

Approval body for construction products  
and types of construction

Bautechnisches Prüfamt

An institution established by the Federal and  
Laender Governments



## European Technical Assessment

ETA-04/0030  
of 11 September 2014

### General Part

Technical Assessment Body issuing the  
European Technical Assessment:

Deutsches Institut für Bautechnik

Trade name of the construction product

Insulation support KEW TSD 8

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

Kunststoffzeugnisse GmbH Wilthen  
Dresdener Straße 19  
02681 Wilthen

Manufacturing plant

Kunststoffzeugnisse GmbH Wilthen  
Dresdener Straße 19  
02681 Wilthen

This European Technical Assessment  
contains

15 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-04/0030 issued on 29 May 2014

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## Specific part

### 1 Technical description of the product

The Insulation support KEW TSD 8 is a nailed-in anchor which consists of a plastic part made of polypropylene and an accompanying specific nail of galvanized steel or of stainless steel. The head of the nail has an additional plastic coating.

The Insulation support KEW TSD 8 may in addition be combined with the anchor plates DSB 90, DSB 110 and DSB 140.

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 anchor 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
Point thermal transmittance	See Annex C 2
Plate stiffness	See Annex C 2
Displacements	See Annex C 3

**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+

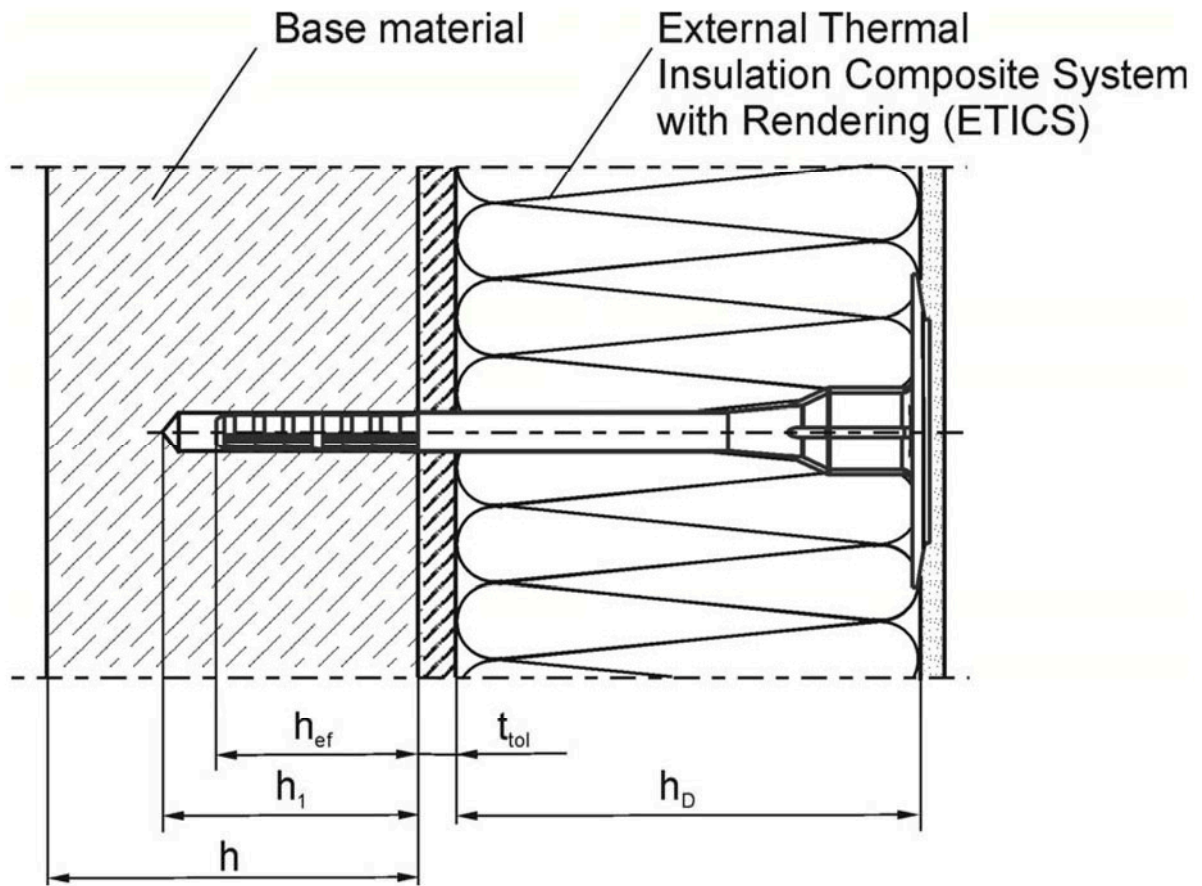
**5 Technical details necessary for the implementation of the AVCP system, as provided in the applicable European Assessment Document**

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 15 September 2014 by Deutsches Institut für Bautechnik

Andreas Kummerow  
p. p. Head of Department

*beglaubigt:*  
Ziegler



### Legend

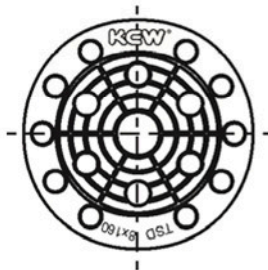
- $h_D$  = thickness of insulation material
- $h_{ef}$  = effective anchorage depth
- $h$  = thickness of member
- $h_1$  = depth of drilled hole to deepest point
- $t_{tol}$  = thickness of equalizing layer or non-load-bearing coating

**Insulation support KEW TSD 8**

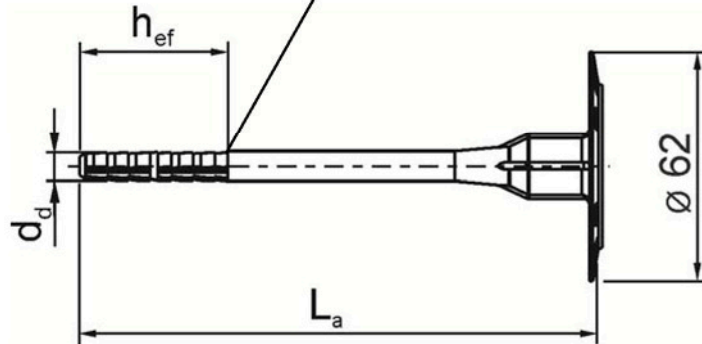
**Product description**  
Intended use

**Annex A 1**

**TSD**



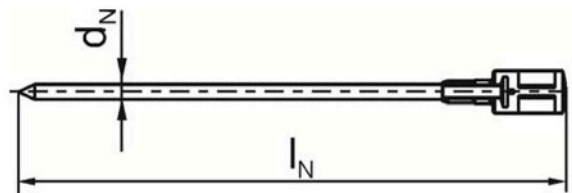
marking of effective anchorage depth



**Marking**

Company logo- (KEW)  
Anchor type - (TSD)  
diameter - ( $\varnothing 8$ )  
Length of anchor - (e.g. 160)

**Special nail with special head**



**Table A1: Dimensions**

Anchor type	Anchor sleeve				Special nail	
	$L_a$ min [mm]	$L_a$ max [mm]	$d_d$ [mm]	$h_{ef}$ [mm]	$d_N$ [mm]	$l_N$ [mm]
KEW - TSD	80	300	8	40	4,2	$L_a + 4\text{mm}$
Determination of max thickness of insulation[mm]: $h_{D \max} = L_a - h_{ef} - t_{tol}$						
e.g.:	$L_a = 160$		$h_{ef} = 40$		$t_{tol} = 0$	
TSD 8x160	thickness of insulation material $h_{D \max} = 120$					

**Insulation support KEW TSD 8**

**Product description**

Marking and dimensions of the anchor sleeve  
expansion element / special nail

**Annex A 2**

**Table A2: Materials**

Name	Materials
Anchor sleeve	Polypropylen, colour: nature
Special nail	Steel, galvanized A2L or A2K according to EN ISO 4042:2001-01 $f_{yk} \geq 480 \text{ N/mm}^2$ ; $f_{uk} \geq 600 \text{ N/mm}^2$
	Stainless steel; mat.No. 1.4401 – 1.4571 according to EN ISO 3506:2010-04 $f_{yk} \geq 450 \text{ N/mm}^2$ ; $f_{uk} \geq 700 \text{ N/mm}^2$

**Insulation support KEW TSD 8**

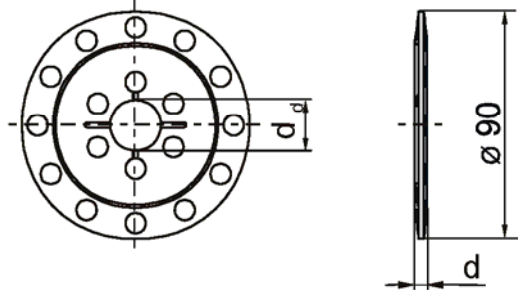
**Product description**  
Materials

**Annex A 3**

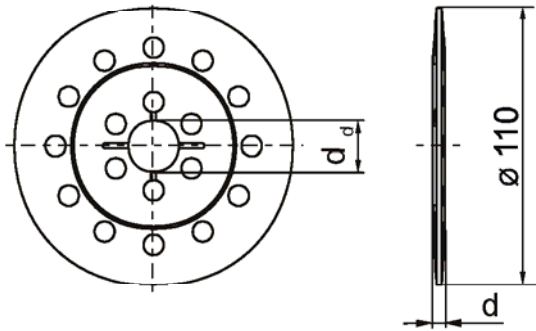


**Table A3: Additional plates, diameter und materials**

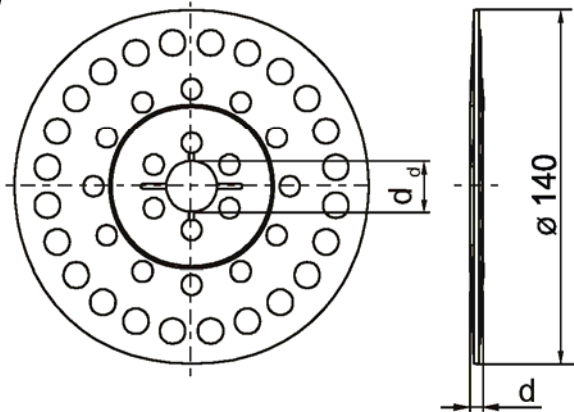
DSB 90



DSB 110



DSB 140



Insulation discs	Ø D [mm]	Ø d <sub>d</sub> [mm]	d [mm]	Materials
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 KEW TSD 8**

**Product description**

Additional plates in combination with KEW - TSD

**Annex A 4**

## Specifications of intended use

### Anchorage subject to:

- The anchors 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.
- Lightweight aggregate concrete (use category D), according to Annex C1.
- For other base materials of the use categories A, B, C or D 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 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°C to +40°C
- Exposure to UV due to solar radiation of the anchor not protected by rendering  $\leq 6$  weeks

Insulation support KEW TSD 8

Intended Use  
Specifications

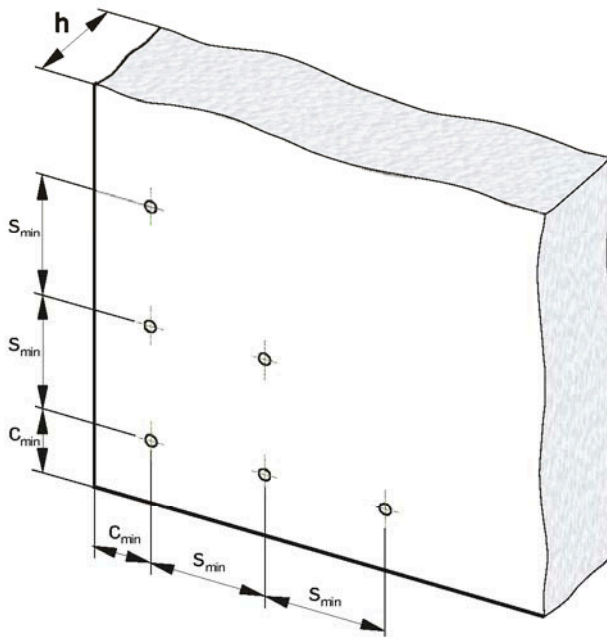
Annex B 1

**Table B1: Installation parameters**

Anchor type		KEW - TSD
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]	50
Effective anchorage depth	$h_{ef} =$ [mm]	40

**Table B2: Minimum distances and dimensions**

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

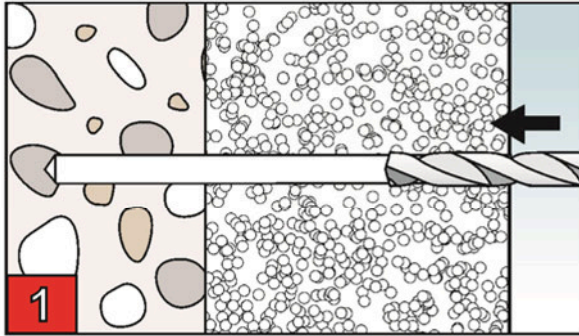


**Insulation support KEW TSD 8**

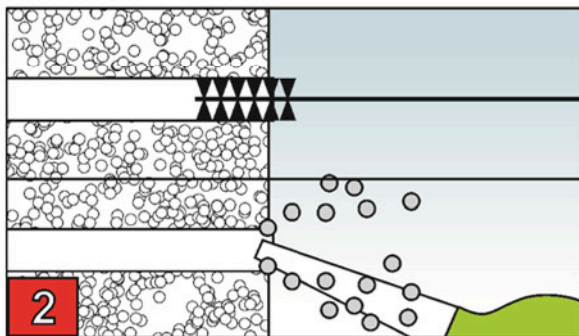
**Intended Use**  
Installation parameters,  
Minimum distances and dimensions of members

**Annex B 2**

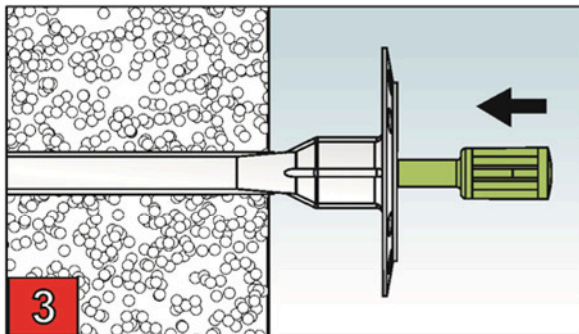
### Installation instructions



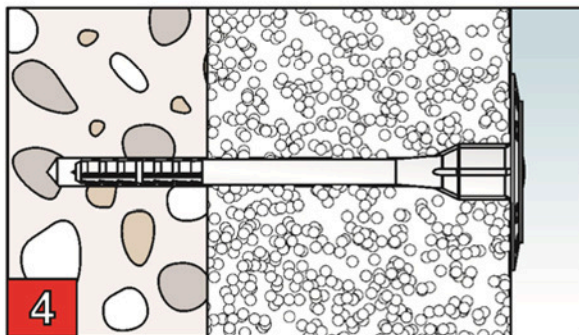
Create a hole about observation of the drill method according Annex C 1



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



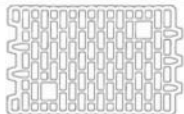
Mounted

**Insulation support KEW TSD 8**

**Intended Use**  
Installation instructions

**Annex B 3**

**Table C1: Characteristic resistance  $N_{Rk}$  in [kN] to tension loads for a single anchor**

Base material	Bulk-density-class $\rho$ [kg/dm <sup>3</sup> ]	Minimum Compressive strength $f_b$ [N/mm <sup>2</sup> ]	Remarks	Drill method	$N_{Rk}$ [kN]
Concrete C12/15			EN 206-1:2000	Hammer drilling	0,5
Concrete C16/20 - C50/60			EN 206-1:2000	Hammer drilling	0,75
Clay bricks, Mz e.g. according to DIN 105-100:2012-01 / EN 771-1:2011	$\geq 1.8$	20	Vertically perforation up to 15%	Hammer drilling	0,6
Sand-lime solid bricks (calcium silicate), KS e.g. according to DIN V 106:2005-10 / EN 771-2:2011	$\geq 1.8$	12	Vertically perforation up to 15%	Hammer drilling	0,8
Prefabricated reinforced components of lightweight aggregate concrete with open structure according to EN 1520:2011	$\geq 0.9$	4,0		Hammer drilling	0,4
Lightweight concrete solid blocks, V e.g. according to DIN V 18152-100: 2005-10 / EN 771-3:2011	$\geq 0.9$	4,0	Proportion of handle hole up to 10%, maximum extension of handle hole: length = 110mm; wide = 45mm	Rotary drilling	0,4
Vertical perforated sand-lime-bricks, KSL e.g. according to DIN V 106:2005-10/ EN 771-2:2011 outer web thickness $\geq 22$ mm	$\geq 1.4$	12	Vertically perforation up to 15%	Rotary drilling	0,4
Vertically perforated clay bricks, HLz e.g. according to DIN 105-100:2012-01 / EN 771-1:2011 outer web thickness $\geq 11$ mm	$\geq 1.0$	12	Vertically perforation more than 15% and less than 50%	Rotary drilling	0,4
Vertically perforated clay bricks, HLz 250mm x 380mm x 235mm outer web thickness $\geq 16$ mm	$\geq 0.8$	6		Rotary drilling	0,3

**Insulation support KEW TSD 8**

**Performances**  
Characteristic tension resistance of the anchor

**Annex C 1**

**Table C2: Point thermal transmittance according EOTA Technical Report TR 025:2007-06**

Anchor type	insulation thickness $h_D$ [mm]	point thermal transmittance $\chi$ [W/K]
KEW – TSD with specific nail, galvanized steel	40 - 260	0,002
KEW – TSD with specific nail, stainless steel	40 - 150	0,002
	150 - 260	0,001

**Table C3: Plate stiffness according EOTA Technical Report TR 026:2007-06**

Anchor type	diameter of the anchor plate [mm]	load resistance of the anchor plate [kN]	plate stiffness [kN/mm]
KEW – TSD	60	1,6	0,6

**Table C4: Displacements**

Base material	Bulk-density-class  $\rho$ [kg/dm <sup>3</sup> ]	Minimum com-pressive strength  $f_b$ [N/mm <sup>2</sup> ]	Tension load  N [kN]	Displacements  $\delta_m(N)$ [mm]
Concrete C12/15 EN 206-1:2000			0,16	0,3
Concrete C16/20 - C50/60 EN 206-1:2000			0,25	0,3
Clay bricks, Mz e.g. according to DIN 105-100:2012-01/ EN 771-1:2011	$\geq 1.8$	20	0,20	0,2
Sand-lime solid bricks (calcium silicate), KS e.g. according to DIN V 106:2005-10 / EN 771-2:2011	$\geq 1.8$	12	0,25	0,5
Prefabricated reinforced components of lightweight aggregate concrete according to DIN EN 1520:2011	$\geq 0.9$	4,0	0,13	0,4
Lightweight concrete solid blocks, V e.g. according to DIN V 18152-100:2005-10 / EN 771-3:2011	$\geq 0.9$	4,0	0,13	0,4
Vertically perforated sand-lime-bricks, KSL e.g. according to DIN V 106:2005-10/ EN 771-2:2011 outer web thickness $\geq 22$ mm	$\geq 1.4$	12	0,13	0,13
Vertically perforated clay bricks e.g. according to DIN 105-100:2012-01/ EN 771-1:2011 outer web thickness $\geq 11$ mm	$\geq 1.0$	12	0,13	0,11
Vertically perforated clay bricks, HLz 250mm x 380mm x 235mm outer web thickness $\geq 16$ mm	$\geq 0.8$	6	0,10	0,06

**Insulation support KEW TSD 8**

**Performances**  
Displacements

**Annex C 3**