Instytut Techniki Budowlanej

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European Technical Assessment

ETA-09/0182 of 17/09/2014

AMEX LDK

Nailed-in plastic anchors for fixing of external thermal insulation composite systems with rendering in concrete and masonry

Łączniki tworzywowe do mocowania warstwy izolacyjnej ociepleń ścian zewnętrznych w podłożu betonowym i murowym

Europejska Organizacja ds. Aprobat Technicznych
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European Technical Assessment

ETA-09/0182 of 17/09/2014

General Part

Technical Assessment Body issuing the European Technical Assessment	Instytut Techniki Budowlanej
Trade name of the construction product	AMEX LDK
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	Technika Zamocowań AMEX sp.j. Dariusz Krot, Marek Krot Januszkowice, ul. Osadnicza 4 PL 47-330 Zdzieszowice Poland
Manufacturing plant(s)	Technika Zamocowań AMEX sp.j. Dariusz Krot, Marek Krot Januszkowice, ul. Osadnicza 4 PL 47-330 Zdzieszowice Poland
This European Technical Assessment contains	13 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)
This version replaces	ETA-09/0182 issued on 10/02/2011

Specific Part

1 Technical description of the product

The AMEX LDK nailed-in plastic anchor consists of an anchor sleeve LDK with a plate made of polypropylene and an accompanying specific nail TZ as an expansion pin made of galvanized steel.

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

The AMEX LDK anchors may in addition be combined with the plates TK 140.

The illustration and the description of the product are given in Annex A.

2 Specification of the intended use in accordance with the applicable 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 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)

In addition to the clauses relating to dangerous substances contained in this European Technical Assessment, there may be other 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 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 determined (NPD).

3.2 Methods used for the assessment

The assessment of fitness 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*".

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 of 27 June 1997 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	Attestation of conformity system
Plastic anchor for use in concrete and masonry	For use in systems, such as façade systems, for fixing or supporting elements which contribute to the stability of the systems	–	2+

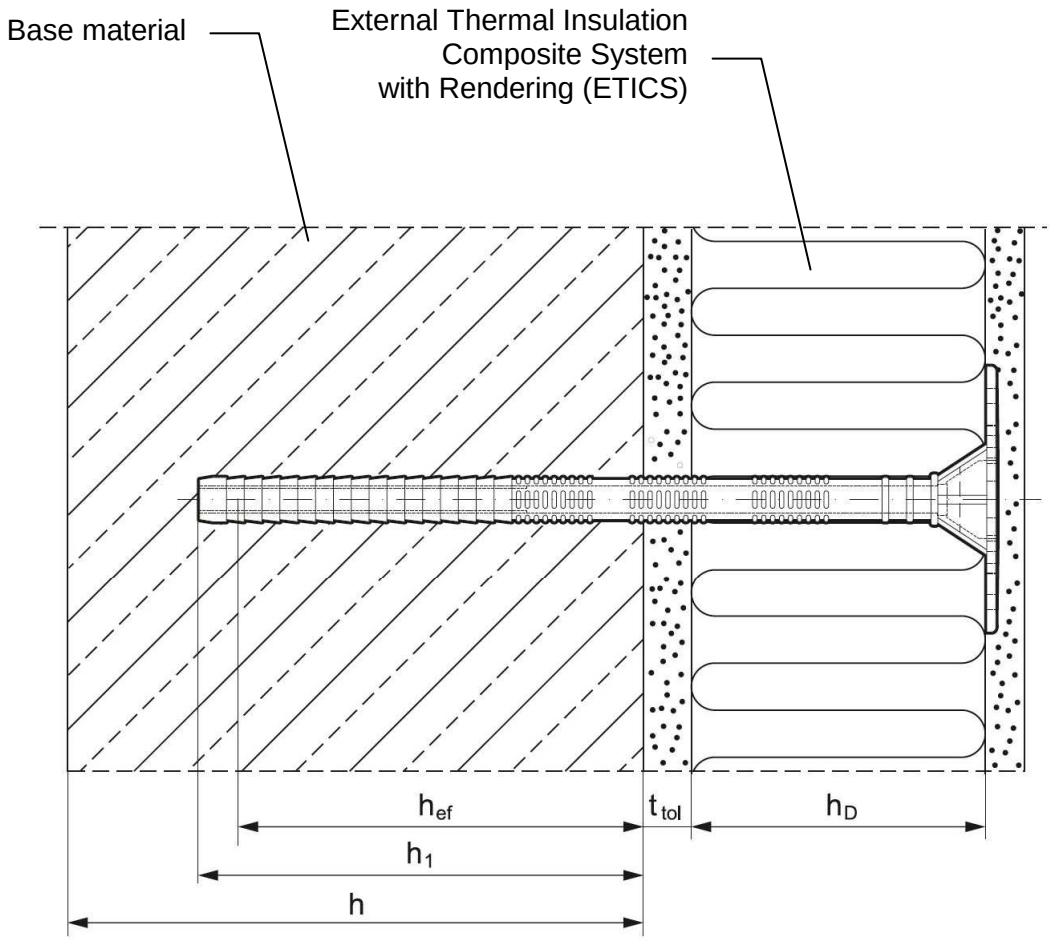
5 Technical details necessary for the implementation of the AVCP system, as provided in the applicable EAD

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 17/09/2014 by Instytut Techniki Budowlanej

Marek Kaproń
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

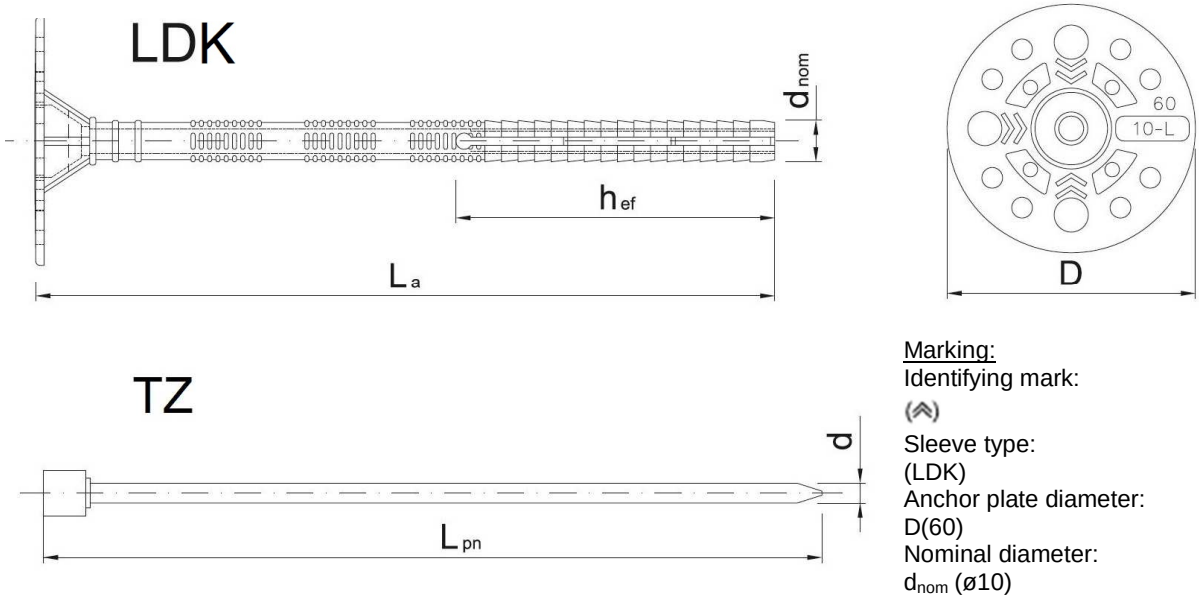
h = thickness of base material

h_D = thickness of insulation material

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

AMEX LDK	Annex A1
Product description Installation conditions	of European Technical Assessment ETA-09/0182

Marking of effective anchorage depth



Marking:
Identifying mark:
(^)
Sleeve type:
(LDK)
Anchor plate diameter:
D(60)
Nominal diameter:
d_{nom} (ø10)

Table A1: AMEX LDK anchor types and dimensions [mm]

Anchor type	Anchor sleeve				Expansion pin	
	d_{nom}	L_a	D	h_{ef}	d	L_{pn}
LDK 10x120	10	120	60	80	4,8	125
LDK 10x140	10	140	60	80	4,8	145
LDK 10x160	10	160	60	80	4,8	165
LDK 10x180	10	180	60	80	4,8	185
LDK 10x200	10	200	60	80	4,8	205
LDK 10x220	10	220	60	80	4,8	225
LDK 10x240	10	240	60	80	4,8	245
LDK 10x260	10	260	60	80	4,8	265
LDK 10x280	10	280	60	80	4,8	285
LDK 10x300	10	300	60	80	4,8	305
LDK 10x340	10	340	60	80	4,8	340
LDK 10x380	10	380	60	80	4,8	380
LDK 10x420	10	420	60	80	4,8	420

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

AMEX LDK	**Annex A2**
Product description Marking and dimensions of the anchor sleeve and expansion element of the AMEX LDK anchors	of European Technical Assessment ETA-09/0182

Table A3: Materials

Designation	Material
Anchor sleeve	Polypropylene TIPPLEN K499, with different colours [1)]
Expansion pin	Galvanized steel with $f_{yk} \geq 235$ MPa and $f_{uk} \geq 340$ MPa according to EN 14592 or EN 10025-2 and ≥ 5 µm according to EN ISO 4042 or EN 12329
[1)] white, gray, red, green, orange, blue	

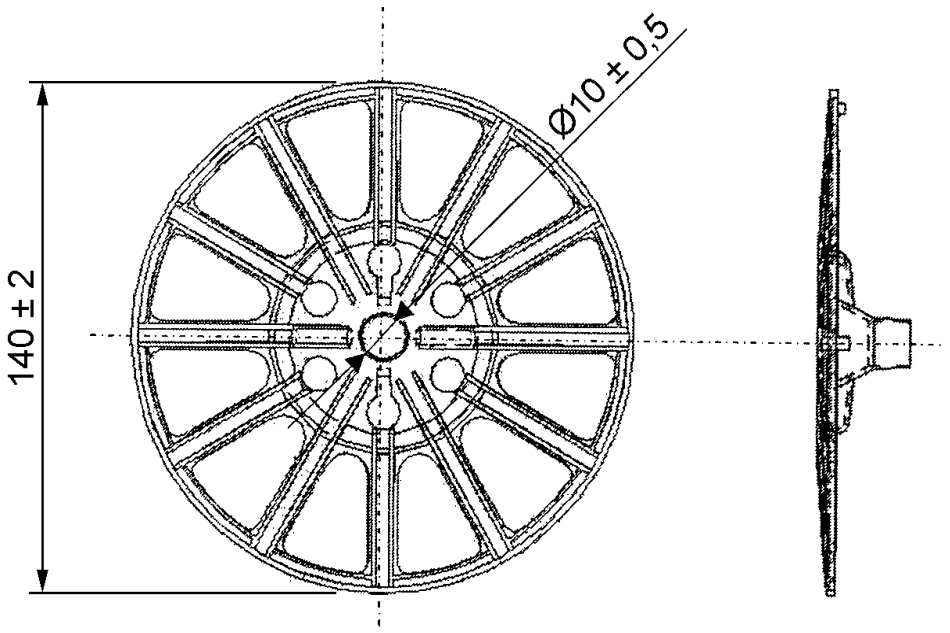


Table A4: Additional plate TK 140

Plate type	Outer diameter [mm]	Material
TK 140	140	Polypropylene TIPPLEN K499, white

AMEX LDK	**Annex A4**
Product description Additional plate TK 140 in combination with anchor sleeve	of European Technical Assessment ETA-09/0182

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.

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.
- Lightweight aggregate concrete (use category D), according to Annex C1.
- Autoclaved aerated concrete (use category E), according to Annex C1.
- For other base materials of the use categories A, B, C, D or E 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 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.

AMEX LDK	**Annex B1**
Intended use Specifications	of European Technical Assessment ETA-09/0182

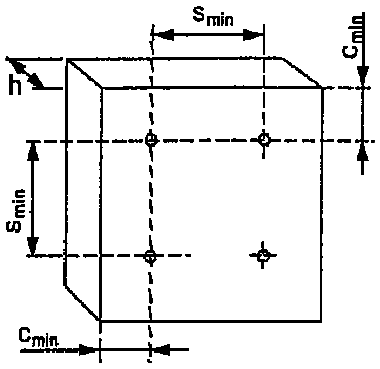
Table B1: Installation characteristics

Anchor type		AMEX LDK
Nominal diameter of drill bit	d_{nom} [mm]	10
Cutting diameter of drill bit	d_{cut} [mm]	≤ 10,45
Depth of drill hole	h_1 [mm]	≥ 90
Effective anchorage depth	h_{ef} [mm]	≥ 80

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

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

Diagram of spacing

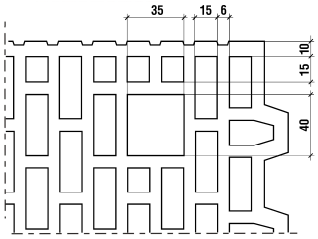
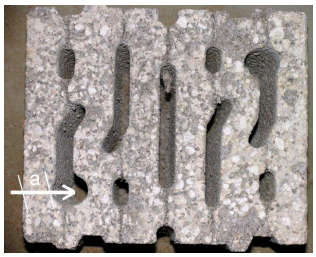


Installation instruction:

1. Drill hole by corresponding drilling method.
2. Clean the hole.
3. Set-in anchor manually.
4. Set anchor by hammer blows.

AMEX LDK	Annex B2
Intended use Installation characteristics, minimum thickness of base material, edge distance and spacing, installation instruction	of European Technical Assessment ETA-09/0182

Table C1: Characteristic resistance to tension loads N_{Rk}, kN in concrete and in masonry for single anchor

Base material	Bulk density [kg/dm^3]	Min. compressive strength [N/mm^2]	Referring standard	N_{Rk} [kN]	Drill method
Concrete C12/15			EN 206-1	0,50	hammer
Concrete C16/20 ÷ C50/60			EN 206-1	0,75	
Clay brick	≥ 1,77	22,4	EN 771-1	0,75	
Verticaly perforated porosited block 	≥ 0,72	14,5	EN 771-1	0,30	rotary
Lightweight aggregate concrete hollow block  a[1)] = 30 mm	≥ 0,90	11,0	EN 771-3	0,50	
Lightweight concrete block	≥ 1,05	5,0	EN 771-3	0,60	
Autoclaved aerated concrete block	≥ 0,60	5,0	EN 771-4	0,60	
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

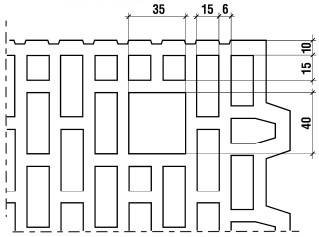
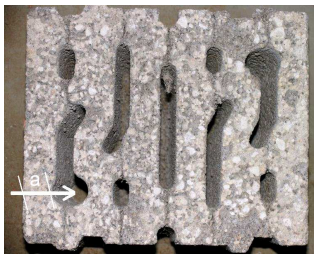
Table C2: Point thermal transmittance according to EOTA Technical Report TR 025

Anchor type	Insulation thickness H_D [mm]	Point thermal transmittance χ [W/K]
AMEX LDK	40 ÷ 380	0,004

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]
AMEX LDK	60	0,53	0,40

Table C4: Displacement behaviour

Base material	Bulk density [kg/dm^3]	Min. compressive strength [N/mm^2]	$\frac{N_{Rk}}{3}$ [kN]	δ (for $N_{Rk}/3$) [mm]
Concrete C12/15			0,16	0,46
Concrete C16/20 ÷ C50/60			0,25	0,62
Clay brick	≥ 1,77	22,4	0,25	0,40
Verticaly perforated porosited block 	≥ 0,72	14,5	0,10	0,20
Lightweight aggregate concrete hollow block  a[1)] = 30 mm	≥ 0,90	11,0	0,17	0,30
Lightweight concrete block	≥ 1,05	5,0	0,20	0,48
Autoclaved aerated concrete block	≥ 0,60	5,0	0,20	0,50

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

Instytut Techniki Budowlanej

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