INSTYTUT TECHNIKI BUDOWLANEJ

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

Member of EOTA
www.eota.eu

European Technical Assessment

ETA-11/0232 of 29/05/2023

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	Plant No. 1, Plant No. 2
This European Technical Assessment contains	16 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"
This version replaces	ETA-11/0232 issued on 08/09/2016

Specific Part

1 Technical description of the product

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

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

The description of the product is given in Annex A.

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

The performances given in Annex C 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 under tension load	Annex C1
Edge distances and spacings	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	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 regulation (EU) No 305/2011) applies.

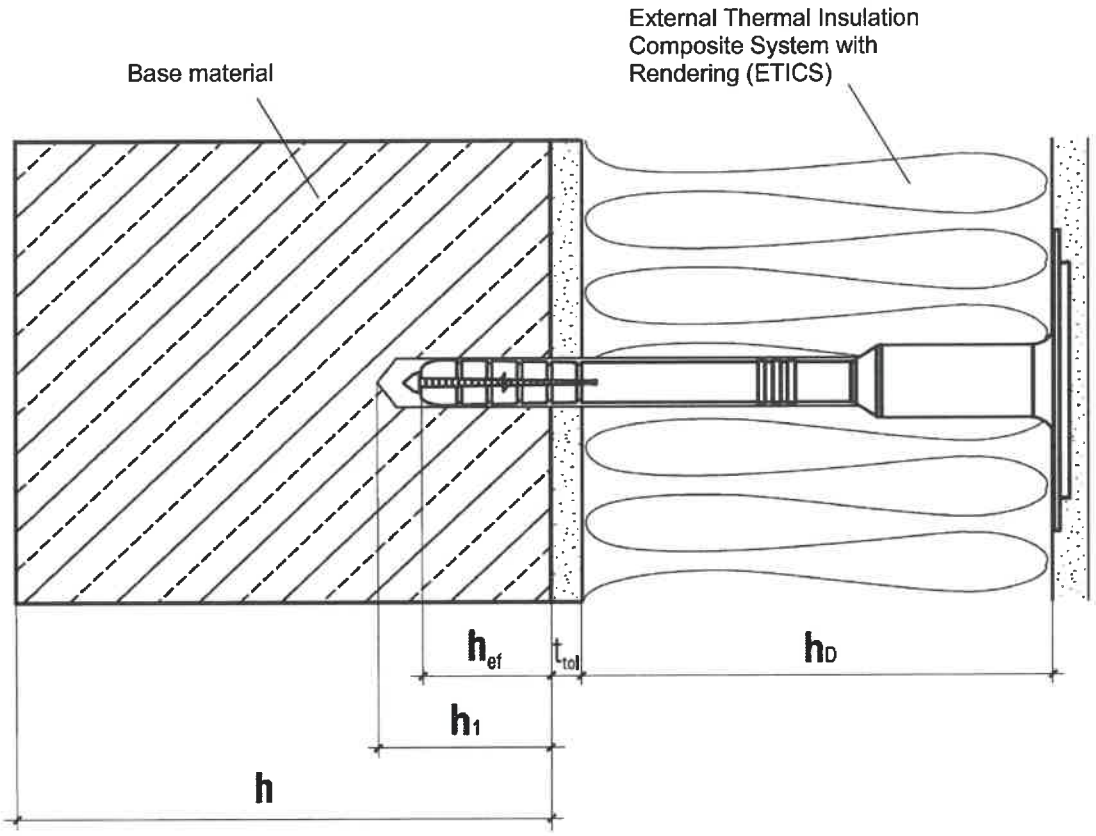
5 Technical details necessary for the implementation of the AVCP system, as provided in the applicable European Assessment Document (EAD)

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

For 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 29/05/2023 by Instytut Techniki Budowlanej

Krzysztof Kuczyński, PhD
Deputy Director of ITB



Intended Use:

Fixing of external thermal insulation composite systems in concrete and masonry

Legend:

h_{ef} = effective anchorage depth

h_1 = depth of drill hole in base material

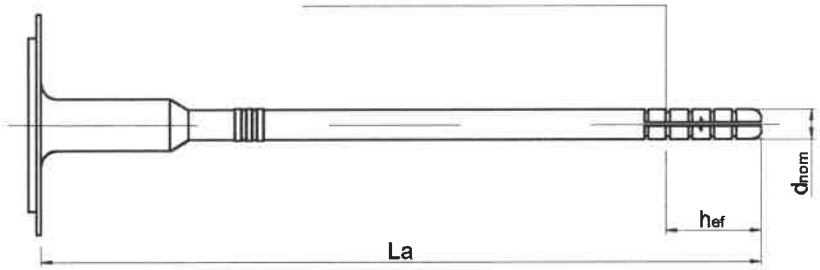
h = thickness of base material

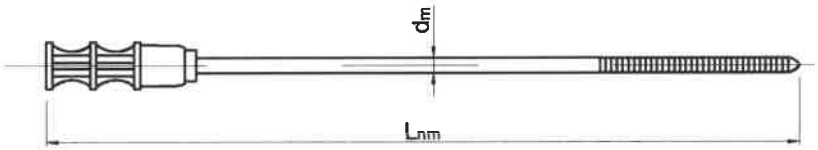
h_D = thickness of insulation material

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	

Marking of the anchorage depth





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

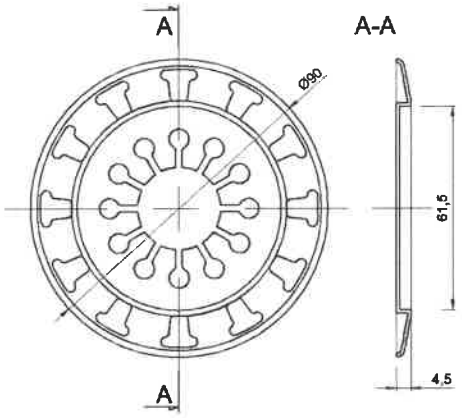
Anchor type	Anchor sleeve				Expansion pin	
	d_{nom} ± 0,1	L_a ± 2	D_{plate} ± 1,5	h_{ef}	d_m ± 0,1	L_{nm} ± 2
WKTHERMϕ8 x 95	8	95	60	25	4,35	105
WKTHERMϕ8 x 115	8	115	60	25	4,35	125
WKTHERMϕ8 x 135	8	135	60	25	4,35	145
WKTHERMϕ8 x 155	8	155	60	25	4,35	165
WKTHERMϕ8 x 175	8	175	60	25	4,35	185
WKTHERMϕ8 x 195	8	195	60	25	4,35	205
WKTHERMϕ8 x 215	8	215	60	25	4,35	225
WKTHERMϕ8 x 235	8	235	60	25	4,35	245
WKTHERMϕ8 x 255	8	255	60	25	4,35	265
WKTHERMϕ8 x 275	8	275	60	25	4,35	285
WKTHERMϕ8 x 295	8	295	60	25	4,35	305
WKTHERMϕ8 x 315	8	315	60	25	4,35	325
WKTHERMϕ8 x 335	8	335	60	25	4,35	345
WKTHERMϕ8 x 355	8	355	60	25	4,35	365

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

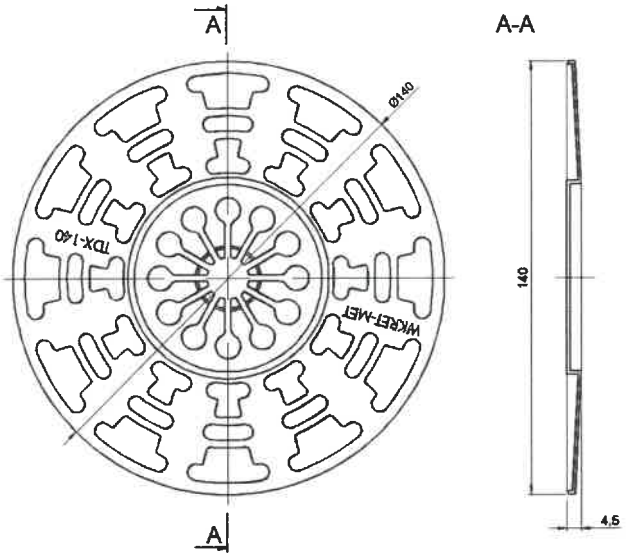
WKTHERMϕ8	**Annex A2** of European Technical Assessment ETA-11/0232
Product description Marking of the anchor sleeve and expansion element of the WKTHERMϕ8 anchors	

Table A2: Materials

Designation	Material
Anchor sleeve	Virgin plastic: polyethylene, natural or grey
Expansion pin	Carbon steel ($f_{y,k}$ = 235 MPa, $f_{u,k}$ = 360 MPa) with zinc coat ≥ 5 µm, with head covered by polyamide PA6 (natural or grey)



TDX-90 and TDX-P-90



TDX-140 and TDX-P-140

Table A3: Additional plates TDX-90, TDX-P-90, TDX-140 and TDX-P-140

Plate type	Outer diameter [mm]	Material
TDX-90	90	Polyamide + GF (natural or grey)
TDX-P-90	90	Polyethylene (natural or grey)
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: The anchor shall not be used for the transmission of dead loads of the external thermal insulation composite system (ETICS).

Base materials:
- Normal weight concrete (base material group A), according to Annex C1.
- Solid masonry (base material group B), according to Annex C1.
- Hollow or perforated masonry (base material group C), according to Annex C1.
- For other base materials of the base material groups A, B or C the characteristic resistance of the anchor may be determined by job site tests according to EOTA Technical Report TR 051, edition December 2016.

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.
- Fasteners are only to be used for multiple fixings of external 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 by the mortar shall not exceed ≤ 6 weeks.

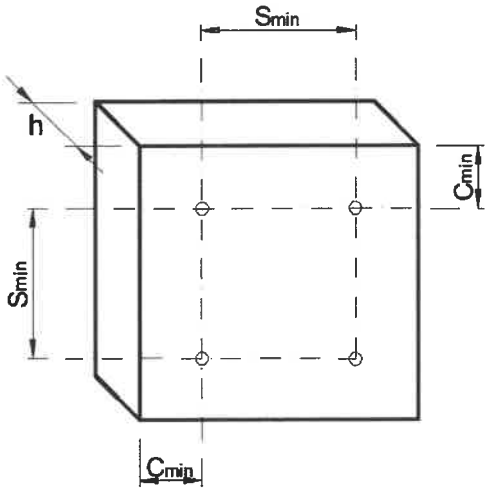
WKTHERMϕ8	**Annex B1** of European Technical Assessment ETA-11/0232
Intended use Specification	

Table B1: Installation characteristics

Anchor type		WKTHERMϕ8
Base material group		A, B, C
Nominal diameter of drill bit	d_o [mm]	8,00
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

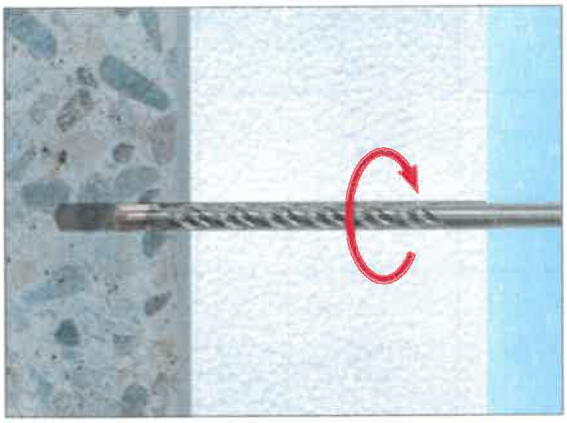
Table B2: Minimum thickness of base material, spacing and edge distance

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

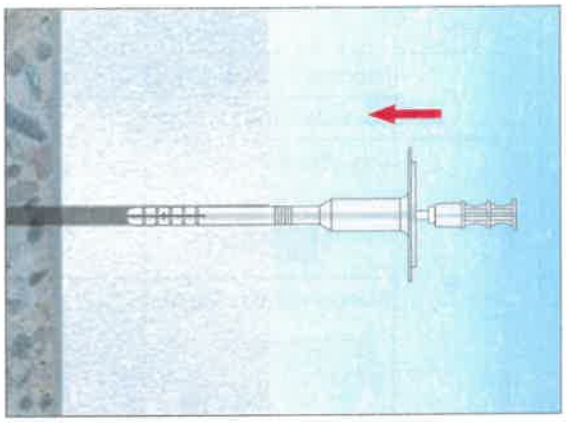


WKTHERMϕ8	Annex B2 of European Technical Assessment ETA-11/0232
Intended use Installation characteristics, minimum thickness of base material, edge distance and spacing	

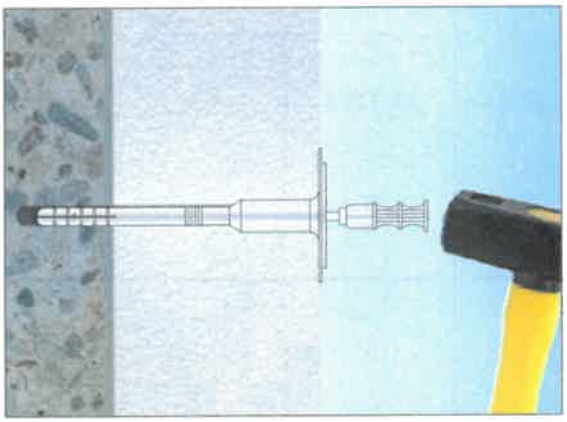
Table B3: Installation instruction of WKTHERMϕ8



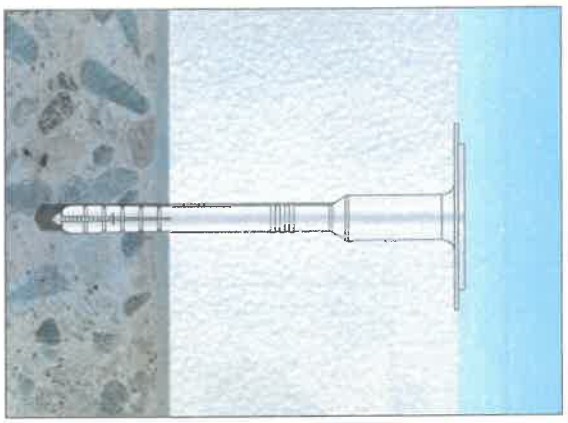
1. Drill hole by corresponding drilling method



2. Set-in anchor manually



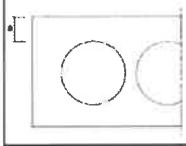
3. Set anchor by hammer blows



4. Correctly installed anchor

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

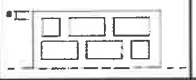
Table C1.1: Characteristic resistance under tension loads N_{Rk} in concrete and in masonry for single anchor

Base material group	Base material	Bulk density [kg/dm³]	Compressive strength [N/mm²]	Referring standard	N_{Rk} [kN]	Drill method
A	Concrete C12/15			EN 206	1,20	hammer
	Concrete C16/20 – C50/60			EN 206	1,50	
B	Clay brick MZ 	≥ 1,70	≥ 30,0	EN 771-1	1,50	
	Calcium silicate brick KS 	≥ 2,00	≥ 20,0	EN 771-2	1,50	hammer
C	Calcium silicate hollow block KSL  a[1)] = 30 mm 	≥ 1,60	≥ 12,0	EN 771-2	1,20	hammer
	Vertically perforated clay bricks Hlz  a[1)] = 13 mm 	≥ 0,95	≥ 12,0	EN 771-1	0,60	rotary

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

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

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	N_{Rk} [kN]	Drill method
C	Vertically perforated clay bricks HLz  a[1)] = 13 mm 	≥ 0,95	≥ 12,0	EN 771-1	0,60	rotary
	Vertically perforated porosited block Porotherm 25  a[1)] = 10 mm 	≥ 0,80	≥ 15,0	EN 771-1	0,60	rotary
	Vertically perforated clay bricks Porotherm 25  a[1)] = 12 mm 	≥ 0,80	≥ 15,0	EN 771-1	0,60	rotary
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 are required
[2)] Valid in absence of national regulations

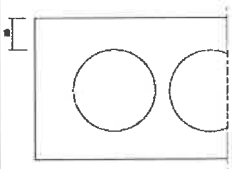
Table C2.1: Point thermal transmittance according to EOTA Technical Report TR 025

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

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]
WKTHERMϕ8	60	4,3	0,6

Table C3.1: Displacements

Base material group	Base material	Bulk density [kg/dm³]	Compressive strength [N/mm²]	$\frac{N_{Rk}}{3}$ [kN]	$\delta\left(\frac{N_{Rk}}{3}\right)$ [mm]
A	Concrete C12/15	–	–	0,40	0,80
	Concrete C16/20 – C50/60	–	–	0,50	0,85
B	Clay brick MZ 	≥ 1,70	≥ 30,0	0,40	1,00
	Calcium silicate brick KS 	≥ 2,00	≥ 20,0	0,50	0,98
C	Calcium silicate hollow block KSL  a[1] = 30 mm 	≥ 1,60	≥ 12,0	0,40	0,90
	Verticaly Vertically perforated clay bricks HLz  a[1] = 13 mm 	≥ 0,95	≥ 12,0	0,20	0,61

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

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

Table C3.2: Displacements

Base material group	Base material	Bulk density [kg/dm³]	Compressive strength [N/mm²]	$\frac{N_{Rk}}{3}$ [kN]	$\delta\left(\frac{N_{Rk}}{3}\right)$ [mm]
C	Vertically perforated clay bricks HLz  a[1)] = 13 mm 	≥ 0,95	≥ 12,0	0,20	0,62
	Vertically perforated porosited block Porotherm 25  a[1)] = 10 mm 	≥ 0,80	≥ 15,0	0,20	0,46
	Vertically perforated clay bricks Porotherm 25  a[1)] = 12 mm 	≥ 0,80	≥ 15,0	0,20	0,61

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

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