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

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European Technical Assessment

ETA-11/0232 of 08/09/2016

General Part

Technical Assessment Body issuing the European Technical Assessment	Instytut Techniki Budowlanej
Trade name of the construction product	WKTHERMϕ8
Product family to which the construction product belongs	Nailed-in plastic anchors for fixing of external thermal insulation composite systems with rendering in concrete and masonry
Manufacturer	KLIMAS Sp. z o. o ul. Wincentego Witosa 135/137 Kuźnica Kiedrzyńska PL 42-233 Mykanów Poland
Manufacturing plant	KLIMAS Sp. z o. o ul. Warszawska 2 Wanaty PL 42-260 Kamienica Polska Poland
This European Technical Assessment contains	17 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	Guideline for European technical approval of "Plastic anchors for fixing of external thermal insulation composite systems with rendering", ETAG 014, edition February 2011, used as European Assessment Document (EAD) according to Article 66 Paragraph 3 of Regulation (EU) No 305/2011.
This version replaces	ETA-11/0232 issued on 07/09/2011

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Specific Part

1 Technical description of the product

The WKTHERMϕ8 nailed-in plastic anchor consists of an anchor sleeve with a plate made of polyethylene and an accompanying specific nail as an expansion pin made of the galvanised steel with a head covered by polyamide as a plastic coat.

The WKTHERMϕ8 anchor may in addition be combined with anchor plate TDX-90, TDX-P-90, TDX-140 or TDX-P-140.

The product description is given in Annex A.

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

The performances given in Section 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 Mechanical resistance and stability (BWR 1)

Requirements with respect to the mechanical resistance and stability of non load bearing parts of the works are not included in this Basic Works Requirements but are under the Basic Works Requirement safety in use (BWR 4).

3.1.2 Hygiene, health and the environment (BWR 3)

Regarding dangerous substances, there may be requirements applicable to the products falling within its scope (e.g. transposed European legislation and national laws, regulations and administrative provisions). In order to meet the provisions of the Regulation (EU) No 305/2011, these requirements need also to be complied with, when and where they apply.

3.1.3 Safety and accessibility in use (BWR 4)

Essential characteristic	Performance
Characteristic resistance	Annex C1
Edge distances and spacings	Annex B2
Point thermal transmittance	Annex C2
Plate stiffness	Annex C2
Displacements	Annex C3

3.1.4 Sustainable use of natural resources (BWR 7)

No performance assessed.

3.2 Methods used for the assessment

The assessment of the anchor for the declared intended use in relation to the requirements for mechanical resistance and stability and safety in use in the sense of the Basic Requirement 4 has been made in accordance with the ETAG 014 *"Plastic anchors for fixing of external thermal insulation composite systems with rendering"*, Edition February 2011.

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

According to the Decision 97/463/EC of the European Commission the system of assessment and verification of constancy of performance (see Annex V to Regulation (EU) No 305/2011) given in the following table applies.

Product	Intended use	Level or class	System
Plastic anchor for use in concrete and masonry	For use in systems, such as facade systems, for fixing or supporting elements which contribute to the stability of the systems	–	2+

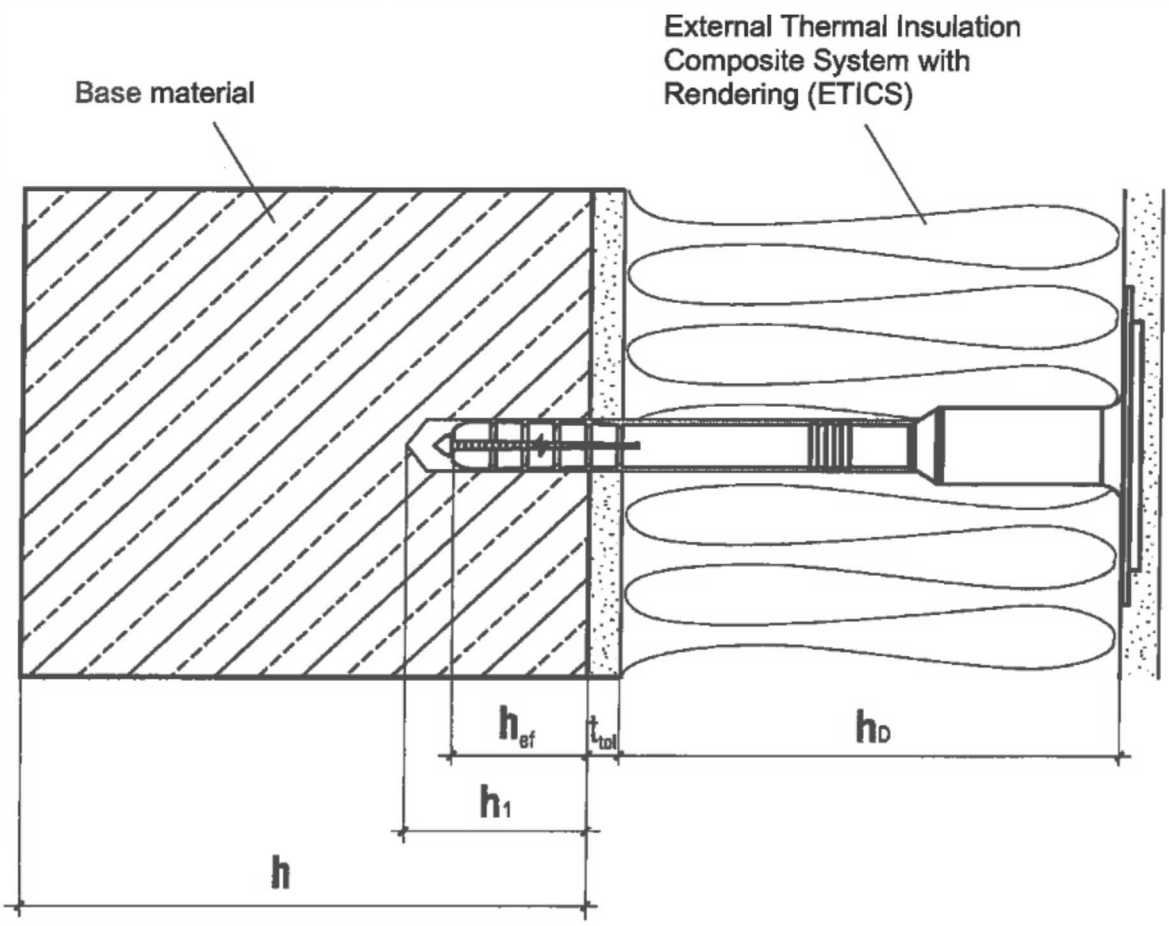
5 Technical details necessary for the implementation of the AVCP system, as provided in the applicable European Assessment Document (EAD)

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

For 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 08/09/2016 by Instytut Techniki Budowlanej

Marcin M. Kruk, PhD
Director of ITB



Legend

h_{ef} = effective anchorage depth

h_1 = depth of drill hole in base material

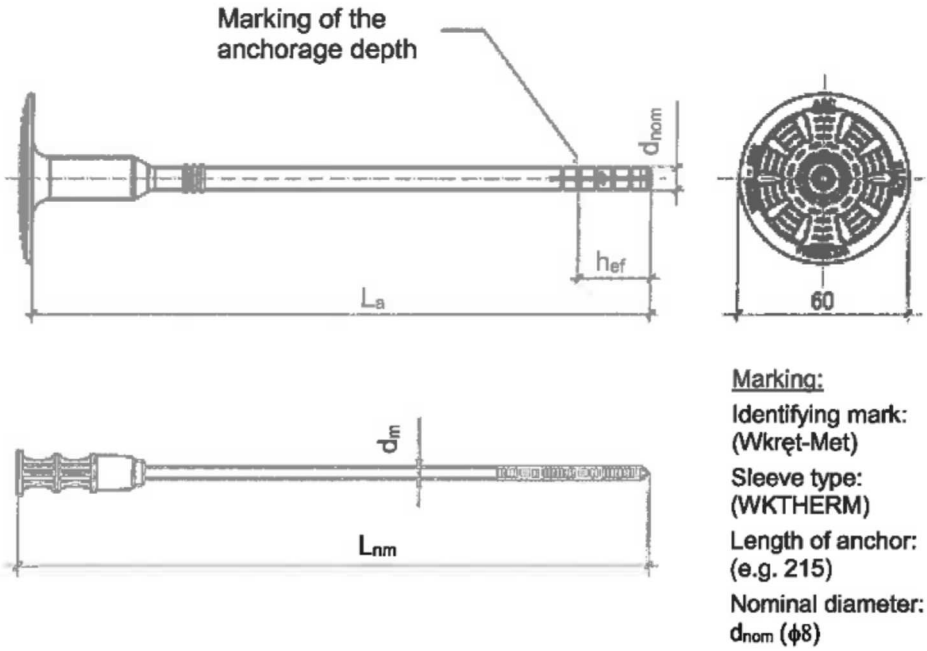
h = thickness of base material

h_D = thickness of insulation material

t_{tol} = thickness of equalizing and/or non-load-bearing layer

WKTHERMϕ8	**Annex A1** of European Technical Assessment ETA-11/0232
Product description Installation conditions	

WKTHERMϕ8



Marking:
Identifying mark: (Wkręt-Met)
Sleeve type: (WKTHERM)
Length of anchor: (e.g. 215)
Nominal diameter: d_{nom} (ϕ8)

Table A2: WKTHERMϕ8 anchor types and dimensions [mm]

Anchor type	Anchor sleeve			Expansion pin	
	d_{nom}	L_a	h_{ef}	d_m	L_{nm}
WKTHERMϕ8 x 95	8	95	25	4,35	105
WKTHERMϕ8 x 115	8	115	25	4,35	125
WKTHERMϕ8 x 135	8	135	25	4,35	145
WKTHERMϕ8 x 155	8	155	25	4,35	165
WKTHERMϕ8 x 175	8	175	25	4,35	185
WKTHERMϕ8 x 195	8	195	25	4,35	205
WKTHERMϕ8 x 215	8	215	25	4,35	225
WKTHERMϕ8 x 235	8	235	25	4,35	245
WKTHERMϕ8 x 255	8	255	25	4,35	265
WKTHERMϕ8 x 275	8	275	25	4,35	285
WKTHERMϕ8 x 295	8	295	25	4,35	305
WKTHERMϕ8 x 315	8	315	25	4,35	325
WKTHERMϕ8 x 335	8	335	25	4,35	345
WKTHERMϕ8 x 355	8	355	25	4,35	365

Determination of maximum thickness of insulation material: $h_D = L_a - t_{tol} - h_{ef}$

WKTHERMϕ8	**Annex A2** of European Technical Assessment ETA-11/0232
Product description Marking and dimensions of the anchor sleeve and expansion element of the WKTHERMϕ8	

Table A3: Materials

Designation	Material
Anchor sleeve	Polyethylene, natural or grey
Expansion pin	Carbon steel ($f_{y,k}$ = 235 MPa, $f_{u,k}$ = 360 MPa) galvanised ≥ 5 µm according to EN ISO 4042, with head covered by polyamide PA6 (natural or grey)

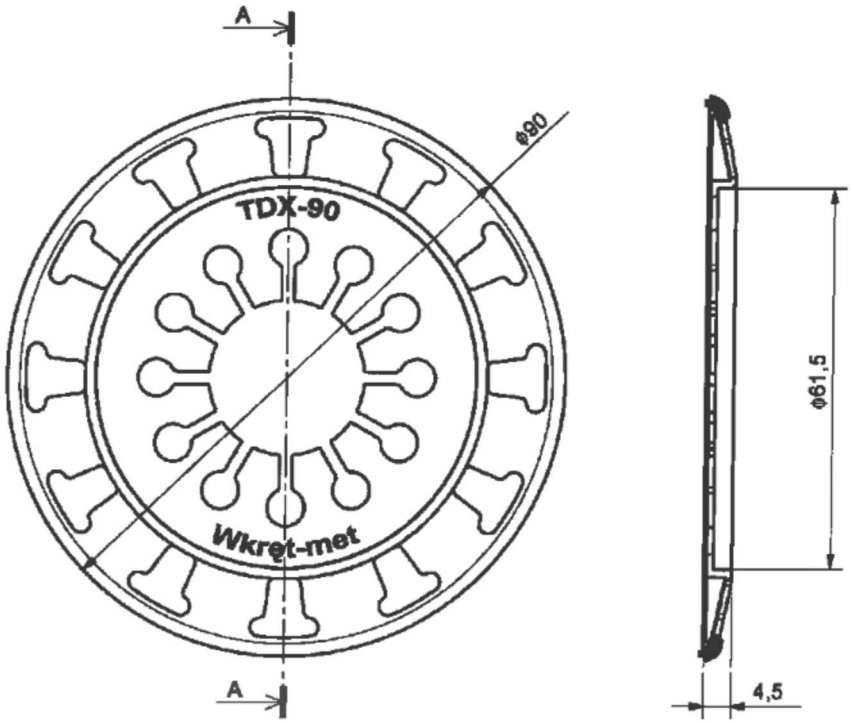


Table A4: Additional plate TDX-90 and TDX-P-90

Plate type	Outer diameter [mm]	Material
TDX-90	90	Polyamide+GF, natural or grey
TDX-P-90	90	Polyethylene, natural or grey

WKTHERMϕ8	**Annex A4** of European Technical Assessment ETA-11/0232
Product description Additional plate TDX-90 and TDX-P-90	

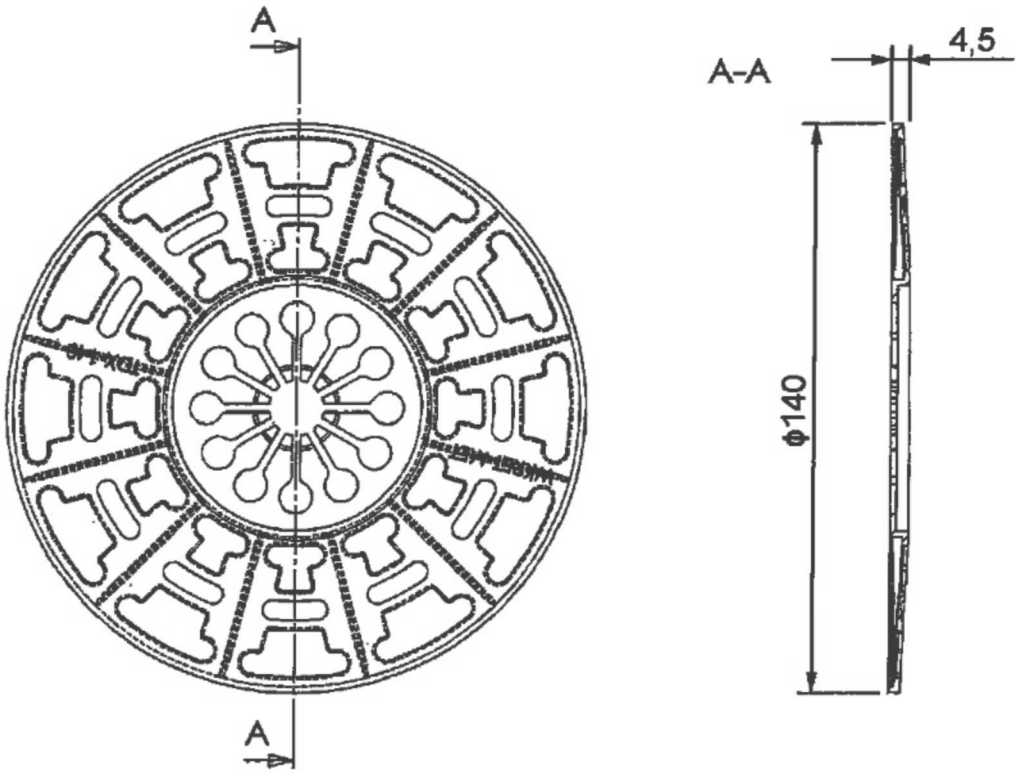


Table A5: Additional plate TDX-140 and TDX-P-140

Plate type	Outer diameter [mm]	Material
TDX-140	140	Polyamide+GF, natural or grey
TDX-P-140	140	Polyethylene, natural or grey

Specification of intended use

Anchorages subject to:

- Wind suction loads.

  Note: Dead loads have to be transmitted by the adhesion of the relevant external thermal insulation composite system (ETICS).

Base materials:

- Normal weight concrete (use category A), according to Annex C1.
- Solid masonry (use category B), according to Annex C1.
- Hollow or perforated masonry (use category C), according to Annex C1.
- For other base materials of the use categories A, B or C the characteristic resistance of the anchor may be determined by job site tests according to ETAG 014, edition February 2011, Annex D.

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 in accordance with the ETAG 014, edition February 2011, under the responsibility of an engineer experienced in anchorages and masonry work.
- Verifiable calculation notes and drawings are prepared taking into account of the loads to be anchored. The position of the anchor is indicated on the design drawings.
- Fasteners are only to be used for multiple fixings for non-structural application, according to ETAG 014, edition February 2011.

Installation:

- Hole shall be drilled by the drill methods 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 by the mortar shall not exceed 6 weeks.

WKTHERMϕ8	**Annex B1** of European Technical Assessment ETA-11/0232
Intended use Specifications	

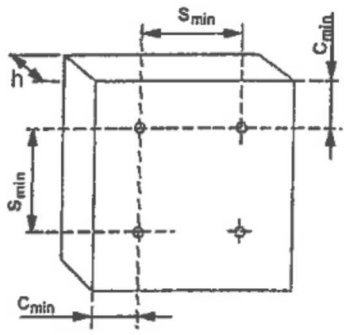
Table B1: Installation parameters

Anchor type		WKTHERMϕ8
Nominal diameter of drill bit	d_o [mm]	8
Cutting diameter of drill bit	d_{cut} [mm]	≤ 8,45
Depth of drill hole	h_1 [mm]	≥ 35
Effective anchorage depth	h_{ef} [mm]	≥ 25

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

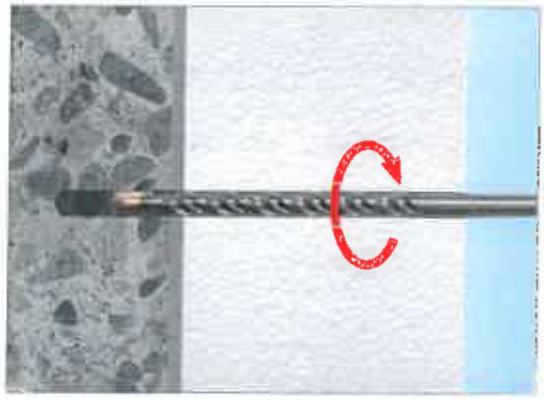
Anchor type		WKTHERMϕ8
Minimum thickness of base material	h [mm]	100
Minimum spacing	s_{min} [mm]	100
Minimum edge distance	c_{min} [mm]	100

Diagram of spacing

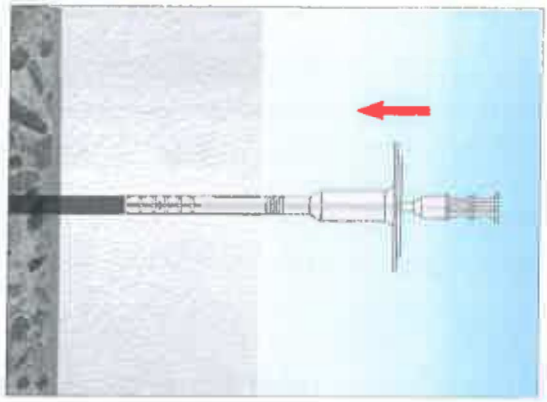


WKTHERMϕ8	Annex B2
Intended use Installation characteristics, minimum thickness of base material, spacing and edge distance	of European Technical Assessment ETA-11/0232

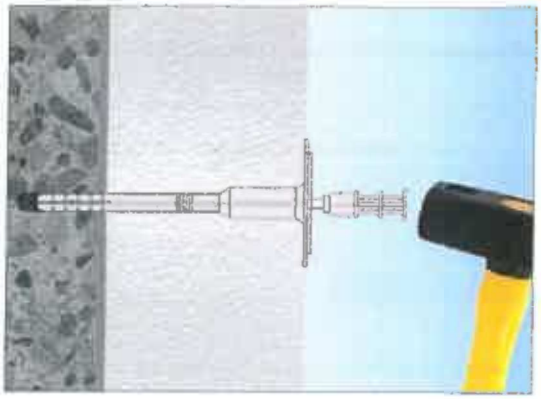
Installation instruction



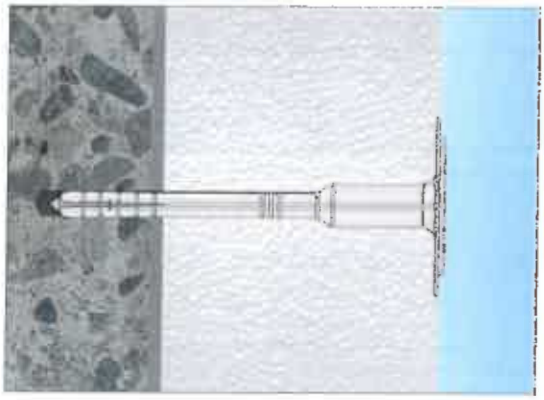
1. Drill hole by corresponding drilling method



2. Set-in anchor manually



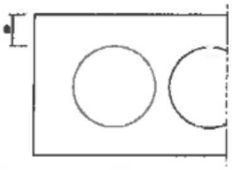
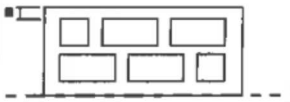
3. Set anchor by hammer blows



4. Correctly installed anchor

WKTHERMϕ8	**Annex B3** of European Technical Assessment ETA-11/0232
Intended use Installation instruction	

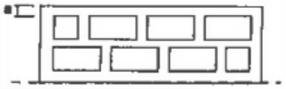
Table C1.1: Characteristic resistance to tension loads N_{Rk}, kN, for single anchor

Use category	Base material	Bulk density [kg/dm³]	Compressive strength [N/mm²]	Referring standard	N_{Rk} [kN] WKTHERMϕ8	Drill method
A	Concrete C12/15	–	–	EN 206-1	1,2	hammer
	Concrete C16/20 + C50/60	–	–	EN 206-1	1,5	hammer
B	Clay bricks[1] 	≥ 1,70	≥ 30,0	EN 771-1	1,5	hammer
	Calcium silicate bricks[2]	≥ 2,00	≥ 20,0	EN 771-2	1,5	hammer
C	Calcium silicate hollow blocks[3]  a[5] = 30 mm 	≥ 1,60	≥ 12,0	EN 771-2	1,2	hammer
	Perforated clay bricks[4]  a[5] = 13 mm 	≥ 0,95	≥ 12,0	EN 771-1	0,6	rotary

[1] German clay brick MZ Rd 2,0/20
[2] For example Kalksandstein KS NF 20-2,0 Vollstein according to DIN 108
[3] For example KSL-R(P)8DF Lochstein according to DIN 106
[4] For example Hlz B – 1.0 1NF 12-1 according to DIN 105

WKTHERMϕ8	**Annex C1** of European Technical Assessment ETA-11/0232
Performances Characteristic resistance	

Table C1.2: Characteristic resistance to tension loads N_{Rk}, kN, for single anchor

Use category	Base material	Bulk density [kg/dm³]	Compressive strength [N/mm²]	Referring standard	N_{Rk} [kN] WKTHERMϕ8	Drill method
C	Perforated clay bricks [6]  a[5] = 13 mm 	≥ 0,95	≥ 12,0	EN 771-1	0,6	rotary
	Vertically perforated porosited block[7]  a[5] = **10 mm** 	≥ 0,80	≥ 15,0	EN 771-1	0,6	rotary
	Vertically perforated clay bricks [8]  a[5] = **12 mm** 	≥ 0,80	≥ 15,0	EN 771-1	0,6	rotary
Partial safety factor for anchor resistance, γ_M[9]		2,0				

[5] Minimum values "a". For elements with lower value of "a" the load tests on the construction are required
[6] For example Hlz B – 1.0 3NF 12-1 according to DIN 105
[7] For example Porotherm 25 P+W
[8] For example MEGA-MAX 250
[9] Valid in absence of national regulations

WKTHERMϕ8	**Annex C1** of European Technical Assessment ETA-11/0232
Performances Characteristic resistance	

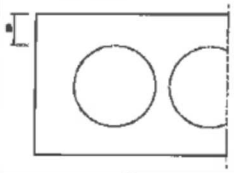
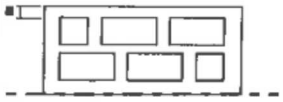
Table C2: Point thermal transmittance according to EOTA Technical Report TR 025

Anchor type	Insulation thickness h_D [mm]	Point thermal transmittance χ [W/K]
WKTHERMϕ8	60 – 320	0,002

Table C3: 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]
WKTHERMϕ8	60	4,3	0,6

Table C4.1: Displacements

Use category	Base material	Bulk density [kg/dm³]	Compressive strength [N/mm²]	Tension load N [kN]	Displacements $\delta_m(N)$ [mm]
				WKTHERMϕ8	WKTHERMϕ8
A	Concrete C12/15	–	–	0,4	0,80
	Concrete C16/20 ÷ C50/60	–	–	0,5	0,85
B	Clay bricks[1] 	≥ 1,70	≥ 30,0	0,4	1,00
	Calcium silicate bricks[2]	≥ 2,00	≥ 20,0	0,5	0,98
C	Calcium silicate hollow blocks[3]  a[5] = 30 mm 	≥ 1,60	≥ 12,0	0,4	0,90
	Perforated clay bricks[4]  a[5] = 13 mm 	≥ 0,95	≥ 12,0	0,2	0,61

[1] German clay brick MZ Rd 2,0/20
[2] For example Kalksandstein KS NF 20-2,0 Vollstein according to DIN 108
[3] For example KSL-R(P)8DF Lochstein according to DIN 106
[4] For example Hlz B – 1.0 1NF 12-1 according to DIN 105

WKTHERMϕ8	**Annex C3** of European Technical Assessment ETA-11/0232
Performances Displacements	