decorative render</td>
</tr>
</tbody>
</table>

- **HECK AGG**
  - Alkali-resistant glass-fiber mesh
  - Mesh size: 4 mm x 4 mm approx.
  - Color: white
  - Pack size: 50 m² roll

- **HECK Dübelsystem**
  - 60 mm washer
  - Plug made from EPs
  - Color: white
  - Pack size: 100 pcs./box

- **HECK ED**
  - Dry, factory-mixed mortar, CR, CS II, W 2 (P II), for thin-layer finishing coats; interior and exterior application
  - Various render textures: scraped finish KC2, KC3, KC4, and float finish R3, R4
HECK AGG
Reinforcement mesh, fine

HECK ED
Decorative render
Dry, factory-mixed mortar, CR, CS II, W 2 (P II), for thin-layer finishing coats; interior and exterior application
Various render textures:
scraped finish KC2, KC3, KC4, and float finish R3

HECK SHP
Silicon-resin render
Rajasil EP WD
Decorative render
Ready-to-use, thin-layer, water-repellent decorative render for exterior and wall-base application; silicon-resin based
HECK Siliconharzputz is highly water-vapor and carbon-dioxide permeable
Additional protection of the coating against algae and fungi infestation
Various render textures: scraped finish KC1, KC1.5, KC2, KC3, and float finish R2, R3

Dry, factory-mixed mortar, CR, CS I (P I), W 2; lime based
Thick-layer, water-repellent finishing coat
Additives such as special grain and increased strength for P II (scraped finish variant only), glitter additive and bonding additive available
Various render textures
New products often require new approaches to application. From the very beginning, HECK AERO has been developed toward handling and application procedures that do not deviate from conventional insulation systems to any significant extent.

APPLICATION

Convenient and reliable.
APPLICATION

While developing HECK AERO, care was taken to ensure a simple, straightforward application process for craftsmen and applicators. Therefore, installation of the complete HECK AERO system and all AERO Ready products follows the procedures for conventional systems.

1. **Clean substrate**
   - Clean substrate from dust and dirt.

2. **Deep priming**
   - For optimal bonding, treat substrate with Rajasil TG W deep primer.

3a. **Bonding**
   - Apply HECK AERO K+A evenly onto HECK AERO insulation mat using the ribbon-and-dab method or application to entire board surface, after first scraping on a very thin layer of HECK AERO K+A.

3b. **Bonding**
   - Ribbon-and-dab method

4. **Installation**
   - The insulation mat can be placed flush against the wall immediately – including at the wall-base area.

5. **Check placement**
   - Subsequently, check position of mat and if it is firmly in place.

6. **Perfect customization**
   - HECK AERO can be easily trimmed to fit all requirements. Seal gaps and small openings with joint sealing tape.

7. **Primary drilling**
   - Holes for the anchors can be drilled directly into the mat.

8a. **Hammer-set anchors**
   - Then, set anchors with a hammer, using light pressure; fix with plastic nail (for anchor layouts see pages 42/43).
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**Reinforcement**
Application of the reinforcement follows the procedure for conventional EIF systems (boards cannot be sanded; reinforcement layer 5mm min).

**Finishing coat**
No restrictions apply for surface finishing either.

**Silicon-resin paint**
For optimum insulation performance and for protection from moisture, a protective high-quality paint coat can be applied to the surface.
Anchors provide secure mechanical fixing of the exterior insulation finishing system. For anchor positioning, please refer to the below layouts.

4 anchors/m²
Distance of anchors to edge of board: 15 cm

6 anchors/m²
Distance of anchors to edge of board: 15 cm
Alternate anchor pattern (two at top, one at bottom / one at top, two at bottom)

8 anchors/m²
Distance of anchors to edge of board: 15 cm

10 anchors/m²
Distance of anchors to edge of board: 15 cm
Position of single anchor: center of board

12 anchors/m²
Distance of anchors to edge of board: 12.5 cm

14 anchors/m²
Distance of anchors to edge of board: 12.5 cm
Position of single anchor: center of board
16 anchors/m²
Distance of anchors to edge of board:
- Top and bottom row: 12.5 cm
- Center row: 18 cm

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Scan QR code with suitable smartphone app.
FAQs

Frequently asked questions

Novelties always invite questions. Below you will find the answers to the most important questions about HECK AERO in a concise form. In case your question is not answered here, simply send it to info@wall-systems.com

To what extend does the application of HECK AERO differ when compared to conventional insulation boards?

Except for the material thickness and the flexibility of the board, application procedures do not differ from conventional boards.

What are the configurations available for the HECK AERO insulation boards?

By default, the insulation boards are manufactured in thicknesses from 20 to 100mm (in 10mm steps). In special cases and on request, supplying customized boards is possible. Insulation material thicknesses of up to 160mm can be obtained by multi-layer application of the insulation boards.

For more detailed information, please refer to the Technical Data Sheets available at www.wall-systems.com

Does the application of HECK AERO produce dust?

During cutting and application of aerogel boards, dust is produced. This can, as always when handling dust-producing materials, result in a feeling of dryness of the skin and in irritations of eyes and respiratory tract. We therefore recommend wearing dustproof clothing, breathing protection, and gloves.

What safety measures must be taken during application?

We recommend wearing gloves and breathing protection for the installation of HECK AERO. Particularly dusty operations, such as the cutting of the boards, should only be carried out outside or in well ventilated areas.

Does contact with or breathing of the dust pose a health risk?

www.wall-systems.com/aero
HECK AERO insulation boards are a tested and approved product which does not release any toxic or harmful substances to the environment. On principle, however, avoid breathing the dust.

**Does HECK AERO contain hazardous materials in health-relevant concentrations?**

HECK AERO complies with the EC legislation on the restriction of the use of certain hazardous substances and has therefore received approval.

**Are there issues with regard to the disposal of HECK AERO?**

The insulation boards can be disposed of like normal construction rubble at appropriate waste disposal sites.

**Is it possible to also use other products for the application of HECK AERO insulation boards?**

For optimal application, special complementary products were developed. In addition, all materials carrying the AERO Ready seal can be used.

**AERO READY – look for products with this sign.**