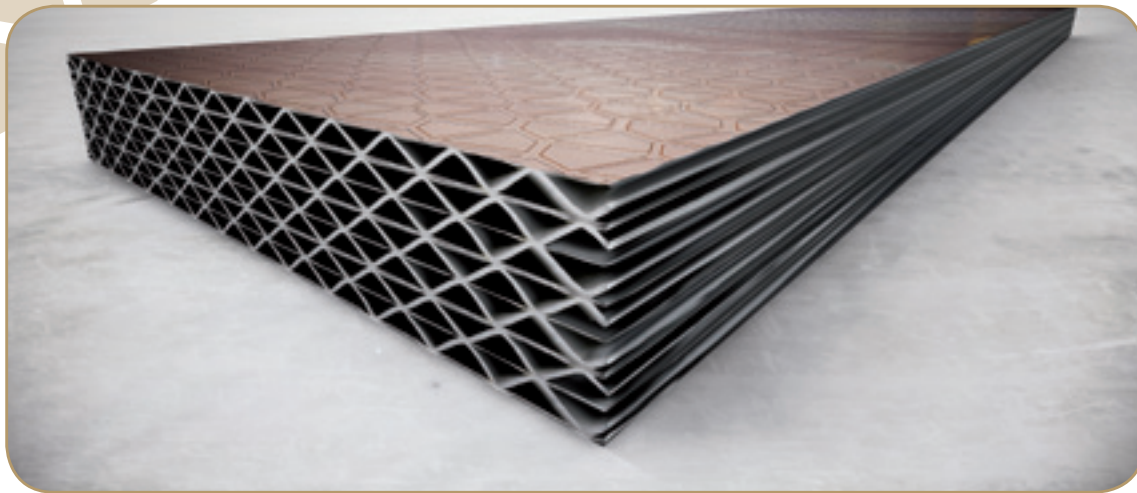


Hybris = $\lambda.32$ + $R=4.56 \text{ m}^2\cdot\text{K/W}$ + VAPOUR BARRIER

Up to $R=4.55$ for 105mm with 2 air voids



HYBRIS is a new insulation material for timber frame or masonry walls, pitched roofs or ceiling applications.



AN INNOVATIVE TECHNOLOGY

HYBRIS is a reflective insulation product based on a honeycomb structure made of shaped polyethylene foams glued to aluminium coated polyethylene foils.

High thermal performance is provided by a special structure composed of a large number of low emissivity cavities, protected from dust and excessive air movement. Moreover, the low emissivity external films provide additional thermal resistance, when associated with air cavities.

Hybris is available in rolls 600 or 1200mm wide and in a range of thicknesses from 30mm to 300mm every 15mm.



DUAL PERFORMANCE

$\lambda.32$

With a core effective thermal conductivity (λ_t , according to EN 12667 Annex A) **as low as $0,032 \text{ W/m}\cdot\text{K}$** , HYBRIS provides a thermal resistance as high as **$R=9.05 \text{ m}^2\cdot\text{K/W}$** .



With an air gap on either side, HYBRIS can reach on average an additional thermal resistance per air gap of up to **$0,67 \text{ m}^2\cdot\text{K/W}$** in walls (horizontal flow) and up to **$0.45 \text{ m}^2\cdot\text{K/W}$** in roofs (upward vertical flow) which can be incorporated into U value calculations carried out in accordance with EN 6946.

SPACE SAVING

R=4,55
m².K/W

Up to R=4,55 for 105mm
with 2 air voids

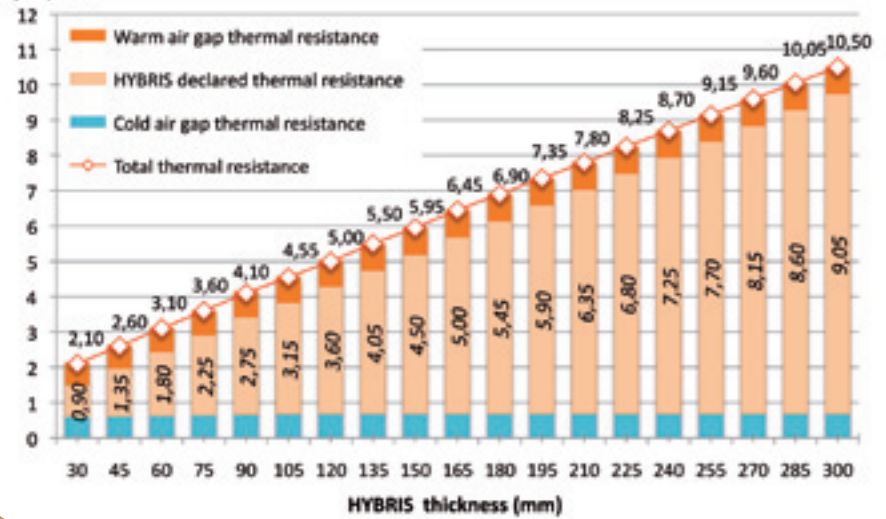
HYBRIS insulation helps to keep the fabric element to a minimum thickness and saves space !

With 105 mm and 2 air gaps, in walls HYBRIS can achieve an R-value as high as **4,55 m².K/W !**

With the additional resistance due to the air gaps it is possible to reduce the thickness of the material needed and consequently save money.

Declared
R-value
(m²/K.W)

HYBRIS THERMAL PERFORMANCE



FULLY CERTIFIED

HYBRIS has been tested according to the following EN standards :

- **EN 12667:** «Thermal performance of building materials - Determination of thermal resistance – Heat flow meter method - Products of high and medium thermal resistance»
- **EN ISO 6946:** «Building components and building elements Thermal resistance and thermal transmittance - Calculation method»

HYBRIS is **fully certified** by
2 accredited bodies



HYBRIS helps to meet the requirements of Approved Document L 2010 (England & Wales) and Section 6 (Scotland)

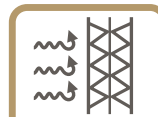
AIRTIGHT



AIRTIGHT

HYBRIS is intrinsically airtight, stopping air infiltration from the outside and heat loss through convection from the inside

VAPOUR TIGHT



VAPOUR BARRIER

HYBRIS is intrinsically resistant to water vapour.

USER FRIENDLY



LIGHT

HYBRIS is very light – about 650g/m² for a 100 mm thickness – thus easy to carry



NO EYE & RESPIRATORY
PROTECTION REQUIRED

- HYBRIS is **classified A+** for internal air quality according to ISO 16000
- HYBRIS is clean - does not generate dust or fibre

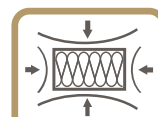
QUICK AND EASY TO INSTALL

HYBRIS reduces the installation time without changing installation procedures.



EASY TO CUT

HYBRIS is very easy to cut, manually with an insulation knife on a flat surface or with an electrical saw.



FLEXIBLE

HYBRIS is easily installed between rafters, timber studs or within floor joists. It accurately fits all widths, held in place by compression.
HYBRIS does not slump down.

HYBRIS PROPERTIES

PRODUCT

| PROPERTY | TEST METHOD | DECLARED VALUE |
|--|------------------|---|
| Thickness | EN 823 | 30 to 300mm every 15 mm |
| Weight/m ³ | EN 1602 | <7 kg/m ³ |
| Length | EN 822 | 1,7 m (300mm-thick) to 11,7 m (45mm-thick) |
| Width | | 600/1200 mm |
| DECLARED EMISSIVITY (OUTER/INNER SIDE) AFTER AGEING | EN 16012 | 0.05 / 0.10 |
| TENSILE STRENGTH | | |
| Longitudinal direction | EN 1608 | >50 kPa |
| Transversal direction | | >40 kPa |
| RESISTANCE TO TEARING, NAIL SHANK | | |
| Longitudinal direction | EN 12310-1part1 | >150 N |
| Transversal direction | | >150 N |
| PEEL STRENGTH OF TAPE | EN 11339 | 22 N/100 mm |
| TENSILE STRENGTH PARALLEL TO FACES OF THE TAPE | EN 1608 | 116 N/100 mm |
| WATER VAPOUR TRANSMISSION | | |
| Permeability (W) | EN 12572 set C | <0,8 E-12 Kg/m ² .s.Pa |
| Vapour Resistance (Z) | | >1100 MNs/g |
| Diffusion eq.air layer thickness (Sd) | | >200 m |
| WATERTIGHTNESS | | Watertight |
| AIR PERMEABILITY | | Airtight |
| FIRE RESISTANCE | | Class F |
| AFTER AGEING | | |
| TENSILE STRENGTH | | |
| Longitudinal direction | EN 1608 | 74 N/50mm |
| Transversal direction | | 52 N/50 mm |
| RESISTANCE TO TEARING, NAIL SHANK | | |
| Longitudinal direction | EN 12310-1 part1 | 199 N |
| Transversal direction | | 188 N |
| PEEL STRENGTH OF TAPE | EN 11339 | At 98 N/100 mm, the HYBRIS surface is torn |
| TENSILE STRENGTH PARALLEL TO FACES OF THE TAPE | EN 1608 | 132 N/100 mm |

PACKAGING

| THICKNESS | LENGTH | WIDTH | ROLL AREA | PALET AREA |
|--------------|--------|------------------|---------------------|----------------------|
| 30mm | 11,7m | 1200 / 2 x 600mm | 14.04m ² | 252.72m ² |
| 45mm | 8,0m | | 9.60m ² | 172.80m ² |
| 60mm | 6,2m | | 7.44m ² | 133.90m ² |
| 75mm | 5,1m | | 6.12m ² | 110.16m ² |
| 90mm | 4,3m | | 5.16m ² | 92.88m ² |
| 105mm | 3,8m | | 4.56m ² | 82.08m ² |
| 120mm | 3,4m | | 4.08m ² | 73.44m ² |
| 135mm | 3,1m | | 3.72m ² | 66.96m ² |
| 150mm | 2,8m | | 3.36m ² | 60.48m ² |
| 165mm | 2,6m | | 3.12m ² | 56.16m ² |
| 180mm | 2,5m | | 3.00m ² | 54.00m ² |
| 195mm | 2,3m | | 2.76m ² | 49.68m ² |
| 210mm | 2,2m | | 2.64m ² | 47.52m ² |
| 225mm | 2,1m | | 2.52m ² | 45.36m ² |
| 240mm | 2,0m | | 2.40m ² | 43.20m ² |
| 255mm | 1,9m | | 2.28m ² | 41.04m ² |
| 270mm | 1,9m | | 2.28m ² | 41.04m ² |
| 285mm | 1,8m | | 2.16m ² | 38.88m ² |
| 300mm | 1,7m | | 2.04m ² | 36.72m ² |

HYBRIS THERMAL PERFORMANCE

IN WALLS

Details of the calculated configuration:

- Air cavities: **25 mm**
- Low emissivity (int / ext): **0,05 / 0,10**
- Heat flow direction: **horizontal**
- Temperature difference (Tint / Text): **20°C / 0°C**
- HYBRIS core thermal resistance according to **VTT certificate**
- Thermal performance of air gaps according to EN 6946.

| THICKNESS | Declared Thermal Resistance (m ² .K/W) | | | When using foil backed plasterboard R-VALUE WITH 2 AIR GAPS |
|-----------|---|-------------------------|-------------------------|--|
| | CORE R-VALUE | R-VALUE WITH 1 AIR GAP* | R-VALUE WITH 2 AIR GAPS | |
| 30mm | 0,90 | 1,50 | 2,10 | 2,15 |
| 45mm | 1,35 | 1,95 | 2,60 | 2,65 |
| 60mm | 1,80 | 2,45 | 3,10 | 3,15 |
| 75mm | 2,25 | 2,90 | 3,60 | 3,65 |
| 90mm | 2,70 | 3,40 | 4,05 | 4,15 |
| 105mm | 3,15 | 3,85 | 4,55 | 4,60 |
| 120mm | 3,60 | 4,30 | 5,00 | 5,10 |
| 135mm | 4,05 | 4,80 | 5,50 | 5,55 |
| 150mm | 4,50 | 5,25 | 5,95 | 6,00 |
| 165mm | 5,00 | 5,75 | 6,45 | 6,55 |
| 180mm | 5,45 | 6,20 | 6,90 | 7,00 |
| 195mm | 5,90 | 6,65 | 7,35 | 7,45 |
| 210mm | 6,35 | 7,10 | 7,80 | 7,90 |
| 225mm | 6,80 | 7,55 | 8,25 | 8,35 |
| 240mm | 7,25 | 8,00 | 8,70 | 8,80 |
| 255mm | 7,70 | 8,45 | 9,15 | 9,25 |
| 270mm | 8,15 | 8,90 | 9,60 | 9,70 |
| 285mm | 8,60 | 9,35 | 10,05 | 10,15 |
| 300mm | 9,05 | 9,80 | 10,50 | 10,60 |

* warm side



IN ROOFS

| THICKNESS | Declared Thermal Resistance (m ² .K/W) | | |
|-----------|---|-------------------------|---------------------------|
| | CORE R-VALUE | R-VALUE WITH 1 AIR GAP* | R-VALUE WITH 2 AIR GAPS** |
| 30mm | 0,90 | 1,30 | 1,80 |
| 45mm | 1,35 | 1,80 | 2,25 |
| 60mm | 1,80 | 2,25 | 2,75 |
| 75mm | 2,25 | 2,75 | 3,25 |
| 90mm | 2,70 | 3,20 | 3,70 |
| 105mm | 3,15 | 3,65 | 4,20 |
| 120mm | 3,60 | 4,10 | 4,65 |
| 135mm | 4,05 | 4,60 | 5,15 |
| 150mm | 4,50 | 5,05 | 5,60 |
| 165mm | 5,00 | 5,55 | 6,10 |
| 180mm | 5,45 | 6,00 | 6,60 |
| 195mm | 5,90 | 6,50 | 7,05 |
| 210mm | 6,35 | 6,95 | 7,50 |
| 225mm | 6,80 | 7,40 | 8,00 |
| 240mm | 7,25 | 7,85 | 8,45 |
| 255mm | 7,70 | 8,30 | 8,90 |
| 270mm | 8,15 | 8,75 | 9,35 |
| 285mm | 8,60 | 9,20 | 9,80 |
| 300mm | 9,05 | 9,70 | 10,25 |

Details of the calculated configuration:

- Air cavities: **20 mm**
- Low emissivity (int / ext): **0,05 / 0,10**
- Heat flow direction: **upward vertical flow**
- Temperature difference (Tint / Text): **20°C / 0°C**
- HYBRIS core thermal resistance according to **VTT certificate**
- Thermal performance of air gaps according to EN 6946.

* warm side

** 1 side unventilated, 1 side ventilated

