Deutsches Institut für Bautechnik
DIBt

Approval body for construction products and types of construction

Bautechnisches Prüfamt

An institution established by the Federal and Laender Governments

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European Technical Assessment ETA-08/0315 of 15 May 2014

General Part

Technical Assessment Body issuing the European Technical Assessment:	Deutsches Institut für Bautechnik
Trade name of the construction product	Insulation support - metal nail KEW TSD-V and KEW TSD-V WS
Product family to which the construction product belongs	Nailed-in plastic anchor for fixing of external thermal insulation composite systems with rendering in concrete and masonry
Manufacturer	KEW Kunststofferzeugnisse GmbH Wilthen Dresdener Straße 19 02681 Wilthen DEUTSCHLAND
Manufacturing plant	KEW Kunststofferzeugnisse GmbH Wilthen Dresdener Straße 19 02681 Wilthen DEUTSCHLAND
This European Technical Assessment contains	14 pages including 10 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.

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Specific Part

1 Technical description of the product

The insulation support metal nail KEW TSD-V und KEW TSD-V WS is a nailed-in anchor which consists of a plastic part made of polypropylene and an accompanying specific nail of galvanised steel or stainless steel.

The anchor type KEW TSD-V may in addition be combined with the insulation discs DSB 90, DSB 110 and DSB 140. The head of the nail for this anchor type has an additional plastic coating.

The product description is given in Annex A.

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

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

The verification and assessment methods on which this European Technical Assessment is based lead to the assumption of a working life of the anchor of at least 25 years. The indications given on the working life cannot be interpreted as a guarantee given by the producer, 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 Mechanical resistance and stability (BWR 1)

The essential characteristics regarding mechanical resistance and stability are included under the Basic Works Requirement Safety in use.

3.2 Safety in case of fire (BWR 2)

Not applicable.

3.3 Hygiene, health and the environment (BWR 3)

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

3.4 Safety in use (BWR 4)

Essential characteristic	Performance
Characteristic resistance	See Annex C 1
Anchor distances and dimensions of members	See Annex B 2
Plate stiffness	See Annex C2
Displacements	See Annex C 2

3.5 Protection against noise (BWR 5)

Not applicable.

3.6 Energy economy and heat retention (BWR 6)

Not applicable.

3.7 Sustainable use of natural resources (BWR 7)

The sustainable use of natural resources was not investigated.

3.8 General aspects

The verification of durability is part of testing the essential characteristics. Durability is only ensured if the specifications of intended use according to Annex B are taken into account.

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 Commission of 27 June 1997 (Official Journal of the European Communities L 198 of 25.07.1997, p. 31–32) the system of assessment and verification of constancy of performance (AVCP) (see Annex V and Article 65 Paragraph 2 to Regulation (EU) No 305/2011) given in the following table applies.

Product	Intended use	Level or class	System
Plastic anchors 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+

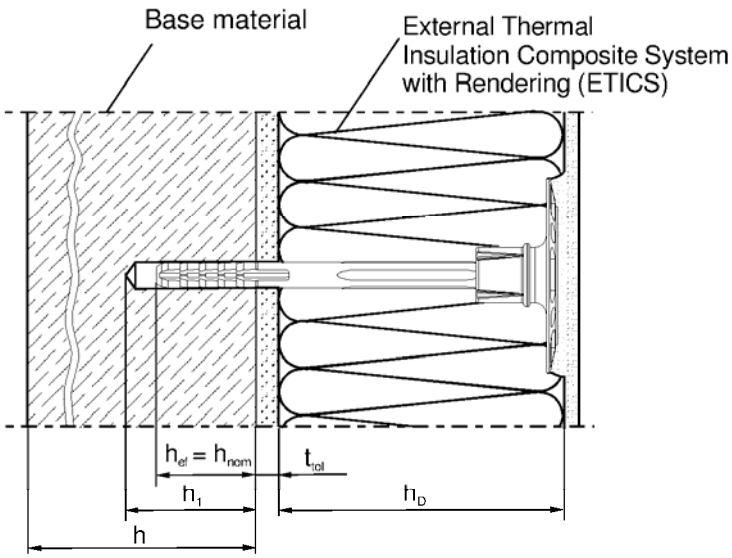
5 Technical details necessary for the implementation of the AVCP system, as provided in the applicable European Assessment Document

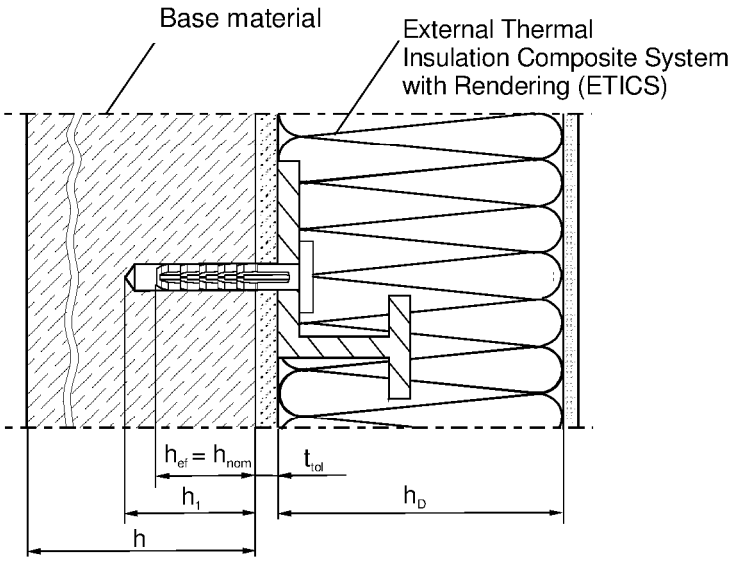
Technical details necessary for the implementation of the AVCP system are laid down in the control plan deposited at Deutsches Institut für Bautechnik.

Issued in Berlin on 22 July 2014 by Deutsches Institut für Bautechnik

Uwe Bender
Head of Department

beglaubigt:
Aksünger





Legend

h_{ef} = effective anchorage depth
h_1 = depth of drill hole to deepest point
h = thickness of base material (wall)
h_D = thickness of insulation material
t_{tol} = thickness of equalizing layer or non-load bearing coating

Insulation support – metal nail KEW TSD-V and KEW TSD-V WS	**Annex A 1**
Product description Installed condition	

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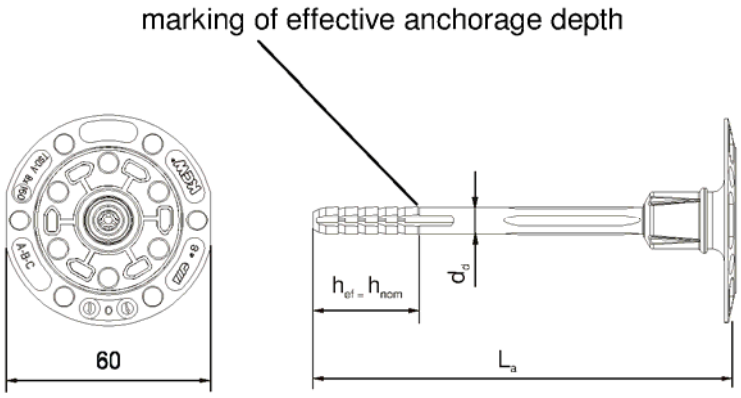
TSD-V 8



Marking

Company logo – (KEW®)
Anchor type – (TSD-V)
diameter – (ø8)
Length of anchor – (e.g. 160)

Special nail with special head

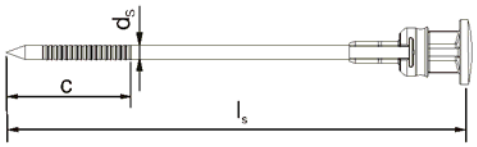


Table A1: Dimensions TSD-V

Anchor type	Anchor sleeve				Special nail		
	L_a min [mm]	L_a max [mm]	d_d [mm]	h_{ef} [mm]	d_s [mm]	c [mm]	l_s [mm]
KEW - TSD-V	**100**	**300**	**8**	**30**	**4,0**	**35**	**L_a + 4mm**
Determination of max. Thinkness of insulation [mm]: $h_{Dmax} = L_a - h_{ef} - t_{tol}$							
e.g.: TSD-V 8x160	**L_a= 160**		**h_{ef}= 30**		**t_{tol}= 10**		
	thickness of insulation material **$h_{D\ max.}$ = 120**						

Insulation support – metal nail KEW TSD-V and KEW TSD-V WS

Product description
Marking and dimensions of the anchor sleeve
spreading element / special nail

Annex A 2

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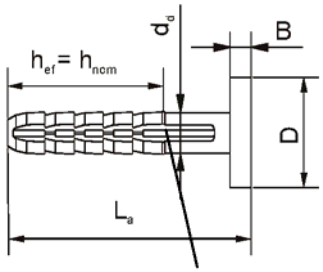
TSD-V WS



B ≥ 2,5mm
D ≥ 16mm

marking of effective anchorage depth

Special nail

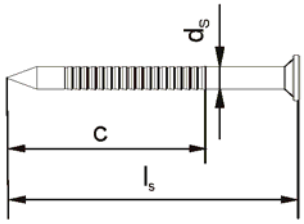


Table A2: Dimensions TSD-V WS

Anchor type	Anchor sleeve				Special nail		
	L_a min [mm]	L_a max [mm]	d_d [mm]	h_{ef} [mm]	d_s [mm]	c [mm]	l_s [mm]
KEW - TSD-V WS	**50**	**250**	**8**	**30**	**4,0**	**35**	**L_a + 4mm**

Insulation support – metal nail KEW TSD-V and KEW TSD-V WS

Annex A 3

Product description
Marking and dimensions of the anchor sleeve
spreading element / special nail

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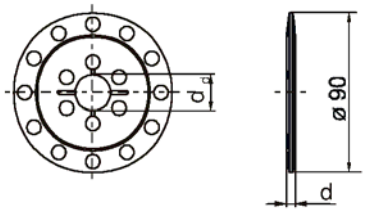
Table A3: Materials

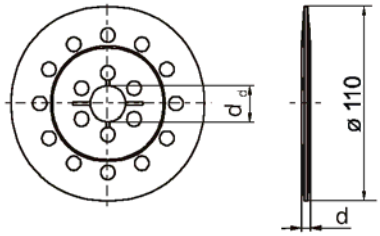
Member	Material
Anchor sleeve	Polypropylen, colour: papyrus white
Special nail	Steel, galvanized A2L or A2K according to EN ISO 4042:2001-01 $f_{yk} \geq 480$ N/mm²; $f_{uk} \geq 600$ N/mm²
	Stainless steel; mat.No. 1.4401 – 1.4571 according to EN ISO 3506:2010-04 $f_{yk} \geq 450$ N/mm²; $f_{uk} \geq 700$ N/mm²

Table A4: Insulation discs, diameters and material

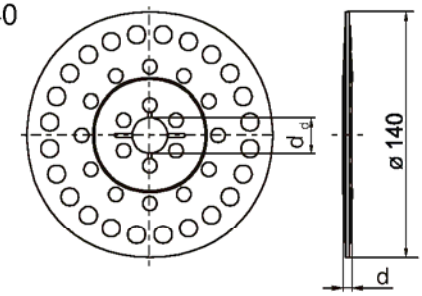
DSB 90



DSB 110



DSB 140



Insulation discs	Ø D [mm]	Ø d_d [mm]	d [mm]	Material
DSB 90	90	20	5	PA 6, PP
DSB 110	110	20	5	PA 6, PP
DSB 140	140	20	5	PA 6, PP

Insulation support – metal nail KEW TSD-V and KEW TSD-V WS

Annex A 4

Product description
Materials
Additional plates in combination with KEW TSD-V

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Specifications of intended use

Anchorages subject to:

- The anchor may only be used for transmission of wind suction loads and shall not be used for the transmission of dead loads of the 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.
- 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℃ to +40℃ (max. short term temperature +40℃ an d max. long term temperature +24℃)

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 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 of thermal insulation composite systems.

Installation:

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

Insulation support – metal nail KEW TSD-V and KEW TSD-V WS	**Annex B 1**
Intended Use Specifications	

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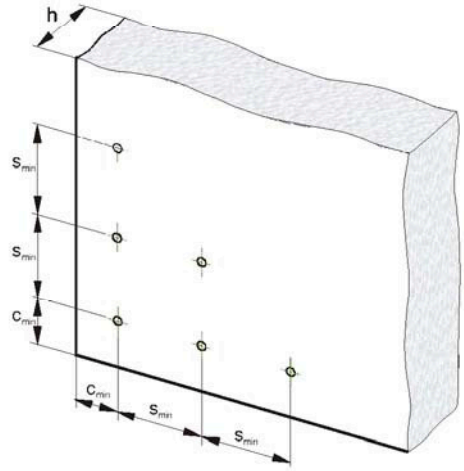
Table B1: Installation parameters

Anchor type			KEW- TSD-V
Drill hole diameter	$d_0 =$	[mm]	8
Cutting diameter of drill bit	$d_{cut} \leq$	[mm]	8,45
Depth of drilled hole to deepest point	$h_1 \geq$	[mm]	40
Effective anchorage depth	$h_{ef} =$	[mm]	30

Table B2: Anchor distances and dimensions of members

			KEW- TSD-V
Thickness of member	$h \geq$	[mm]	100
Minimum allowable spacing	$s_{min} =$	[mm]	100
Minimum allowable edge distance	$c_{min} =$	[mm]	100



Insulation support – metal nail KEW TSD-V and KEW TSD-V WS	Annex B 2
Intended Use Installation parameters, Anchor distances and dimensions of members	

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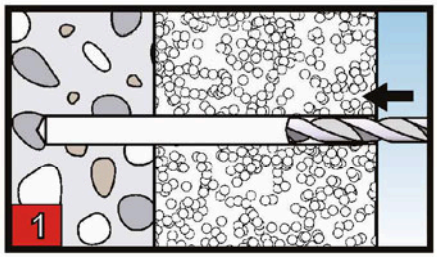
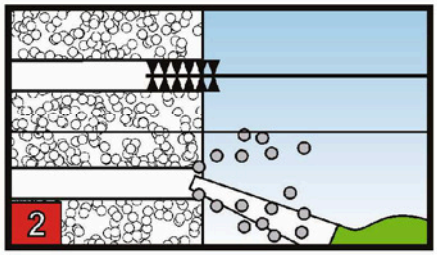
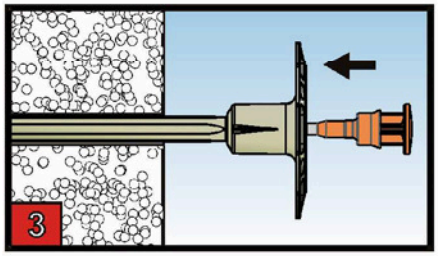
Installation instructions



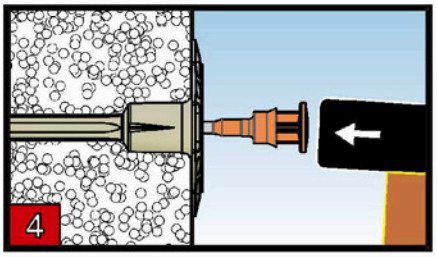
Create a hole about observation of the drill method according Annex C 1



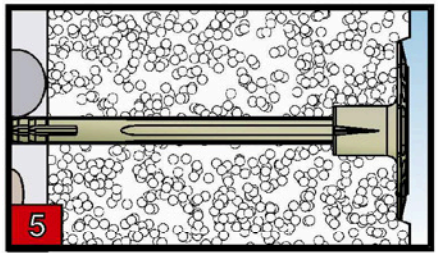
Holes to be cleaned of drilling dust.



Insert the anchor into the hole until the plate rests on the insulation.



Hammer in the Nail with a matching hammer

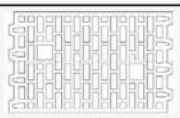


Mounted

Insulation support – metal nail KEW TSD-V and KEW TSD-V WS	**Annex B 3**
Intended Use Installation instructions	

Deutsches Institut für Bautechnik DIBt

Table C1: Charakteristic resistance N_{Rk} in concrete and masonry for a single anchor in kN

Base material	Bulk density class ρ [kg/dm³]	Minimum Compressive strength f_b [N/mm²]	Remarks	Drill method	N_{Rk} [kN]
Concrete C12/15			EN 206-1:2000	Hammer drilling	**1,2**
Concrete C16/20 – C50/60			EN 206-1:2000	Hammer drilling	**1,5**
Sand-lime solid bricks, KS e.g. acc. to DIN V106:2005-10/ EN 771-2:2011	≥1.8	12	Vertically perforation up to 15%	Hammer drilling	**1,5**
Clay bricks, Mz e.g. acc. to DIN 105-100:2012-01/ EN 771-1:2011	≥1.7	12	Vertically perforation up to 15%	Hammer drilling	**1,5**
Vertically perforated clay bricks, HLz e.g. acc. to DIN 105-100:2012-01/ EN 771-1:2011 with outer web thickness ≥ 12mm	≥1.0	12	Vertically perforation more than 15% and less than 50%	Rotary drilling	**0,9**
Vertically perforated sand-lime bricks KS L, e.g. acc. to DIN V106:2005-10/ EN 771-2:2011 with outer web thickness ≥ 20mm	≥1.4	12	Vertically perforation more than 15%	Rotary drilling	**1,2**
Lightweight concrete hollow blocks e.g. acc. to DIN V 18151-100:2005-10/ EN 771-3:2011 1K Hbl 2-0.8-12, 495 x 175 x 248	≥0.8	2	according to Annex C 3	Rotary drilling	**0,6**
Vertically perforated clay bricks e.g. acc. to ÖNORM B6124:2013-12-15 with outer web thickness ≥ 10mm	≥0.9	12		Rotary drilling	**0,75**
Lightweight concrete solid blocks, Vbl 2 e.g. acc. to DIN V 18152-100:2005-10	≥0.8	2	according to Annex C 3	Hammer drilling	**0,6**

Insulation support – metal nail KEW TSD-V and KEW TSD-V WS

Performances
Characteristic bending resistance of the anchor

Annex C 1

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Table C2: Plate stiffness according to EOTA Technical Report TR 026:2007-06

Anchor type	Diameter of anchor plates [mm]	Load resistance of anchor plates [kN]	Plate stiffness [kN/mm]
KEW – TSD-V	60	1,75	1,24

Table C3: Displacements

Base material	Bulk-density-class ρ [kg/dm³]	Minimum compressive strength f_b [N/mm²]	Tension load N [kN]	Displacements $\delta_m(N)$ [mm]
Concrete C12/15 EN 206-1:2000			0,4	0,2
Concrete C16/20 – C50/60 EN 206-1:2000			0,5	0,2
Sand-lime solid bricks, KS e.g. acc. to DIN V106:2005-10/ EN 771-2:2011	≥1.8	12	0,5	0,3
Clay bricks, Mz e.g. acc. to DIN 105-100:2012-01/ EN 771-1:2011	≥1.7	12	0,5	0,3
Vertically perforated clay bricks, HLz e.g. acc. to DIN 105-100:2012-01/ EN 771-1:2011 with outer web thickness ≥ 12mm	≥1.0	12	0,3	0,1
Vertically perforated sand-lime bricks KS L, e.g. acc. to DIN V106:2005-10/ EN 771-2:2011 with outer web thickness ≥ 20mm	≥1.4	12	0,4	0,3
Lightweight concrete hollow blocks e.g. acc. to DIN V 18151-100:2005-10/ EN 771-3:2011 1K Hbl 2-0.8-12, 495 x 175 x 248	≥0.8	2	0,2	0,2
Vertically perforated clay bricks e.g. acc. to ÖNORM B6124:2013-12-15 with outer web thickness ≥ 10mm	≥0.9	12	0,25	0,1
Lightweight concrete solid blocks, Vbl 2 e.g. acc. to DIN V 18152-100:2005-10	≥0.8	2	0,2	0,1

Insulation support – metal nail KEW TSD-V and KEW TSD-V WS

Performances
Plate stiffness and displacements

Annex C 2

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Table C4: Assignment type of anchor for lightweight concrete hollow blocks according to DIN V 18151-100:2005-10

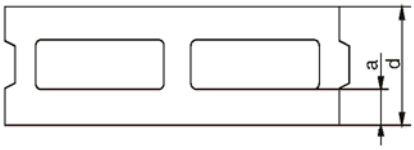
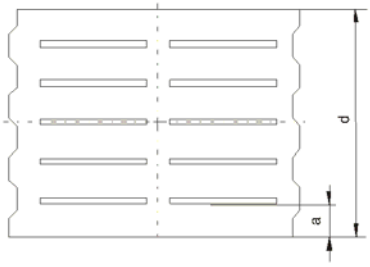
Geometry	Thinkness of brick d [mm]	Outer web in longitudinal direction a [mm]
	175	50
The anchor shall be placed in a way the spreading part is anchored in the web of the brick		

Table C5: Geometry of lightweight concrete solid blocks according to DIN 18152-100:2005-10

Geometry	Thickness of brick d [mm]	Outer web in longitudinal direction a [mm]
	248 300 370	≥43

Insulation support – metal nail KEW TSD-V and KEW TSD-V WS	Annex C 3
Performances Geometry and dimensions of hollow or perforated brick	