

Approval body for construction products  
and types of construction

Bautechnisches Prüfamt

An institution established by the Federal and  
Laender Governments



## European Technical Assessment

ETA-18/0090  
of 7 June 2018

English translation prepared by DIBt - Original version in German language

### General Part

Technical Assessment Body issuing the  
European Technical Assessment:

Deutsches Institut für Bautechnik

Trade name of the construction product

termoz PN8 KERAKOLL

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

KERAKOLL Spa  
Via dell' Artigianato, 9  
41049 SASSUOLO (MO)  
ITALIEN

Manufacturing plant

Kerakoll S.p.a.

This European Technical Assessment  
contains

12 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

EAD 330196-01-0604

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## Specific Part

### 1 Technical description of the product

The termoz PN8 KERAKOLL consists of a plastic sleeve made of polypropylene (virgin material), a plate and an accompanying specific nail made of glass fibre reinforced polyamide (virgin material).

The anchor may in addition be combined with the slip-on-plate DT 90, DT 110 and DT 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 Safety and accessibility in use (BWR 4)

Essential characteristic	Performance
Characteristic tension resistance	See Annex C 1
Edge distances and spacing	See Annex B 2
Plate stiffness	See Annex C 2
Displacements	See Annex C 2

#### 3.2 Energy economy and heat retention (BWR 6)

Essential characteristic	Performance
Point thermal transmittance	See Annex C 2

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

In accordance with EAD No. 330196-01-0604, the applicable European legal act is: [97/463/EC].

The system to be applied is: 2+

English translation prepared by DIBt

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

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

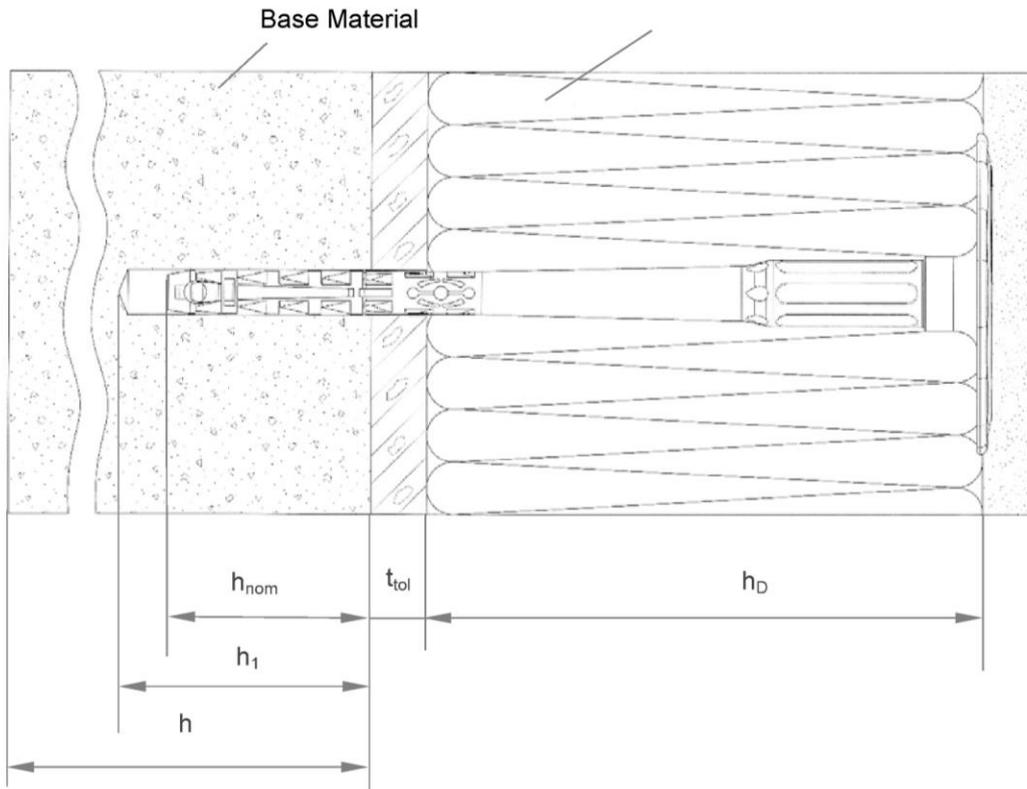
Issued in Berlin on 7 June 2018 by Deutsches Institut für Bautechnik

Dr.-Ing. Lars Eckfeldt  
p. p. Head of Department

*beglaubigt:*  
E. Aksünger

**termoz PN8 KERAKOLL**

External Thermal Insulation Composite System



**Legend**

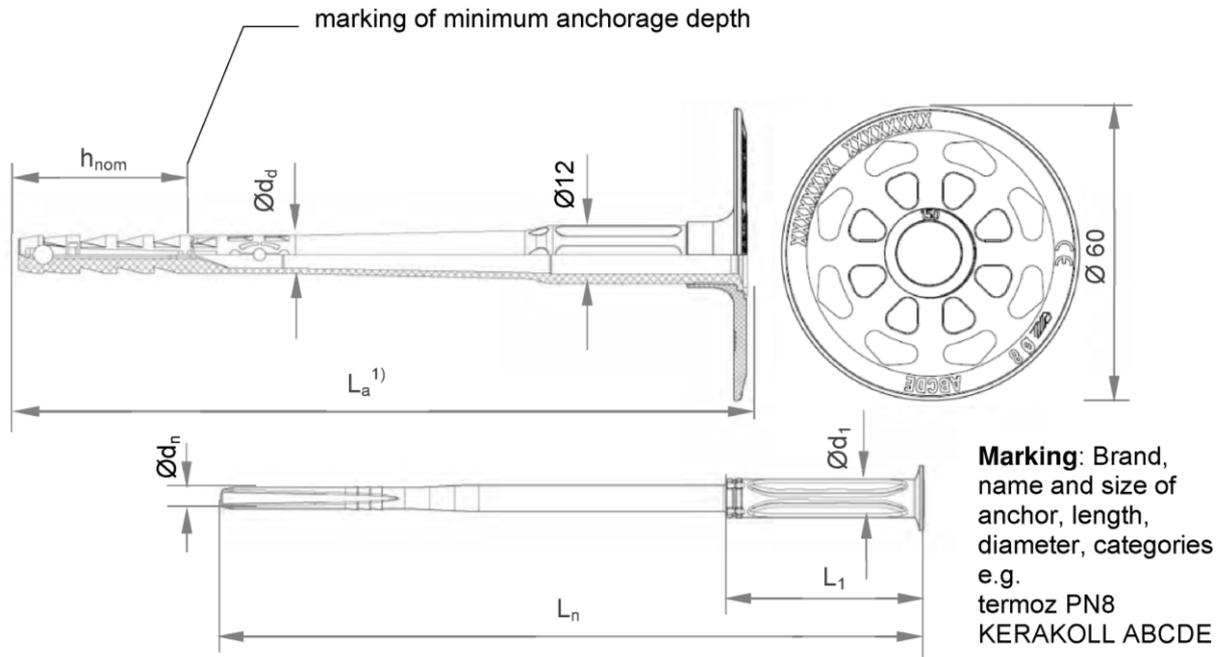
- $h_{nom}$  = Overall plastic anchor embedment depth in the base material
- $h_1$  = Depth of drilled hole to deepest point
- $h$  = Thickness of member (wall)
- $h_D$  = Thickness of insulation material
- $t_{tol}$  = Thickness of equalizing layer or non-load bearing coating

**termoz PN8 KERAKOLL**

**Product description**  
Installed anchor

**Annex A1**

**termoz PN8 KERAKOLL**



<sup>1)</sup> Various length of the anchors are possible

**Table A2.1: Dimensions**

Anchor type	Anchor sleeve		Accompanying specific plastic nail		
	Ø d <sub>d</sub> [mm]	h <sub>nom</sub> [mm]	Ø d <sub>n</sub> [mm]	L <sub>1</sub> [mm]	Ø d <sub>1</sub> [mm]
termoz PN8 KERAKOLL	8	35/55 <sup>1)</sup>	4,4	40	8

<sup>1)</sup> Only for use Cat. D and E

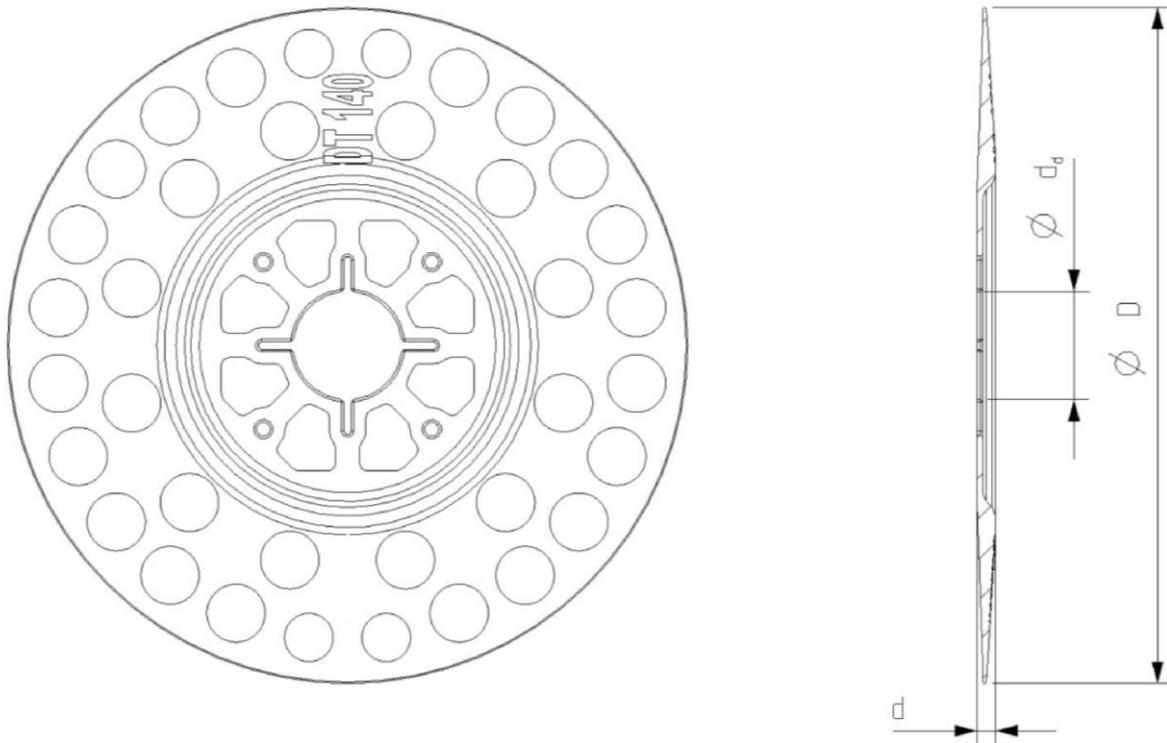
Determination of maximum thickness of insulation:  $h_D = L_a - h_{nom} - t_{tol}$   
 e.g. for termoz PN8 KERAKOLL 8x150:  
 $L_a = 148 \text{ mm}$ ,  $h_{nom} = 35 \text{ mm}$ ,  $t_{tol} = 10$   $h_D = 148 - 35 - 10 \approx 100 \text{ mm}$   
 termoz PN8 KERAKOLL :  $L_{a \text{ min}} \geq 110 \text{ mm}$ ;  $L_{a \text{ max}} \leq 230 \text{ mm}$   
 $L_a = \text{length of accompanying specific nail } L_n + 5 \text{ mm}$

<b>termoz PN8 KERAKOLL</b>	<b>Annex A2</b>
<b>Product description</b> Dimensions	

**Table A3.1: Material**

Designation	Material
Anchor sleeve	PP (virgin material), colour: grey
Specific plastic nail	PA6 (virgin material) GF, colour: nature
Slip-on plate	PA6 (virgin material), GF colour: grey, orange, red, green, yellow, blue

**Drawing of the slip-on plates**



**Table A3.2 Slip-on plates, diameters and material**

Slip-on plate	Ø D [mm]	Ø d <sub>d</sub> [mm]	d [mm]	Material
DT 90 / 110 / 140	90 / 110 / 140	22,5	3,9	PA 6 GF

**termoz PN8 KERAKOLL**

**Product description**

Material  
Slip-on plates combined with termoz PN8 KERAKOLL

**Annex A3**

### Specifications of intended use

#### Anchorage 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.
- 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 and E the characteristic resistance of the anchor may be determined by job site tests acc. to EOTA Technical Report TR 051 Edition April 2018.

#### 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  $\gamma_M = 2,0$  and  $\gamma_F = 1,5$  in absence of other national regulations.
- Verifiable calculation notes and drawings are prepared taking account of the loads to be anchored. The position of the anchors is indicated on the design drawings.
- Fasteners are only to be used for multiple fixings of ETICS.

#### Installation:

- Drilling method according to Annex C1.
- Anchor installation carried out by appropriately qualified personnel and under the supervision of the person responsible for technical matters on 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.

termoz PN8 KERAKOLL

Intended use  
Specification

Annex B1

**Table B2.1: Installation parameters**

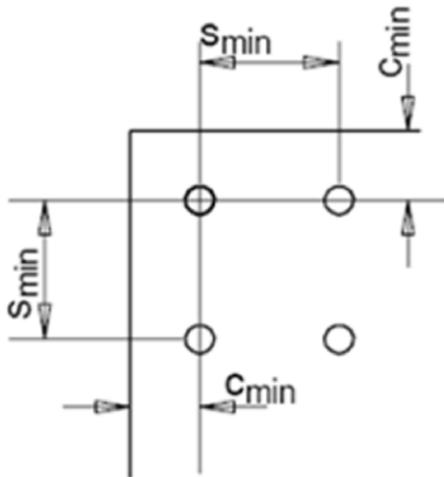
Anchor type				termoz PN8 KERAKOLL
Drill hole diameter	$d_0$	=	[mm]	8
Cutting diameter of drill bit	$d_{cut}$	≤	[mm]	8,45
Depth of drilled hole to deepest point	$h_1$	≥	[mm]	45/65 <sup>1)</sup>
Overall plastic anchor embedment depth in the base material	$h_{nom}$	≥	[mm]	35/55 <sup>1)</sup>

<sup>1)</sup> Only for use categorie "D" and "E"

**Table B2.2: Minimum distances and spacings**

				termoz PN8 KERAKOLL
Minimum thickness of member	$h$	=	[mm]	100
Minimum spacing	$s_{min}$	=	[mm]	100
Minimum edge distance	$c_{min}$	=	[mm]	100

**Scheme of distance and spacing**

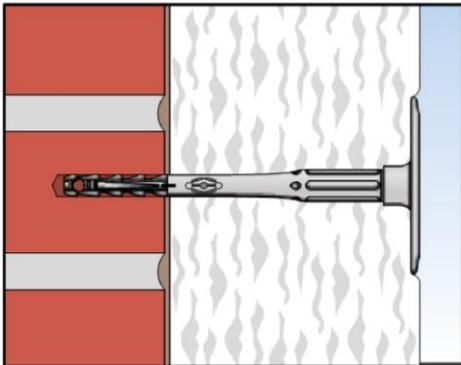
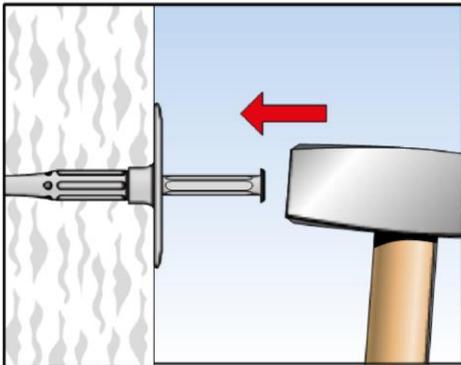
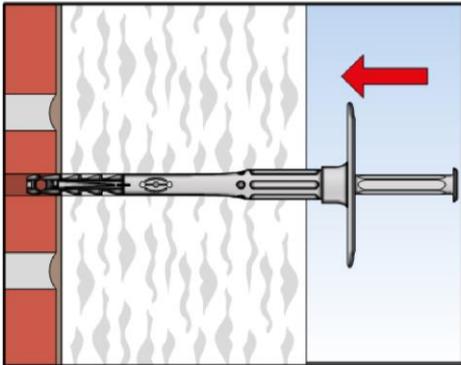
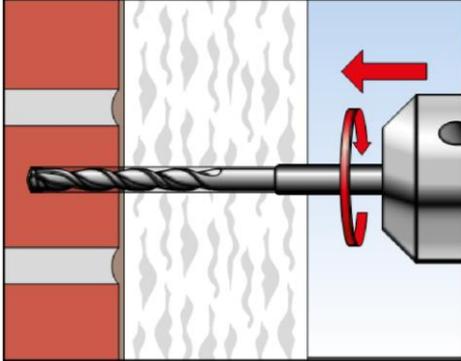


**termoz PN8 KERAKOLL**

**Intended use**  
Installation parameters  
Minimum distances and spacings

**Annex B2**

### Installation instructions



1. Drill hole by corresponding drilling method.

2. Insert anchor manually.

3. Set anchor by hammer-blows.

4. Correctly installed anchor.

**termoz PN8 KERAKOLL**

Intended use  
Installation instruction

**Annex B3**

**Table C1.1: Characteristic resistance  $N_{Rk}$  in [kN] to tension loads for single anchor**

Base material	Use cat. <sup>1)</sup>	Bulk density class $\rho$ [kg/dm <sup>3</sup> ]	Min. compressive strength $f_b$ [N/mm <sup>2</sup> ]	Remarks	Drill method <sup>2)</sup>	Characteristic resistance $N_{Rk}$ to tension loads [kN] <b>termoz PN8 KERAKOLL</b>
Concrete $\geq$ C12/15 - C50/60 EN 206-1:2011	A	-	-	-	H	<b>0,5</b>
Solid Clay bricks e.g. acc. to EN 771-1:2011, Mz	B	$\geq 2,0$	12	Cross section reduced up to 15% by perforation vertically to the resting area	H	<b>0,6</b>
Calcium silicate solid bricks, e.g. acc. to EN 771-2:2011, KS	B	$\geq 1,8$	12	Cross section reduced up to 15% by perforation vertically to the resting area	H	<b>0,6</b>
Vertically perforated clay bricks e.g. acc. to EN 771-1:2011, HLz	C	$\geq 1,0$	12	Cross section reduced between 15% and 50% by perforation vertically to the resting area. Exterior web thickness $\geq 12$ mm	R	<b>0,4</b>
Hollow calcium silicate brick, acc. to EN 771-2:2011, KSL	C	$\geq 1,4$	12	Cross section reduced between 15% and 50% by perforation vertically to the resting area. Exterior web thickness $\geq 23$ mm	H	<b>0,4</b>
Lightweight concrete hollow blocks e.g. acc. to EN 771-3:2011, Hbl	C	$\geq 1,2$	10	-	H	<b>0,5</b>
Lightweight aggregate concrete, LAC e.g. acc. to EN 1520:2011, EN 771-3:2011	D	$\geq 0,9$	4	Minimum exterior web thickness $t = 50$ mm	H	<b>0,3</b>
			6			<b>0,4</b>
Autoclaved aerated concrete blocks, e.g. AAC acc. to EN 771-4:2011	E	$\geq 0,5$	4	-	R	<b>0,3</b>
		$\geq 0,6$	6			<b>0,4</b>

1) See Annex B 1

2) R = Rotary drilling | H = Hammer drilling

**termoz PN8 KERAKOLL**

**Performance**  
Characteristic resistance

**Annex C1**

**Table C2.1 Point thermal transmittance acc. to EOTA Technical Report TR 025: 2016 – 05**

Anchor type	Thickness of insulation material $h_D$ [mm]	Point thermal transmittance $\chi$ [W/K]
termoz PN8 KERAKOLL	60 - 180	0,000

**Table C2.2: Plate stiffness acc. to EOTA Technical Report TR 026 : 2016 – 05**

Anchor type	Max. size of the anchor plate [mm]	Load resistance of the anchor plate [kN]	Plate stiffness [kN/mm]
termoz PN8 KERAKOLL	60	1,7	0,6

**Table C2.3 Displacements**

Base material	Tension load $F_{Rd}$ [kN]	Displacements $\delta_m$ [mm]
Concrete $\geq$ C12/15 – C50/60 (EN 206-1:2000)	0,15	0,2
Clay brick (EN 771-1:2011), Mz 12	0,20	0,2
Calcium silicate solid bricks (EN 771-2 :2011), KS 12	0,20	0,3
Vertically perforated clay brick (EN 771-1:2011), Hlz 12	0,15	0,4
Hollow calcium silicate brick (EN 771-2:2011), KSL 12	0,15	0,2
Hollow brick lightweight concrete (EN 771-3:2011), Hbl 4	0,15	0,2
Lightweight aggregate concrete (EN 1520:2011, EN 771-3:2011)	LAC 4	0,2
	LAC 6	
Autoclaved aerated concrete blocks acc. to (EN 771-4:2011)	AAC 4	0,1
	AAC 6	0,2

**termoz PN8 KERAKOLL**

**Performance**  
Point thermal transmittance | Plate stiffness  
Displacements

**Annex C2**