

Hcontrol Reflex +

Vapour control layer with built-in thermal performance

NOT JUST A VAPOUR CONTROL LAYER,
IT ALSO ACTS AS SUPPLEMENTARY INSULATION!

INSULATING
MEMBRANE
FOR ROOFS
AND WALLS

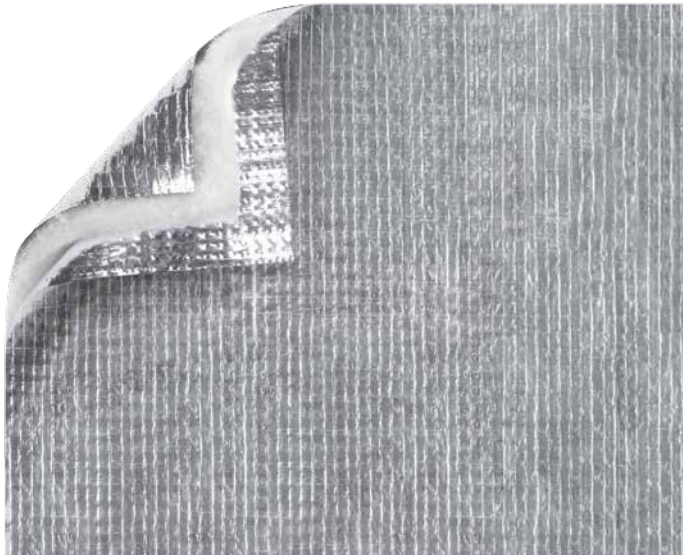


ACTIS

TOMORROW'S INSULATION TODAY

A TRIPLE PURPOSE SOLUTION

BENEFITS



Applications

- Use in new build and refurbishment projects.
- Install on the inside of any insulation product, behind the internal finish, in roofs, walls, ceilings and floors.
- Can be used in conjunction with any type of insulation.
- Complies with BS5250 – Code of Practice for Control of Condensation in Buildings.

Air leakage in buildings can lead to a significant increase in energy consumption.

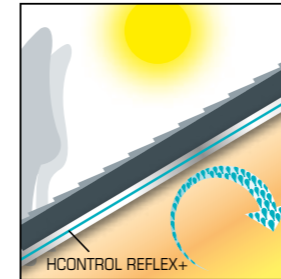
To optimize the high performance of insulation now required in both new and refurbished buildings, good practice dictates the installation of a continuous vapour control layer on the inner face, and a vapour permeable underlay to the outer face of the building envelope. This ensures optimal airtightness of the habitable space, coupled with the essential breathability of the building fabric. The quality of both the living environment and the building structure itself is enhanced by adopting this good practice.

HCONTROL REFLEX+ is a **triple** purpose solution: it is a vapour control layer and an airtight barrier that also acts as supplementary insulation!

A vapour control layer is a water vapour resistant material placed inside a heated space between the insulation and the internal lining. Its purpose is to block the transmission of water vapour. A vapour control layer also improves the airtightness of the building envelope.

HCONTROL REFLEX+ is a reflective **vapour control layer which also acts as a supplementary insulating material** due to its thermal resistance value and high reflective properties.

With only 3 layers, HCONTROL REFLEX+ has an impressive thermal performance: $R = 1.74m^2.K/W$ when installed between 2 air voids of 20mm according to EN 8990 (Hot box test).



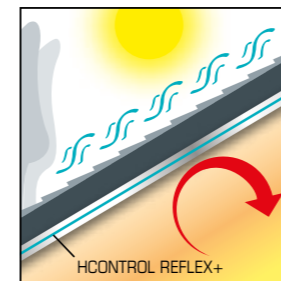
Water vapour resistant: $Z > 900MN.s/g$

A family of 4 people produces up to 12 litres of water vapour per day. This vapour tends to migrate to the edge of a building: roof, ceilings and walls.

If the internal building envelope is permeable to water vapour, the vapour may circulate within the structure. This can cause a condensation risk and dramatically reduce the thermal performance of some insulation materials particularly sensitive to humidity.

Because it is water vapour resistant, HCONTROL REFLEX+ prevents water vapour diffusion through the fabric of the building. Ventilation systems ensure the renewal of the air within the building.

The surface of HCONTROL REFLEX+ is protected against corrosion by a nitro-cellulose varnish.



Airtight

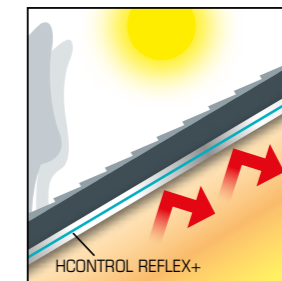
Heat loss through convection has an impact both on thermal comfort and energy bills. Due to its lower density compared with cold air, hot air rises and tends to leak out

through the roof structure. It is therefore necessary to create barriers against air leakage to prevent hot air escaping from the building.

However most insulation products are permeable to air or create major thermal bridging problems at junctions and edges, and therefore do not prevent hot air from escaping.

Thermal convection and uncontrolled air leakage can be stopped by using an **airtight barrier**.

As HCONTROL REFLEX+ is completely airtight (tested by VTT to EN 12114) it acts as a barrier against cold air infiltration and stops warm air escaping from the building.



Reflective

HCONTROL REFLEX+ reflects **up to 95%** of the thermal radiation emitted from inside the building back to its source, for optimum thermal comfort.

Supplementary insulation

Due to its significant core thermal resistance and its very low emissivity, HCONTROL REFLEX+ also provides appreciable supplementary thermal insulation which allows the thickness of insulation required to be reduced.

When installed between 2 air gaps of 20mm, HCONTROL REFLEX+ achieves a thermal resistance value of **$1.74m^2.K/W$** according to EN 8990.

Fully certified: CE marked and under technical approval

HCONTROL REFLEX+ has a CE Mark in accordance with EN 13984 and is BBA and VTT certified.



TECHNICAL CHARACTERISTICS

INSTALLATION PROCEDURE

CE marking characteristics

PROPERTY	VALUE	STANDARD
Water vapour permeability:		
- WVTR	< 0.30g/m ² .24h	EN 1931
- Z	> 900MN.s/g	
- Sd	> 100m	
Airtightness	Airtight	EN 12114
Watertightness	Watertight	EN 1928 method A (2kPa)
Fire resistance	No performance determined	EN 13501-1
Tensile strength:		
Maximum longitudinal force	>300N/50mm	EN 12311-2 and EN 13859 Appendix A
Maximum transversal force	>250N/50mm	
Longitudinal elongation	>10%	
Transversal elongation	>10%	
Nail tear resistance:		
- Longitudinal	>200N	EN 12310-1 and EN 13859 Appendix B
- Transversal	>200N	
Resistance to impact	≥250mm	EN 13984/A1 and EN 12691
Joint strength	>100N/50mm	EN 12317-2

Thermal performance

R DESIGN VALUES	VALUE	STANDARD
External films declared emissivity	0.05	Pr EN 16012 & EN ISO 10456
Thermal conductivity	0.034W/m.K	EN 12667
Core thermal resistance	0.25m ² .K/W	
Thermal resistance with 2 airvoids of 20mm	1.74m ² .K/W	EN 8990
Thermal resistance with 2 airvoids of 20mm :		
- Horizontal flow	1.578m ² .K/W	EN 6946
- Upward vertical flow	1.156m ² .K/W	
- Downward vertical flow	1.578m ² .K/W	

Conditioning

PROPERTY	VALUE	STANDARD
Thickness	8.5mm	EN 1849-2
Surface weight	335g/m ²	
Width	1.6m	EN 1848-2
Length	12.5m	
Area per roll (m ²)	20m ²	
Weight per roll	Approx. 6.7 kg	



General installation rules

HCONTROL REFLEX+ must be installed on the inside of any insulation product. It can be installed horizontally or vertically (see diagrams 1 and 2). However, when the span between supports allows, vertical installation is easier.

All joints must overlap by at least 50mm and should be sealed with the ACTIS ISODHESIF tape recommended for the product.

HCONTROL REFLEX+ must not be in contact with a chimney. A heat resistant material should be installed around the chimney.

The product is fixed with corrosion-resistant nails or staples with a minimum length of 10mm. Each edge must be stapled at least every 100mm. After stapling, all overlaps should be covered by ACTIS ISODHESIF tape to guarantee the airtightness of the vapour control layer.

Joints around openings like roof windows and ventilation pipes must be sealed with ACTIS ISODHESIF tape to guarantee the airtightness of the vapour control layer. The joint between any vertical walls and the floor should be sealed with mastic. Particular attention should be paid to sealing around penetrations through the vapour barrier.

The product is installed on the inside of any insulation product and can be in direct contact with it. However, to ensure maximum thermal efficiency, it is recommended to leave an air gap of at least 20mm, either side of the product, between the product and any other parts of the structure (e.g. gypsum plasterboard, thermal insulation).



Diagram 1: example of horizontal installation



Diagram 2: example of vertical installation

- 1** Insulation
- 2** HCONTROL REFLEX+ vapour control layer
- 3** ACTIS ISODHESIF adhesive tape
- 4** Rafters
- 5** Wall

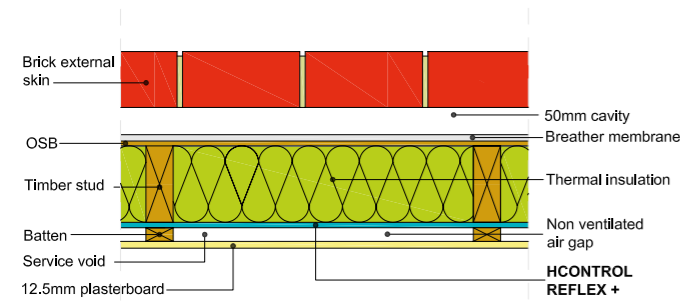
In the case of installation horizontally, the use of noggins between rafters is advised. Staple HCONTROL REFLEX+ to the noggin every 100mm. After stapling, the overlaps must be covered by ACTIS ISODHESIF tape, ensuring all staples are covered to create airtightness.

INSTALLATION PROCEDURE

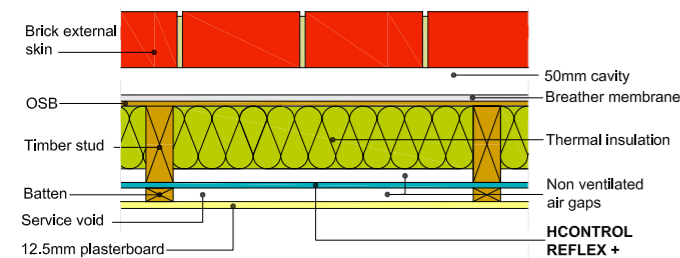
U-VALUE CALCULATIONS

Wall applications

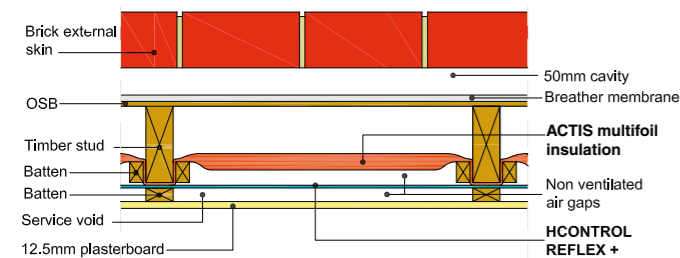
The product is installed on timber studs or on timber battens using corrosion-resistant staples or nails. In the case of installation on a metal frame, double sided tape should be used. The adjacent layers should be lapped by 50mm and sealed with tape.



Wall installation with one 20mm air gap between HCONTROL REFLEX+ and internal finish



Wall installation with 2 air gaps

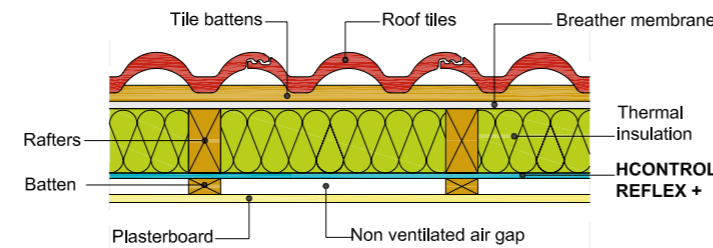


HCONTROL REFLEX+ can also be installed in conjunction with ACTIS multifoil insulation to provide a high performance system

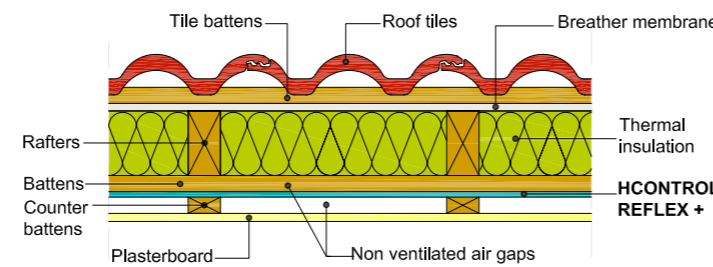
Roof applications

The product is laid under the rafters or battens and fixed using corrosion-resistant staples or nails.

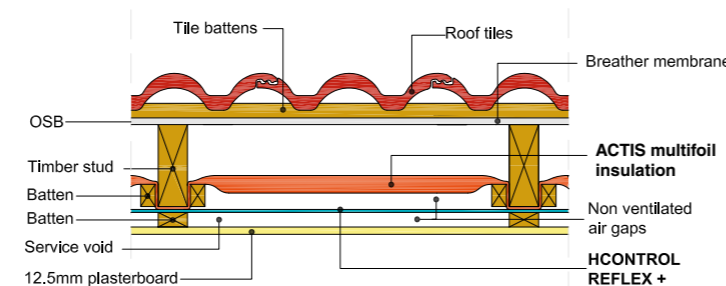
• When insulation is the same thickness as the rafters



Installation with one 20mm air gap between HCONTROL REFLEX+ and the internal finish

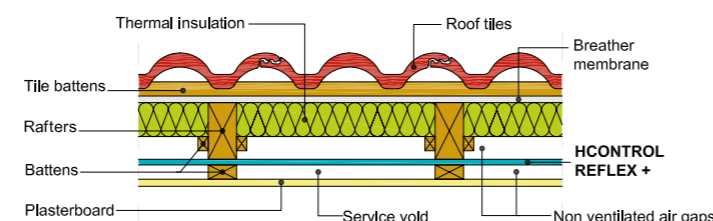


Installation with two air gaps



HCONTROL REFLEX+ can also be installed in conjunction with ACTIS multifoil insulation to provide a high performance system

• When insulation is thinner than depth of rafters



Installation with two air gaps

Timber frame walls solutions

INSULATION	STUD	U-VALUE
HCONTROL REFLEX+* 60mm Additional Insulation ($\lambda = 0.022$)	89mm	0.28
HCONTROL REFLEX+** 90mm Additional Insulation ($\lambda = 0.022$)	89mm	0.24

HCONTROL REFLEX+* 90mm Additional Insulation ($\lambda = 0.035$)	140mm	0.28
HCONTROL REFLEX+* 120mm Additional Insulation ($\lambda = 0.036$)	140mm	0.23
HCONTROL REFLEX+* 115mm Additional Insulation ($\lambda = 0.020$)	140mm	0.18

*Thermal resistance of HCONTROL REFLEX+ includes 2 unventilated air gaps

**Thermal resistance of HCONTROL REFLEX+ includes 1 unventilated air gap

Pitched roof solutions

INSULATION	U-VALUE
HCONTROL REFLEX+ 95mm Additional Insulation ($\lambda = 0.020$)	0.18
HCONTROL REFLEX+ 150mm Additional Insulation ($\lambda = 0.032$)	0.18
HCONTROL REFLEX+ 180mm Additional Insulation ($\lambda = 0.036$)	0.17

INSULATION	U-VALUE
HCONTROL REFLEX+* 75mm/30mm Additional Insulation ($\lambda = 0.020$)	0.16
HCONTROL REFLEX+* 75mm/60mm Additional Insulation ($\lambda = 0.020$)	0.13
HCONTROL REFLEX+* 100mm/60mm Additional Insulation ($\lambda = 0.020$)	0.11

* Thermal conductivity of HCONTROL REFLEX+ includes 2 unventilated air gaps

Installation details

The following drawings show details of junctions between the vapour control layer and particular parts of roof and wall structures.

Sealing of the vapour control layer

To ensure airtightness in a ducting transition area, one way is to make a small circular hole in the vapour control layer and introduce small segmental cuts to the edge of the hole. The vapour barrier can then be sealed to the duct by using the ACTIS ISODHESIF tape.

Flue

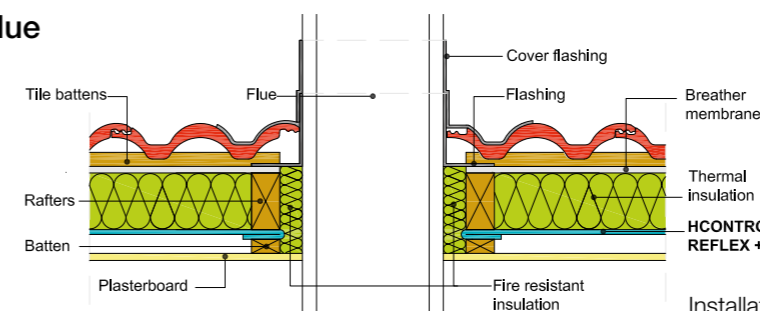


Diagram 13

Installation detail near a chimney (Other service penetration details are available upon request.)

Installation accessories



SAFETY PRECAUTIONS AND RECOMMENDATIONS

How to get the most from your ACTIS product

IMPORTANT: in addition to the specific recommendations given by ACTIS below, your ACTIS product should be installed and used in compliance with (1) good building practice; (2) the most recent editions of any applicable regulations or relevant guidance and (3) any British or European Standards relating to the installation and use of vapour control products, particularly in relation to safety precautions.

• **Fire precautions:** never expose ACTIS products to a direct heat source, sparks or a naked flame.

Keep blow torches well away from HCONTROL REFLEX+, even when using a flame guard or other protective device, and make sure that hot debris and sparks do not make contact with the vapour control layer.

• **Fireproof finishes and compartment walls:** as recommended by current regulatory guidance, do not leave the vapour control layer exposed in habitable rooms.

We recommend that HCONTROL REFLEX+ is always covered with a fireproof finish such as plasterboard (see, for example, the fire safety provisions contained in Approved Document B, which provides practical guidance on the fire safety requirements of the Building Regulations 2000 (as amended) in England and Wales; or refer to the relevant provisions in Scotland and Northern Ireland, as amended from time to time).

To ensure that compartment walls achieve the requisite levels of fire resistance, the vapour control layer should not be carried over junctions with such walls (again, please refer to the fire safety provisions contained in Approved Document B noted above, or to any applicable provisions in Scotland and Northern Ireland, as amended from time to time).

HCONTROL REFLEX+ is not fire rated. Its fire resistance has not been determined.

• **Chimneys, inserts, heat exchangers and other sources of heat:** never allow ACTIS products to be in contact with a chimney flue, an insert, heat exchanger or any other heat source above 80°C. A heat resistant material should be installed around chimneys etc.

Use a Euroclass A1 non-combustible material in compliance with British or European Standards.

ACTIS advise leaving a minimum gap of 200mm between the vapour control layer and chimneys, inserts, heat exchangers and all other sources of heat above 80°C.

Please seek advice from ACTIS by calling the helpline on 01249 462 888 and check with your local Building Control officer before installing the ACTIS vapour control layer near any source of heat above 80°C.

• **Down-lighters and recess lighting:** the use of down-lighters or recess lighting in conjunction with the ACTIS vapour control layer is not recommended. Unless special precautions are taken, this poses an elevated fire risk, along with compromising the vapour control and airtightness of the system.

However, if the use of such recess lighting in conjunction with HCONTROL REFLEX+ is desired, encasing the downlighter appropriately with a non-combustible material may provide adequate fire protection, but in all cases advice should be sought with the relevant Building Control officer who will give guidance on a case by case basis.

• **Structural performance:** HCONTROL REFLEX+ is a non load bearing product. It will tolerate normal loads associated with installation and use. It will not withstand being walked upon.

• **Direction of laying HCONTROL REFLEX+:** HCONTROL REFLEX+ may be laid either side up without affecting the efficiency of the product.

• **Durability:** HCONTROL REFLEX+ is rot-proof, does not tear easily and when installed as specified, will meet the criteria in standard EN 13984 for durability.

• **Television and mobile signals:** it is advisable to have an external television aerial when using HCONTROL REFLEX+. Mobile signals may be affected by it.

• **Contact between materials and compatibility between products:** avoid all contact between HCONTROL REFLEX+ and lead, zinc, copper and its alloys as well as caustic products.

• **Storage:** rolls should be stored in clean dry conditions not exposed to sunlight and in such a way that dirt and dust cannot collect on the product's surface. The product must be protected from being dropped or crushed by objects. The product must not be exposed to open flames or other ignition sources and must be stored away from flammable materials such as solvents.

Distributor details



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