INSTYTUT TECHNIKI BUDOWLANEJ

Designated according to Article 29 of Regulation (EU) No 305/2011 and member of EOTA (European Organisation for Technical Assessment)

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European Technical Assessment

ETA-23/0710 of 26/09/2023

General Part

Technical Assessment Body issuing the European Technical Assessment	Instytut Techniki Budowlanej
Trade name of the construction product	Taco Super Inco MT
Product family to which the construction product belongs	Nailed-in plastic anchors for fixing of external thermal insulation composite systems (ETICS)
Manufacturer	Desarrollos Especiales de Sistemas de Anclaje S.A. (Grupodesa) C/ Basters 29, Pol. Ind. Palau de Reig 43800 Valls (Tarragona) Spain
Manufacturing plant	Manufacturing Plant No. 3
This European Technical Assessment contains	19 pages including 3 Annexes which form an integral part of this Assessment
This European Technical Assessment is issued in accordance with regulation (EU) No 305/2011, on the basis of	European Assessment Document (EAD) 330196-01-0604 "Plastic anchors made of virgin or non-virgin material for fixing of external thermal insulation composite systems with rendering"

Specific Part

1 Technical description of the product

The Taco Super Inco MT nailed-in plastic anchors consists of anchor sleeve with a plate made of polypropylene (virgin material) and specific steel nail as an expansion pin.

The plastic anchor sleeve is expanded by hammering a nail, which press the sleeve against the wall of the drilled hole.

The Taco Super Inco MT anchors may in addition be combined with the plates Arandela 90, Arandela PP 90, Arandela PP 110 and Arandela 140.

The drawings and the description of the products are given in Annex A.

2 Specification of the intended use in accordance with the applicable European Assessment Document (EAD)

The performances given in clause 3 are only valid if the anchor is used in compliance with the specifications and conditions given in Annex B.

The provisions made in this European Technical Assessment are based on an assumed working life of the anchor of 25 years. The indications given on the working life cannot be interpreted as a guarantee given by the producer or Technical Assessment Body, but are to be regarded only as a means for choosing the right products in relation to the expected economically reasonable working life of the works.

3 Performance of the product and references to the methods used for its assessment

3.1 Performance of the product

3.1.1 Safety and accessibility in use (BWR 4)

Essential characteristic	Performance
Characteristic resistance	Annex C1
Edge distances and spacing	Annex B2
Plate stiffness	Annex C2
Displacements	Annex C3

3.1.2 Energy economy and heat retention (BWR 6)

Essential characteristic	Performance
Point thermal transmittance of an anchor	Annex C2

3.2 Methods used for the assessment

The assessment has been made in accordance with EAD 330196-01-0604.

4 Assessment and verification of constancy of performance (AVCP) system applied, with reference to its legal base

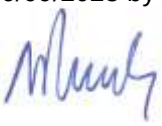
According to Decision 97/463/EC of the European Commission the system 2+ of assessment and verification of constancy of performance (see Annex V to the regulation (EU) No 305/2011) applies.

5 Technical details necessary for the implementation of the AVCP system, as provided in the applicable European Assessment Document (EAD)

Technical details necessary for the implementation of the AVCP system are laid down in the control plan deposited in Instytut Techniki Budowlanej.

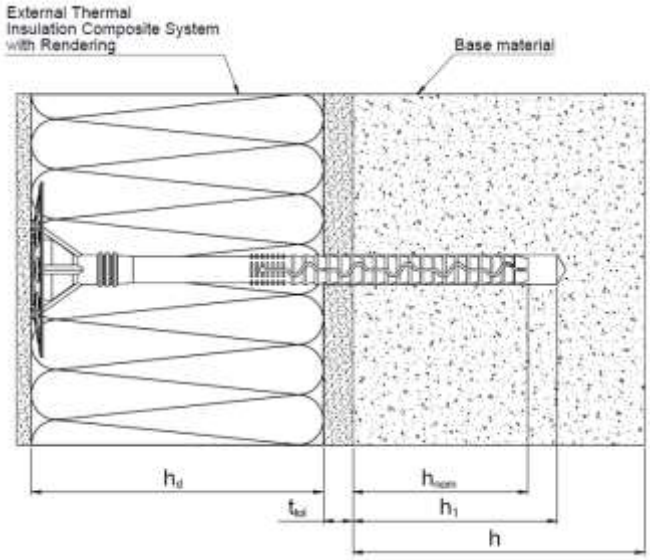
For the type testing the results of the tests performed as part of the assessment for the European Technical Assessment shall be used unless there are changes in the production line or plant. In such cases the necessary type testing has to be agreed between Instytut Techniki Budowlanej and the notified body.

Issued in Warsaw on 26/09/2023 by Instytut Techniki Budowlanej

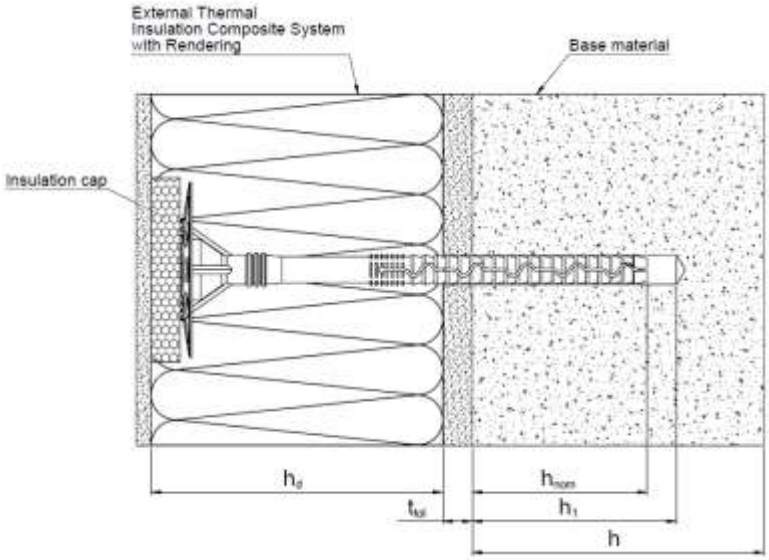


Anna Panek, MSc

Deputy Director of ITB



Surface assembly



Countersunk assembly

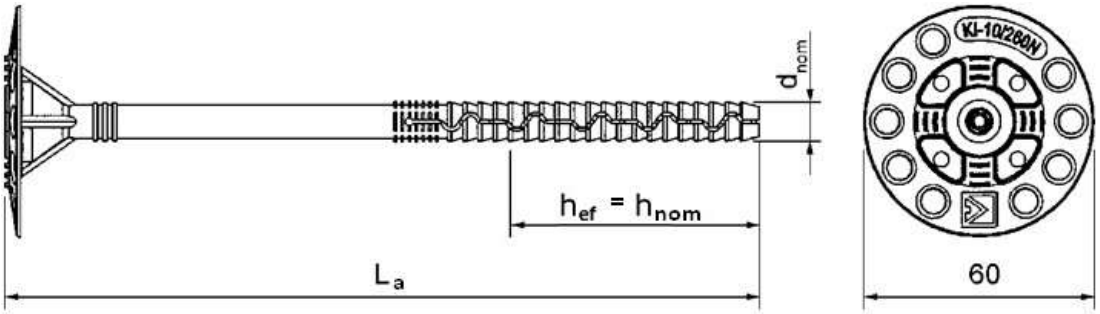
Intended use

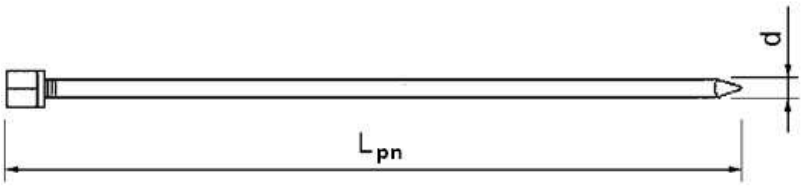
Fixing of external thermal insulation composite systems in concrete and in masonry

Legend

h_{nom} = h_{ef} = effective anchorage depth
h_1 = depth of drill hole in base material
h = thickness of base material
h_d = thickness of insulation material
t_{tol} = thickness of equalizing and/or non-load-bearing layer

Taco Super Inco MT	**Annex A1** of European Technical Assessment ETA-23/0710
Product description Installation conditions	





Marking:
Identifying mark:

Sleeve type:
Taco Super Inco MT

Length of anchor:
e.g. 260

Nominal diameter:
d_{nom} (ϕ10)

Insulation cap

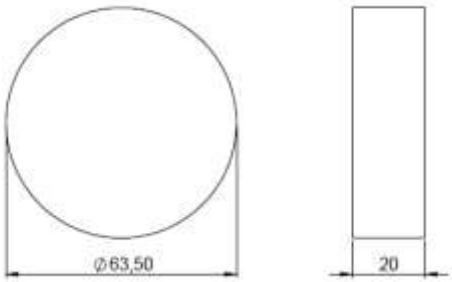


Table A1: Taco Super Inco MT anchor types and dimensions [mm]

Anchore type	Anchor sleeve			Expansion pin	
	$d_{nom} \pm 0,1$	L_a	$h_{ef} = h_{nom}$	$d \pm 0,1$	$L_{pn} \pm 2$
Taco Super Inco MT	10	120 - 340	60	4,9	120 - 340

Determination of maximum thickness of insulation material:
For surface assembly: $h_d = L_a - t_{tol} - h_{ef}$
For countersunk assembly: $h_d = L_a - t_{tol} - h_{ef} + 20$ mm

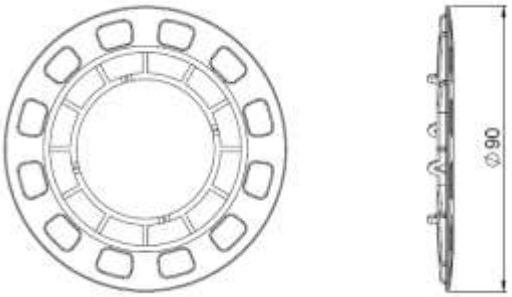
Taco Super Inco MT	Annex A2 of European Technical Assessment ETA-23/0710
Product description Marking and dimensions of the anchor sleeve and expansion element	

Table A2: Materials

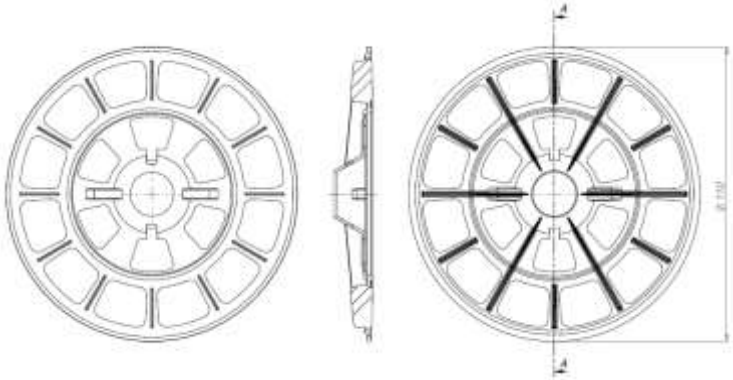
Designation	Material
Anchor sleeve	Polypropylene, natural and white, virgin material
Expansion pin	Carbon steel ($f_{y,k}$ = 190 MPa, $f_{u,k}$ = 330 MPa) galvanised ≥ 5 µm according to EN ISO 4042, with head coating of polyamide PA6, nature

Arandela 90

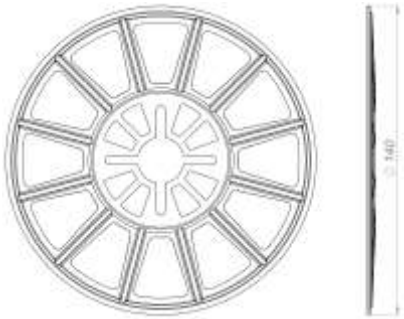
Arandela PP 90



Arandela PP 110



Arandela 140

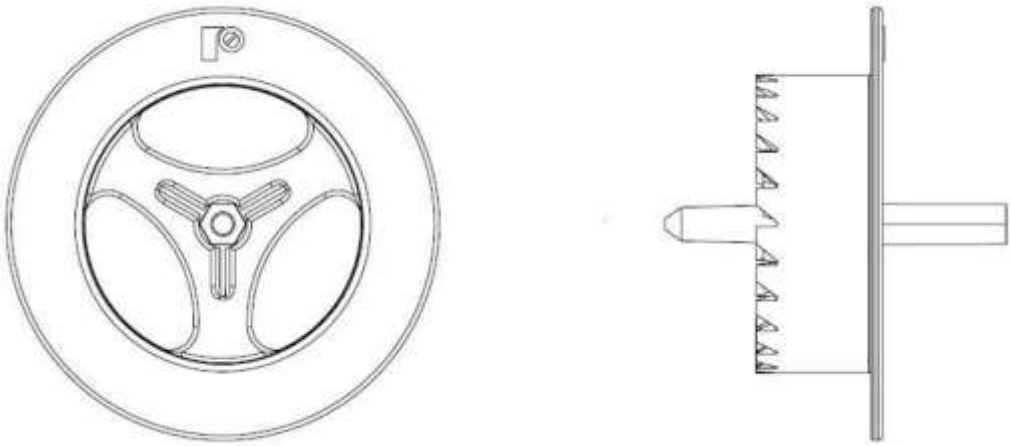


Taco Super Inco MT	**Annex A4** of European Technical Assessment ETA-23/0710
Product description Additional plates Arandela 90, Arandela PP 90, Arandela PP 110 and Arandela 140	

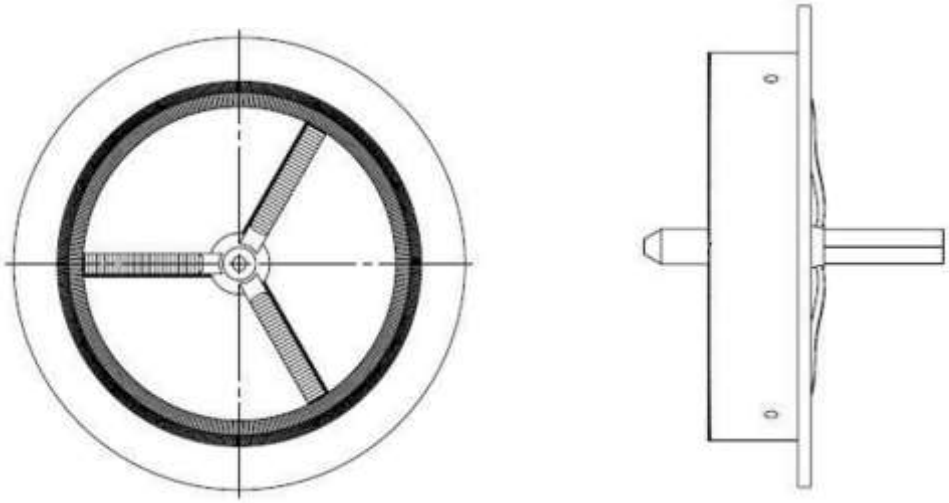
Table A3: Additional plates Arandela 90, Arandela PP 90, Arandela PP 110 and Arandela 140

Plate type	Outer diameter [mm]	Material
Arandela 90	90	Glass fibre reinforced polyamide PA6 GF 30, nature or polypropylene, nature
Arandela PP 90	90	
Arandela PP 110	110	
Arandela 140	140	

Cutter AI-P for countersunk assembly



Cutter AI-M for countersunk assembly



Taco Super Inco MT	**Annex A6** of European Technical Assessment ETA-23/0710
Product description Cutters AI-P and AI-M for countersunk assembly	

Specification of intended use

Anchorages subject to:

- Wind suction loads.
  Note: The anchor shall not be used for the transmission of dead loads of the external thermal insulation composite system (ETICS).

Base materials:

- Solid masonry (base material group B), according to Annex C1 and C3.
- Hollow or perforated masonry (base material group C), according to Annex C1 and C3.
- Lightweight aggregate concrete (base material group D), according to Annex C1 and C3.
- Autoclaved aerated concrete (base material group E), according to Annex C1 and C3.
- For other base materials of the base material groups B, C, D or E the characteristic resistance of the anchor may be determined by job site tests according to EOTA Technical Report TR 051, edition April 2018.

Temperature range:

- 0°C to +40°C (max. short term temperature +40°C and max. long term temperature +24°C).

Design:

- The anchorages are designed under the responsibility of an engineer experienced in anchorages and masonry work with the partial safety factors γ_M = 2,0 and γ_F = 1,5, if there are no other national regulations.
- Verifiable calculation notes and drawings with anchor positions are prepared taking into account of the loads to be anchored.
- Anchors are only to be used for multiple fixings of thermal insulation composite system (ETICS), according to EAD 330196-01-0604.

Installation:

- Hole shall be drilled by the drill modes according to Annex C1.
- Anchor installation shall be carried out by appropriately qualified personnel and under the supervision of the person responsible for technical matters of the site.
- Installation shall be executed in temperature from 0°C to +40°C.
- Exposure to UV due to solar radiation of the anchor not protected by rendering shall not exceed 6 weeks.

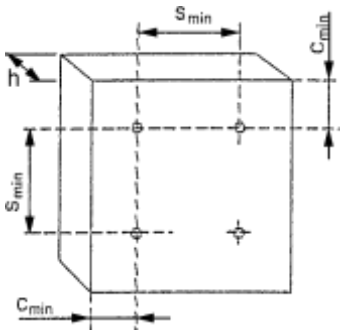
Table B1: Installation characteristics

Anchor type		Taco Super Inco MT
Drill hole diameter	d_0 [mm]	10
Cutting diameter of drill bit	d_{cut} [mm]	≤ 10,45
Depth of drill hole	h_1 [mm]	≥ 70
Effective anchorage depth	h_{ef} [mm]	≥ 60

Table B2: Minimum thickness of base material, anchor spacing and minimum edge distance

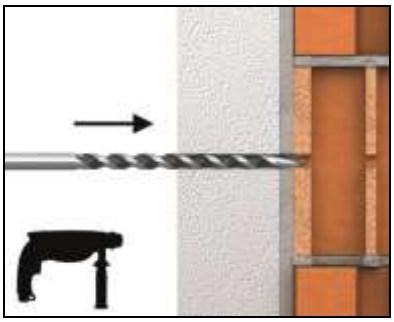
Anchor type		Taco Super Inco MT
Minimum thickness of base material	h [mm]	100
Minimum spacing	s_{min} [mm]	100
Minimum edge distance	c_{min} [mm]	100

Diagram of spacing

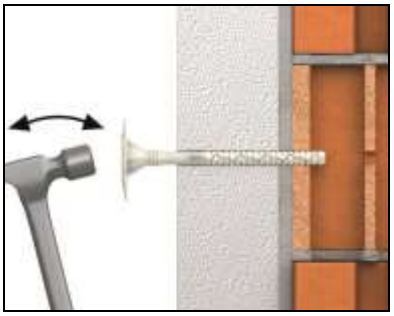


Taco Super Inco MT	**Annex B2** of European Technical Assessment ETA-23/0710
Intended use Installation characteristics, minimum thickness of base material, minimum spacing and minimum edge distance	

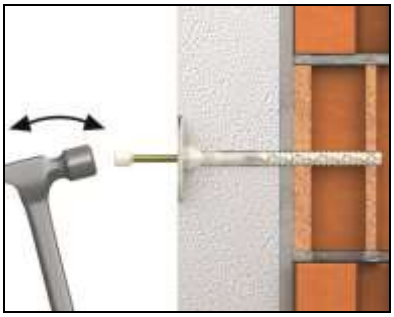
Installation instruction - surface assembly



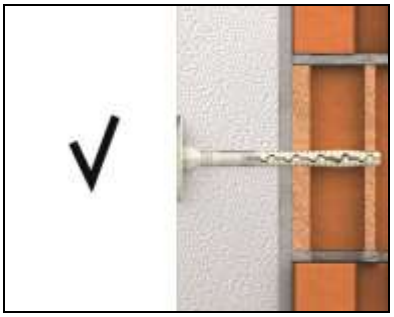
1. Drill hole using method acc. to Annex C1



2. Set-in sleeve manually



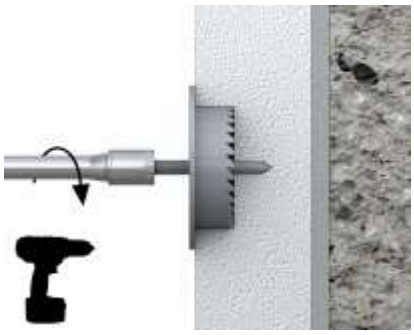
3. Set expansion element by hammer blow



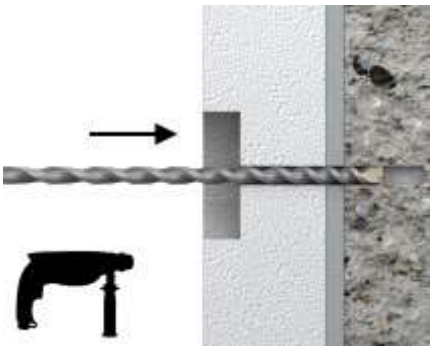
4. Correctly installed anchor

Taco Super Inco MT	**Annex B3** of European Technical Assessment ETA-23/0710
Intended use Installation instruction - surface assembly	

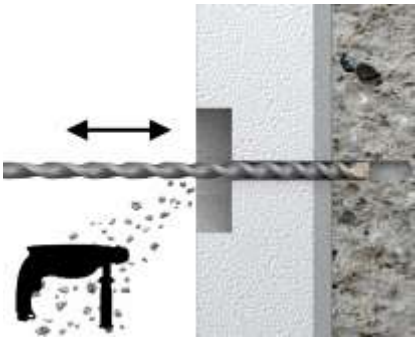
Installation instruction - countersunk assembly



1. Make a hole for the plug using a cutter

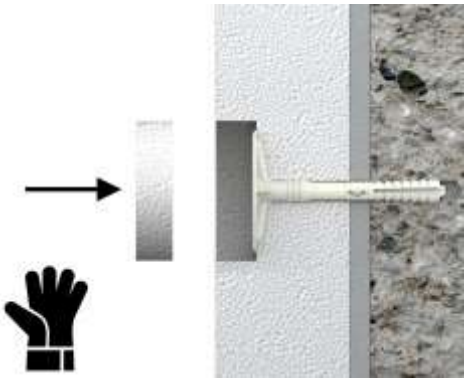


2. Drill hole perpendicular to substrate surface

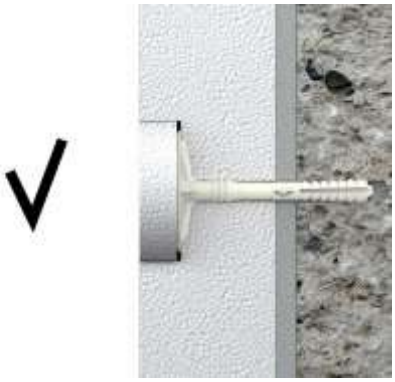


3. Clean the drill hole 3 times

4. Set-in the anchor and make sure that the plate bottom is flush with the ETICS surface



5. Use the cap to close the system



6. Correctly installed anchor

Taco Super Inco MT	**Annex B4** of European Technical Assessment ETA-23/0710
Intended use Installation instruction - countersunk assembly	

Table C1-1: Characteristic resistance under tension loads, N_{Rk}, in concrete and in masonry for single anchor

Base material group	Base material	Bulk density [kg/dm³]	Compressive strength [N/mm²]	Referring standard	Drill method	N_{Rk} [kN]
B	Clay brick 	≥ 1,70	≥ 20,0	EN 771-1	hammer	0,75
C	Calcium silicate hollow block (KSL-R 8 DF)  a[1)] = 22 [mm]	≥ 1,30	≥ 15,0	EN 771-2	rotary	0,40
	Hollowed brique (Optibrick PV acc. to EN 771-1) a[1)] = 10 [mm] 	≥ 0,60	≥ 7,5	EN 771-1	rotary	0,40
	Perforated ceramic brick (Hlz B – 1.0 1NF 12-1)  a[1)] = 13 [mm] 	≥ 0,95	≥ 12,0	EN 771-1	rotary	0,55
Partial safety factor for anchor resistance, γ_M [(2)]		2,0				

[(1)] Minimum values “a”. For elements with lower value of “a” the load tests on the construction site are required

[(2)] Valid in absence of other national regulations

Table C1-2: Characteristic resistance under tension loads, N_{Rk}, in concrete and in masonry for single anchor

Base material group	Base material	Bulk density [kg/dm³]	Compressive strength [N/mm²]	Referring standard	Drill method	N_{Rk} [kN]
C	Vertical perforated porosited block (Porotherm 25 P+W)  a[1)] = 10 [mm] 	≥ 0,80	≥ 15,0	EN 771-1	rotary	0,60
D	Lightweight concrete block	≥ 1,56	≥ 20,0	EN 771-3	rotary	0,65
E	Autoclaved aerated concrete block (AAC 2)	≥ 0,35	≥ 2,0	EN 771-4	rotary	0,30
	Autoclaved aerated concrete block (AAC 5)	≥ 0,60	≥ 5,0	EN 771-4	rotary	0,90
Partial safety factor for anchor resistance, γ_M [2)]		2,0				

[1)] Minimum values “a”. For elements with lower value of “a” the load tests on the construction site are required

[2)] Valid in absence of other national regulations

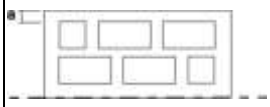
Table C2-1: Point thermal transmittance according to EOTA Technical Report TR 025

Anchor type	Insulation thickness H_D [mm]	Point thermal transmittance χ [W/K]
Taco Super Inco MT	45 - 280	0,003

Table C2-2: Plate stiffness according to EOTA Technical Report TR 026

Anchor type	Diameter of the anchor plate d_{plate} [mm]	Load resistance of the anchor plate $N_{u,m}$ [kN]	Plate stiffness $N_{0,m}$ [kN/mm]
Taco Super Inco MT	60	1,23	0,5

Table C3-1: Displacements

Base material	Bulk density [kg/dm³]	Compressive strength [N/mm²]	$\frac{N_{Rk}}{3}$, [kN]	$\delta\left(\frac{N_{Rk}}{3}\right)$ [mm]
Clay brick 	≥ 1,70	≥ 20,0	0,25	0,91
Calcium silicate hollow block (KSL-R 8 DF)  a[1)] = 22 [mm]	≥ 1,30	≥ 15,0	0,13	0,36
Hollowed brique (Optibrick PV acc. to EN 771-1) a[1)] = 10 [mm] 	≥ 0,60	≥ 7,5	0,13	0,54
Perforated ceramic brick (Hlz B – 1.0 1NF 12-1)  a[1)] = 13 [mm] 	0,95	≥ 12,0	0,18	0,63

[1)] Minimum values “a”. For elements with lower value of “a” the load tests on the construction site are required

Table C3-2: Displacements

Base material	Bulk density [kg/dm³]	Compressive strength [N/mm²]	$\frac{N_{Rk}}{3}$, [kN]	$\delta\left(\frac{N_{Rk}}{3}\right)$ [mm]
Vertical perforated porosited block (Porotherm 25 P+W)  a[1)] = 10 [mm] 	≥ 0,80	≥ 15,0	0,20	0,79
Lightweight concrete block	≥ 1,56	≥ 20,0	0,22	0,80
Autoclaved aerated concrete block (AAC 2)	≥ 0,35	≥ 2,0	0,10	0,55
Autoclaved aerated concrete block (AAC 5)	≥ 0,60	≥ 5,0	0,30	0,84

(1) Minimum values “a”. For elements with lower value of “a” the load tests on the construction site are required

Taco Super Inco MT	**Annex C3** of European Technical Assessment ETA-23/0710
Performances Displacements	