

Steel/Nylon percussion insert

Percussion polypropylene insulation anchor with mixed steel and nylon nail.

Polypropylene expansion anchors with a mixed steel and nylon nail, designed to reduce thermal bridging, with percussion insertion. Approved EAD 330196-00-0604 for substrate categories A - concrete, B - solid brick, C - hollow brick, D - lightweight concrete block, and E - autoclaved aerated concrete. Available for fastening of panels with thickness from 60 mm to 260 mm. Can be mounted with Oversize fixing disk for the application of low compressive strength heat-insulating panels.



1. With European Technical Assessment (ETA), according to EAD 330196-00-0604 for substrate categories A, B, C, D and E
2. Mixed body nail, with steel tip and nylon head, to ensure no heat dispersal
3. Asymmetric expansion of the insulation anchor for a better hold in the substrate
4. Suitable for all types of heat-insulating panels in Klimaexpert systems
5. Percussion insertion for speed of application
6. Can be mounted with Oversize fixing disk for low compressive strength heat-insulating panels

Areas of application

→ Intended use:

Expansion insulation anchors in polypropylene, with mixed steel and fibreglass-reinforced nylon nail. Percussion insertion for mechanical fastening of heat-insulating panels.

The insulation anchor must be chosen based on the thickness of the heat-insulating panel to be fixed; the insulation anchor must penetrate the substrate by at least 4 cm. When calculating the useful fastening length, take into account the adhesive layer and any plaster.

Before mechanically fastening the panel, bond it to the substrate using a suitable adhesive&finishing product for external thermal insulation.

Product with European Technical Assessment (ETA), according to EAD 330196-00-0604 for application on the following substrate categories:

- concrete: Category A
- solid bricks: Category B
- hollow bricks: Category C
- lightweight concrete blocks: Category D
- autoclaved aerated concrete blocks¹⁾: Category E

1) Nylon percussion insert can only be used on autoclaved aerated concrete blocks (cat. E) with a density of at least 400 kg/m³. For further information see the Permissible Loads table at the end of the information sheet

Instructions for use

→ Where required, instructions for use refer to the Italian Technical Report UNI/TR 11715 "Heat-insulating products for buildings - Design and installation of external heat-insulating systems (ETICS)".

→ System preparation (UNI/TR 11715 - paragraph 9)
Heat-insulating panels must always be anchored after being bonded to the substrate for at least 24-48 hours and in any case after the adhesive has hardened.

Insulation anchors must be positioned at bonding areas of the heat-insulating panel. For details, see the specific anchoring diagrams shown below.

→ Anchor insertion (UNI/TR 11715 - paragraph 9)
Drilling the substrate
The type of drilling will be determined by the type of building material from which the substrate is made. Incorrect drilling options may cause a strong reduction in insulation anchor hold and incorrect insertion.

- ① Drill a bore perpendicular to the substrate with a suitable tip with a diameter of \varnothing 8 mm. The bore must be at least 1 cm longer than the length of the insulation anchors.

In case of:

- Substrates in hollow bricks or other low strength materials: rotary drilling.
- Substrates in solid bricks, concrete or any dense-structure materials: roto-percussion drilling.

To ease work, it is possible to use non-hydraulic impact screwdriver (light percussion) on low strength substrates. Roto-percussion mode must be avoided at all costs, otherwise the substrate will be damaged and holding of the anchor will not be guaranteed.

In order to guarantee correct insertion without damage, always clean the bore made before inserting the insulation anchor.

- ② Insert the pre-assembled insulation anchor into the bore made; take care to position the head of the anchor perfectly flush with the heat-insulating panel. Do not force insertion; if the insulation anchor gets stuck, clean the bore. The length of the insulation anchor must be chosen according to the thickness to be fastened; thickness of the panel, of the adhesive and of any plaster/render must be taken into account. The insulation anchor must penetrate the substrate by at least 4 cm.
- ③ Hammer the nail. The nail will be inserted flush with the head of the insulation anchor. The anchor must be flush with the heat-insulating panel, in order to avoid imperfections on the facade. Be careful not to damage the panel during the hammering phase.

Notes:

The body of the insulation anchor is equipped with an initial part of diameter \varnothing 10 mm. The remaining part, of variable length, has a diameter \varnothing 8 mm. The part with the largest diameter must be inserted exclusively into the heat-insulating panel.

Positioning of insulation anchors and their numbers per m² will be determined by the designer and site management.



Instructions for use

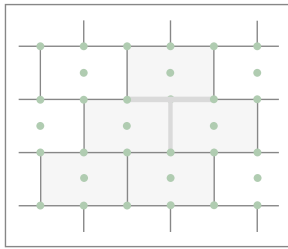
→ Indicative anchoring diagrams (UNI/TR 11715 – paragraph 9/appendix B)

The following anchoring diagrams are the most typical indication of how to apply 6 insulation anchors per m² depending on the type of heat-insulating panel.

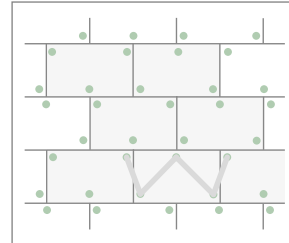
Near the edges of the building and in any case in the presence of particular wind conditions or at the height of the building, provide for an increase in the number of insulation anchors as indicated by the Designer or the Works Management.

Anchoring diagrams with 6 anchors/m²

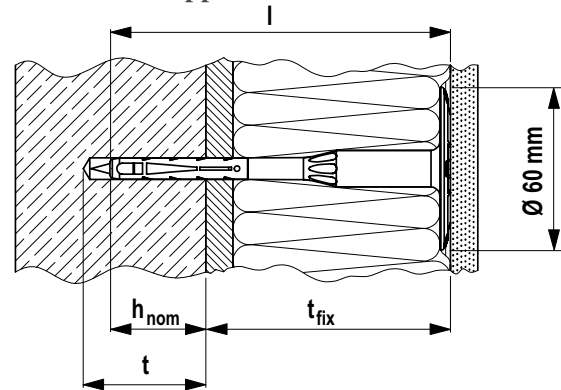
For synthetic panels such as EPS, use the “T” anchoring diagram in which an insulation anchor is placed at each slab intersection, plus an anchor at the centre of each slab



For natural and mineral panels such as MW, use the “W” anchoring diagram, in which each slab is fixed with 3 anchors, positioned inside the panel near the edge to prevent it from breaking through



Detail of the applied insulation anchor:



See the Technical Data table

Certificates and marks



Abstract

Mechanical fastening of heat-insulating panels will be carried out with percussion polypropylene expansion insulation anchors with mixed steel and nylon nail such as Nylon/steel percussion insert by Kerakoll Spa. Positioning of Universal spacer and their numbers per m² will be determined by the designer and site management.

Technical Data compliant with Kerakoll Quality Standard

Appearance	polypropylene insulation anchor with mixed steel and nylon nail
Preparation	assembled
Insulation anchor colour	grey
Nail colour	white/steel
Diameter of insulation anchor head	60 mm
Minimum bore depth (t)	50 mm
Bore diameter (d0)	8 mm
Insulation anchor application	
Length of anchor (mm)	maximum fastening thickness tfix (mm)
110	70
130	90
150	110
170	130
190	150
210	170
230	190
250	210
270	230
290	250
310	270

(*) tfix = insulating panel thickness + adhesive + existing plaster/render, if any
N.B. for building materials class E, the bore depth (t) must be 70 mm (instead of 50 mm) and the anchoring depth (hnom) 60 mm (instead of 40 mm).

Performance				
Permissible loads ¹⁾⁴⁾ for a single insulation anchor for fastening external thermal insulation panelling composite systems (ETICS)				
Substrate³⁾	Density supporting material min. (kg/dm³)	Minimum brick compressive strength (N/mm²)	Drilling method²⁾	Permissible loads according to ETA (kN)
Concrete	-	C12/15	hrs	0.30
Concrete	-	C16/20	hrs	0.30
Concrete	-	C50/60	hrs	0.30
Solid clay brick Mz	2.0	12	hrs	0.30
Solid calcium silicate brick KS	1.8	12	R	0.30
Solid lightweight concrete block Vbl	1.4	8	R	0.20
Solid normal concrete block Vbn	2.0	20	hrs	0.25
Partially solid clay brick (vertically perforated) Hlz	1.0	12	R	0.20
Partially solid calcium silicate brick (vertically perforated) KSL	1.4	20	R	0.25
Partially solid calcium silicate brick (vertically perforated) KSL	1.4	12	R	0.17
Hollow block in lightweight concrete Hbl	1.2	10	R	0.20
Lightweight concrete (with lightweight aggregates) LAC	0.8	4	R	0.13
Lightweight concrete (with lightweight aggregates) LAC	0.8	6	R	0.20
Autoclaved aerated concrete block (cellular) PP, PB	0.4	4	R	0.10
Autoclaved aerated concrete block (cellular) PP, PB	0.6	6	R	0.10

1. The necessary partial safety factors for material strength have been considered, as well as a partial safety factor for actions $\gamma = 1.5$

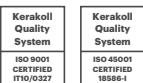
2. H = roto-percussion drilling, R = rotary drilling

3. Consult the European Technical Assessment for restrictions related to each manufacturer, for drilling patterns and for thickness of the brick shell. If the typical tensile strength of the fastening is not available, this can be determined through on-site extraction tests carried out on the material actually used.

4. Tensile actions only

Warning

- Abide by any standards and national regulations
 - keep dry, protect from moisture, UV rays and sources of heat
 - store at temperatures between -5 °C and +40 °C
 - use at temperatures between +5 °C and +30 °C
 - once applied, the insulation anchors must be protected from UV rays with a suitable finishing coat as soon as possible
- the product is an item according to the definitions of the EC Regulation No. 1907/2006 and therefore does not require a Safety Data Sheet
 - for any other issues, contact Kerakoll Technical Customer Service: + 39 0536.811.516
www.kerakoll.com/contatti



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