

Approval body for construction products
and types of construction

Bautechnisches Prüfamt

An institution established by the Federal and
Laender Governments



European Technical Assessment

ETA-09/0394
of 18 October 2022

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

fischer TermoZ CN 8 / fischer TermoZ CN 8 R / fischer
TermoZ CNplus 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

fischerwerke GmbH & Co. KG
Klaus-Fischer-Straße 1
72178 Waldachtal
DEUTSCHLAND

Manufacturing plant

fischerwerke

This European Technical Assessment
contains

22 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, Edition 10/2017

This version replaces

ETA-09/0394 issued on 19 December 2017

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Specific part

1 Technical description of the product

The fischer nailed-in anchor TermoZ CN 8 110-230 and TermoZ CNplus 8 110-230 consists of an anchor sleeve with an enlarged shaft made of polypropylene (virgin material), an insulation plate made of glass fibre reinforced polyamide (virgin material) and a special compound nail consisting of two parts, one made of glass fibre reinforced polyamide for the shaft element and the other part made of galvanised steel.

The fischer nailed-in anchor TermoZ CN 8 250-390 and TermoZ CN 8 R 250-310 consists of an anchor sleeve made of polypropylene (virgin material), a shaft part, whose the serrated expanding part is slotted, such as an insulation plate made of glass fibre reinforced polyamide (virgin material).

The fischer nailed-in anchor TermoZ CN 8 250-390 and TermoZ CN 8 R 250-310 made of galvanised steel and is used together with a plastic cylinder made of glass fiber reinforced polyamide.

The fischer nailed-in anchor TermoZ CNplus 8 250-390 consists of an anchor sleeve made of polypropylene (virgin material), a shaft part made of polyamide (virgin material), whose the serrated expanding part is slotted, an insulation plate made of glass fibre reinforced polyamide (virgin material) and a special compound nail consisting of two parts, one made of glass fibre reinforced polyamide for the shaft element and the other part made of galvanised steel.

All anchors may in addition be combined with the anchor plates 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 load bearing capacity <ul style="list-style-type: none"> - Characteristic resistance under tension load - Minimum edge distance and spacing | See Annex C 1 - C 2 See Annex B 2 |
| Displacements | See Annex C 5 |
| Plate stiffness | See Annex C 4 |

3.2 Energy economy and heat retention (BWR 6)

| Essential characteristic | Performance |
|-----------------------------|---------------------|
| Point thermal transmittance | See Annex C 3 - C 4 |

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+

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.

The following standards and documents are referred to in this European Technical Assessment:

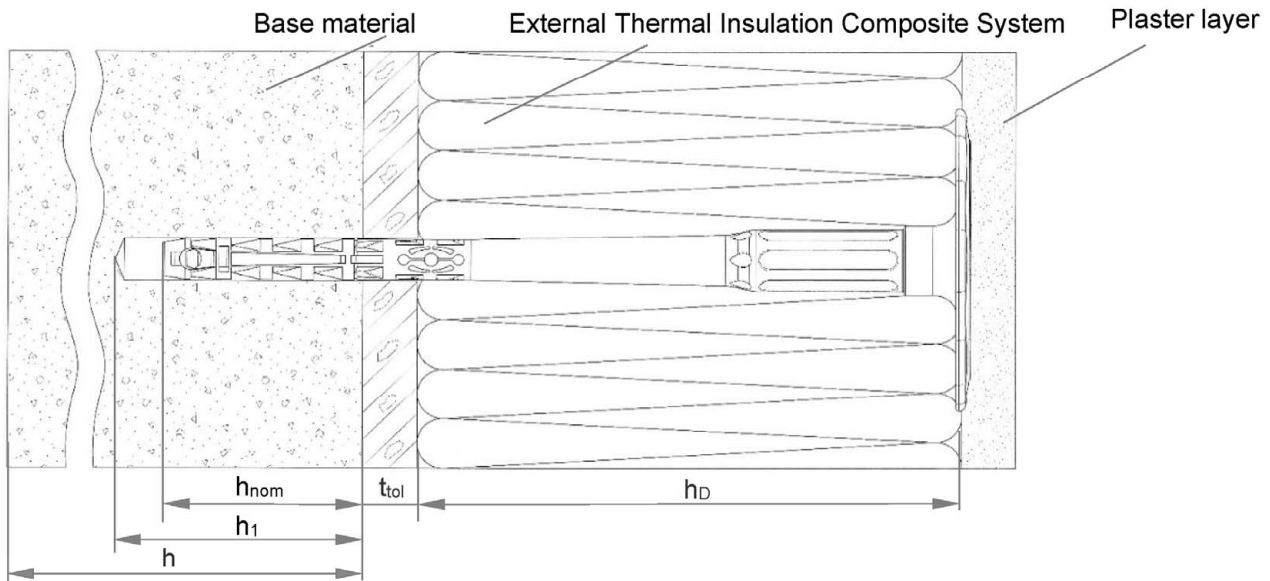
- EOTA Technical Report TR 025, Edition May 2016 Point Thermal Transmittance of Plastic Anchors for ETICS
- EOTA Technical Report TR 026, Edition May 2016 Plate Stiffness of Plastic Anchors for ETICS
- EOTA Technical Report TR 051, Edition April 2018 Job site tests of plastic anchors and screws
- EN 206:2013 Concrete - Specification, performance, production and conformity
- EN 771-1:2011+A1:2015 Specification for masonry units - Part 1: Clay masonry units
- EN 771-2:2011+A1:2015 Specification for masonry units - Part 2: Calcium silicate masonry units
- EN 771-3:2011+A1:2015 Specification for masonry units - Part 3: Aggregate concrete masonry units (Dense and lightweight aggregates)
- EN 771-4:2011+A1:2015 Specification for masonry units - Part 4: Autoclaved aerated concrete masonry units
- EN 1520:2011 Prefabricated reinforced components of lightweight aggregate concrete with open structure
- EN ISO 4042:2018-11 Fasteners - Electroplated coating systems

Issued in Berlin on 18 October 2022 by Deutsches Institut für Bautechnik

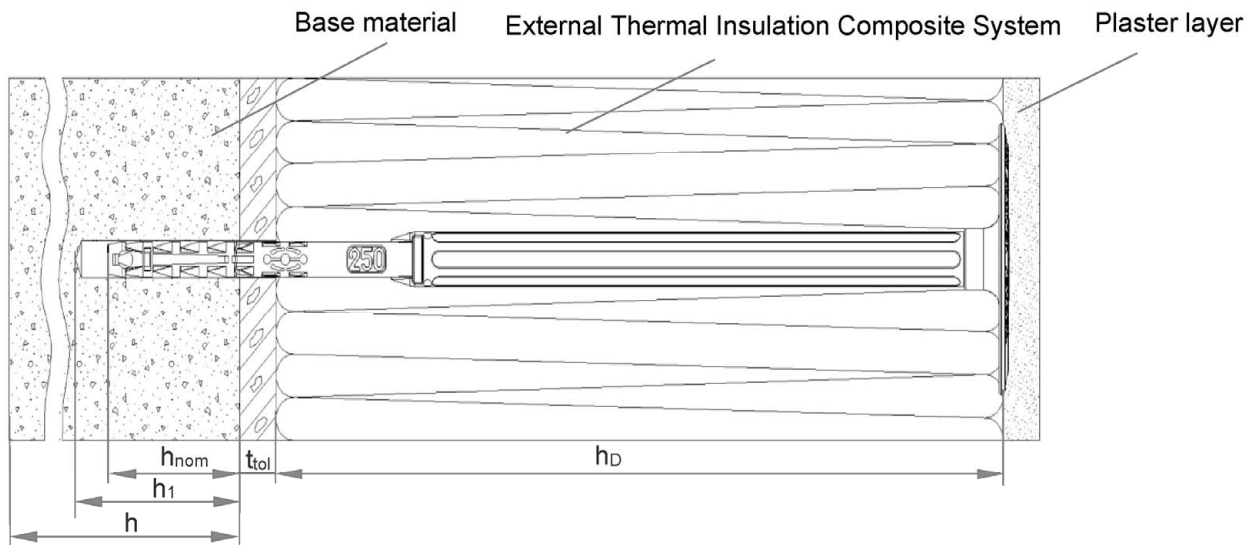
Dipl.-Ing. Beatrix Wittstock
Head of Section

beglaubigt:
Aksünger

TermoZ CN 8 / 110 – 230 / TermoZ CNplus 8 / 110 – 230 – mounting on the surface



TermoZ CN 8 / 250 – 390 / TermoZ CN 8 R / 250 – 310 / TermoZ CNplus 8 / 250 - 390 – mounting on the surface



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 equalising layer and / or non-load bearing coating

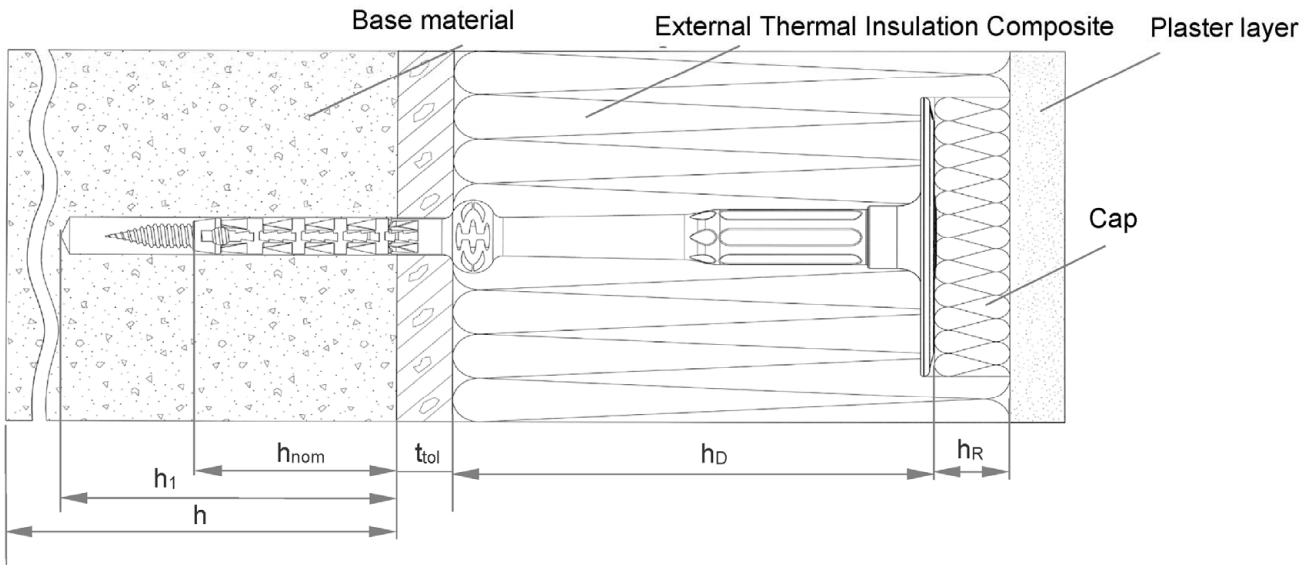
Figures not to scale

fischer TermoZ CN 8 | fischer TermoZ CN 8 R | fischer TermoZ CNplus 8

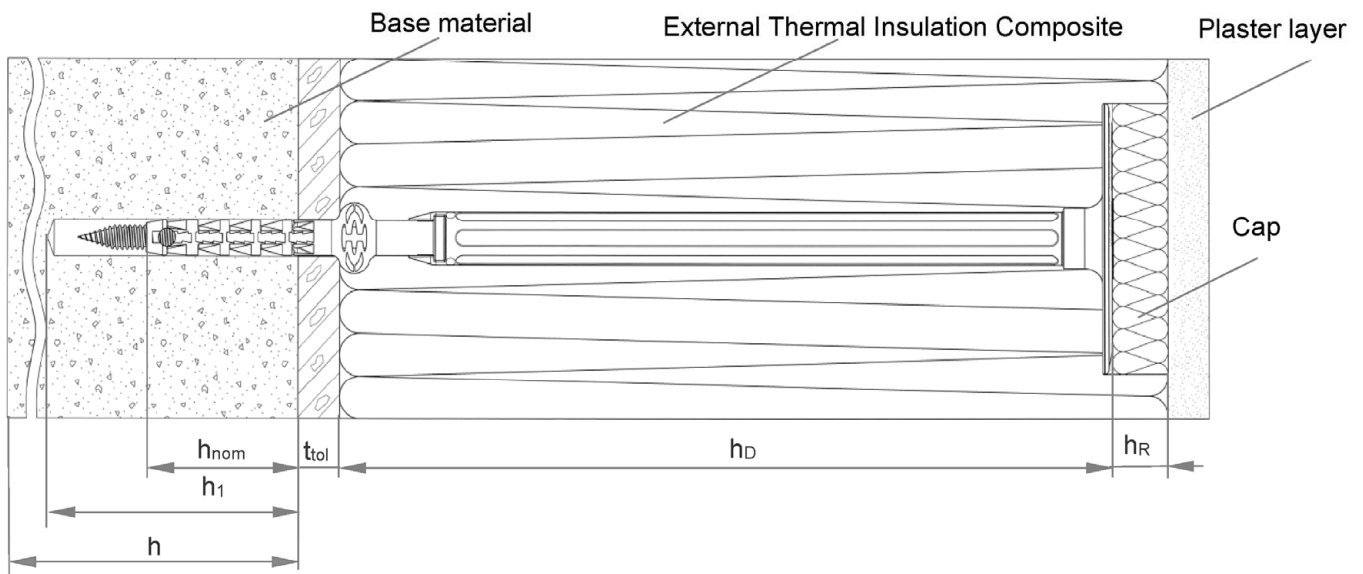
Product description
Installed anchor – mounting on the surface

Annex A 1

TermoZ CNplus 8 / 110 – 230 – countersunk mounting



TermoZ CNplus 8 / 250 – 390 – countersunk mounting



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
- h_R = Thickness of cap
- t_{tol} = Thickness of equalising layer and / or non-load bearing coating

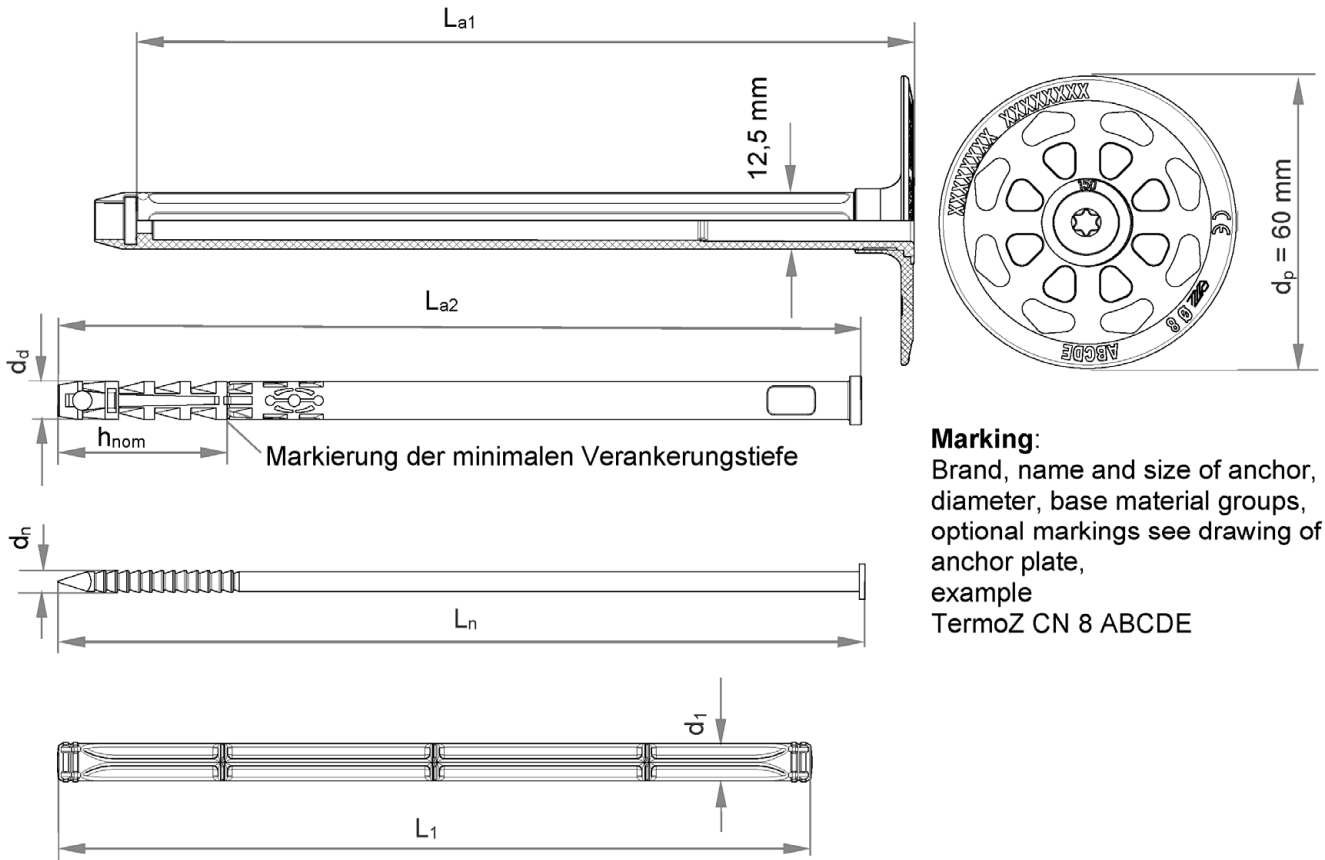
Figures not to scale

fischer TermoZ CN 8 | fischer TermoZ CN 8 R | fischer TermoZ CNplus 8

Product description
Installed anchor – mounting on the surface

Annex A 2

TermoZ CN 8 / 250 – 390



Marking:

Brand, name and size of anchor, diameter, base material groups, optional markings see drawing of anchor plate, example
TermoZ CN 8 ABCDE

Various length of the anchors are possible.

e.g. for TermoZ CN 8 / 250 – 390:
 $250 \text{ mm} \geq L_{a1} + L_{a2} \leq 390 \text{ mm}$
 $L_a = L_{a1} + L_{a2} = L_n + 160,5 \text{ mm}$

Table A4.1: Dimensions TermoZ CN 8 / 250 – 390

| Anchor type | Shaft | | Anchor sleeve | | Nail | | Plastic cylinder | |
|-------------------------|------------------|---------------|---------------------|------------------|---------------|---------------------------|------------------|---------------|
| | L_{a1} [mm] | d_d [mm] | h_{nom} [mm] | L_{a2} [mm] | d_n [mm] | L_n [mm] | L_1 [mm] | d_1 [mm] |
| TermoZ CN 8 / 250 – 390 | 161 | 8 | 35/55 ¹⁾ | 87 - 247 | 4,5 | $(L_{a1}+L_{a2}) - 160,5$ | 157 | 8 |

¹⁾ Only valid for base material group "E".

Determination of maximum thickness of insulation:

maximum $h_D = L_a - h_{nom} - t_{tol}$

e.g. for TermoZ CN 8x330:

$L_a = 328 \text{ mm}$, $h_{nom} = 35 \text{ mm}$, $t_{tol} = 10 \text{ mm}$

maximum $h_D = 328 - 35 - 10 = 283 \text{ mm}$
 \rightarrow recommended $h_D = 280 \text{ mm}$

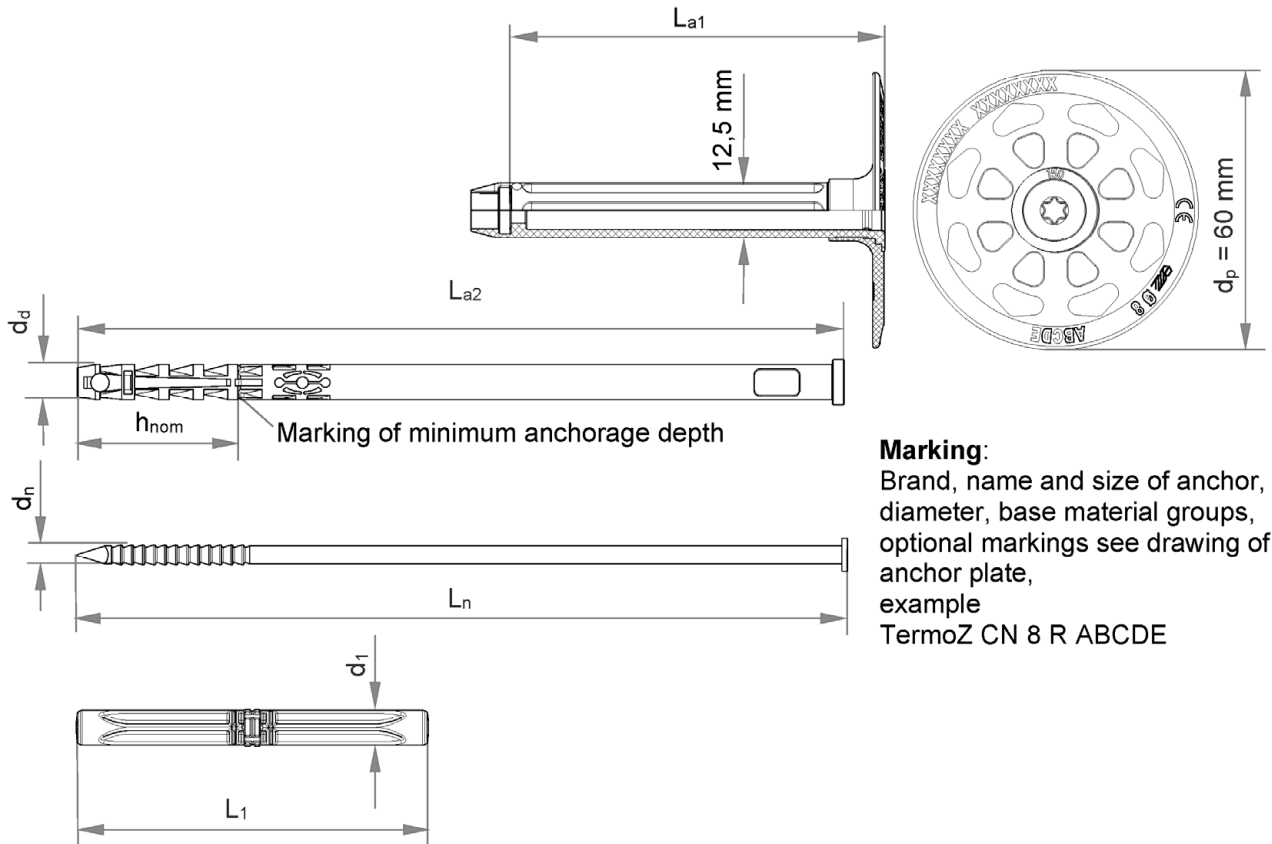
Figures not to scale

fischer TermoZ CN 8 | fischer TermoZ CN 8 R | fischer TermoZ CNplus 8

Product description
Dimensions TermoZ CN 8 / 250 – 390

Annex A 4

TermoZ CN 8 R / 250 – 310



Marking:

Brand, name and size of anchor, diameter, base material groups, optional markings see drawing of anchor plate, example
TermoZ CN 8 R ABCDE

Various length of the anchors are possible.

z. B. für TermoZ CN 8 R / 250 – 310:
 $250 \text{ mm} \geq L_{a1} + L_{a2} \leq 310 \text{ mm}$
 $L_a = L_{a1} + L_{a2} = L_n + 80,5 \text{ mm}$

Table A5.1: Dimensions TermoZ CN 8 R / 250 – 310

| Anchor type | Shaft | | Anchor sleeve | | Nail | | Plastic cylinder | |
|---------------------------|------------------|---------------|---------------------|------------------|---------------|--------------------------|------------------|---------------|
| | L_{a1} [mm] | d_d [mm] | h_{nom} [mm] | L_{a2} [mm] | d_n [mm] | L_n [mm] | L_1 [mm] | d_1 [mm] |
| TermoZ CN 8 R / 250 – 310 | 81 | 8 | 35/55 ¹⁾ | 167 - 247 | 4,5 | $(L_{a1}+L_{a2}) - 80,5$ | 77 | 8 |

¹⁾ Only valid for base material group "E".

Determination of maximum thickness of insulation:

e.g. for TermoZ CN 8 R 8x250:

$L_a = 248 \text{ mm}$, $h_{nom} = 35 \text{ mm}$, $t_{tol} = 10 \text{ mm}$

maximum $h_D = L_a - h_{nom} - t_{tol}$

maximum $h_D = 248 - 35 - 10 = 203 \text{ mm}$
 → recommended $h_D = 200 \text{ mm}$

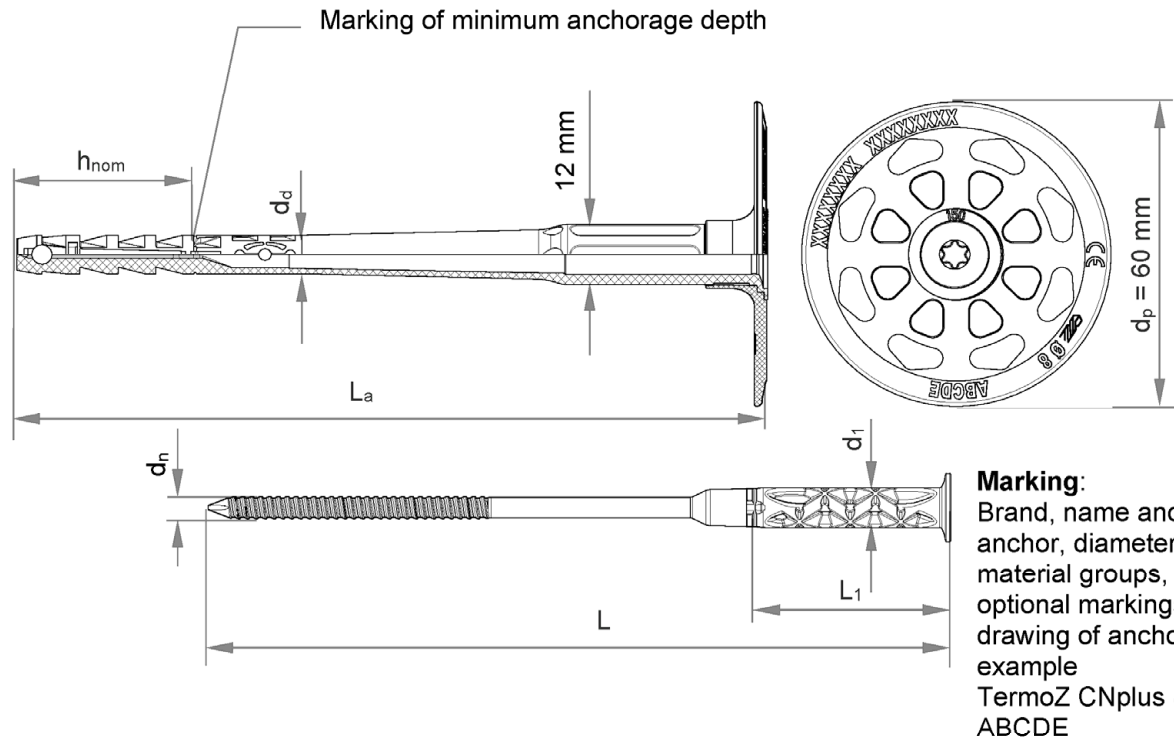
Figures not to scale

fischer TermoZ CN 8 | fischer TermoZ CN 8 R | fischer TermoZ CNplus 8

Product description
Dimensions TermoZ CN 8 R / 250 – 310

Annex A 5

TermoZ CNplus 8 / 110 – 230



Marking:
Brand, name and size of anchor, diameter, base material groups, optional markings see drawing of anchor plate, example TermoZ CNplus 8 ABCDE

Various length of the anchors are possible.
e.g. for TermoZ CNplus 8 / 110 – 230:
 $110 \text{ mm} \geq L_a \leq 230 \text{ mm}$
 $L_a = L_n + 1,5 \text{ mm}$

Table A6.1: Dimensions TermoZ CNplus 8 / 110 – 230

| Anchor type | Anchor sleeve | | Specific compound nail | | | |
|-----------------------------|---------------|---------------------|------------------------|---------------|---------------|---------------|
| | d_d [mm] | h_{nom} [mm] | d_n [mm] | L_n [mm] | L_1 [mm] | d_1 [mm] |
| TermoZ CNplus 8 / 110 - 230 | 8 | 35/55 ¹⁾ | 4,3 | $L_a - 1,5$ | 40 | 8 |

¹⁾ Only valid for base material group "D" and "E".

Determination of maximum thickness of insulation:

$$\text{maximum } h_D = L_a - h_{nom} - t_{tot}$$

e.g. for TermoZ CNplus 8x150:

$$L_a = 148 \text{ mm}, h_{nom} = 35 \text{ mm}, t_{tot} = 10 \text{ mm}$$

$$\text{maximum } h_D = 148 - 35 - 10 = 103 \text{ mm}$$

→ recommended $h_D = 100 \text{ mm}$

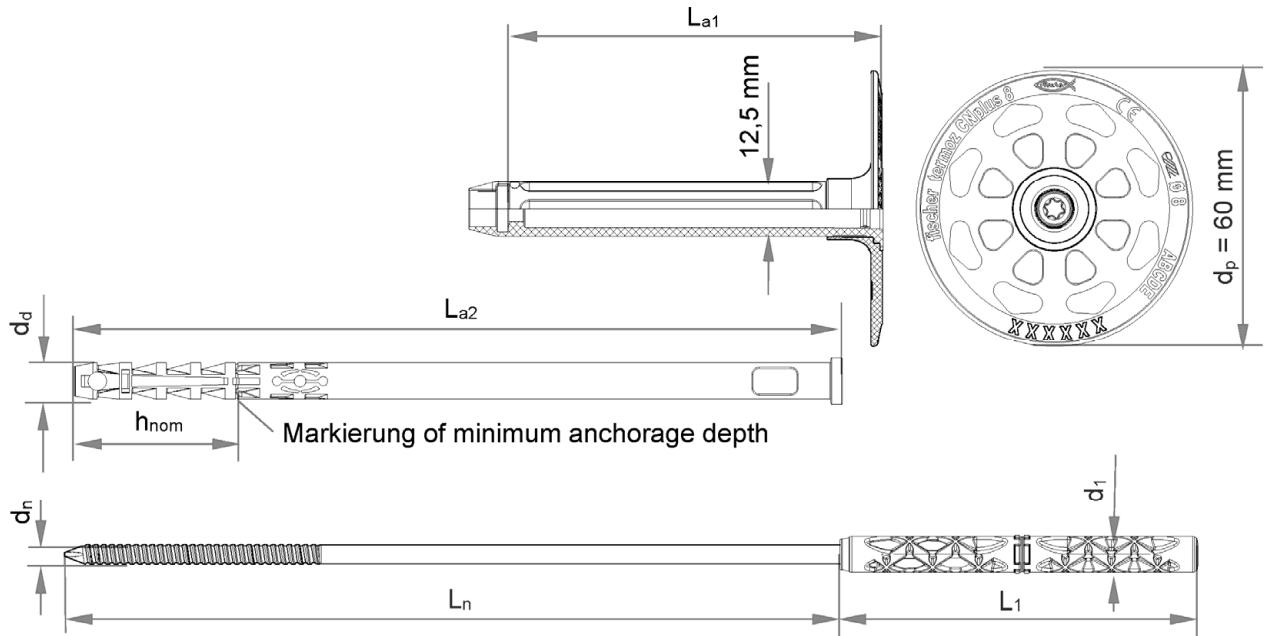
Figures not to scale

fischer TermoZ CN 8 | fischer TermoZ CN 8 R | fischer TermoZ CNplus 8

Product description
Dimensions TermoZ CNplus 8 / 110 – 230

Annex A 6

TermoZ CNplus 8 / 250 – 310



Various length of the anchors are possible.

e.g. for TermoZ CNplus 8 / 250 – 310:
 $250 \text{ mm} \geq L_{a1} + L_{a2} \leq 310 \text{ mm}$
 $L_a = L_{a1} + L_{a2} = L_n + 79,5 \text{ mm}$

Marking:
 Brand, name and size of anchor, diameter, base material groups, optional markings see drawing of anchor plate, example
 TermoZ CNplus 8 ABCDE

Table A7.1: Dimensions TermoZ CNplus 8 / 250 – 310

| Anchor type | Shaft | Anchor sleeve | | | Specific compound nail | | | |
|-----------------------------|------------------|---------------|---------------------|------------------|------------------------|--------------------------|---------------|---------------|
| | L_{a1} [mm] | d_d [mm] | h_{nom} [mm] | L_{a2} [mm] | d_n [mm] | L_n [mm] | L_1 [mm] | d_1 [mm] |
| Termoz CNplus 8 / 250 – 310 | 81 | 8 | 35/55 ¹⁾ | 167 - 247 | 4,3 | $(L_{a1}+L_{a2}) - 79,5$ | 77,5 | 8 |

¹⁾ Only valid for base material group "D" and "E".

Determination of maximum thickness of insulation:

$$\text{maximum } h_D = L_a - h_{nom} - t_{tol}$$

e.g. for TermoZ CNplus 8x250:

$L_a = 248 \text{ mm}$, $h_{nom} = 35 \text{ mm}$, $t_{tol} = 10 \text{ mm}$

$$\text{maximum } h_D = 248 - 35 - 10 = 203 \text{ mm}$$

→ recommended $h_D = 200 \text{ mm}$

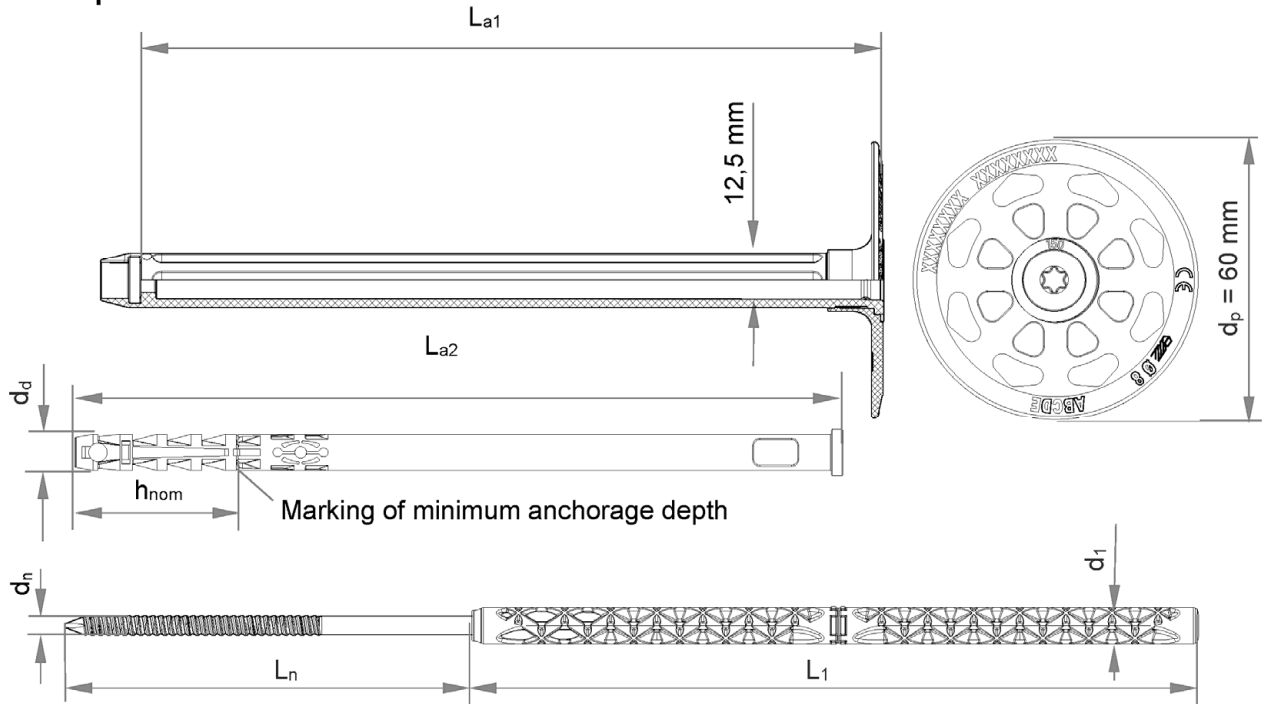
Figures not to scale

fischer TermoZ CN 8 | fischer TermoZ CN 8 R | fischer TermoZ CNplus 8

Product description
 Dimensions TermoZ CNplus 8 / 250 – 310

Annex A 7

TermoZ CNplus 8 / 330 – 390



Various length of the anchors are possible.

e.g. for TermoZ CNplus 8 / 330 – 390:
 $330 \text{ mm} \geq L_{a1} + L_{a2} \leq 390 \text{ mm}$
 $L_a = L_{a1} + L_{a2} = L_n + 159,5 \text{ mm}$

Marking:
 Brand, name and size of anchor, diameter, base material groups, optional markings see drawing of anchor plate, example
 TermoZ CNplus 8 ABCDE

Table A8.1: Dimensions TermoZ CNplus 8 / 330 – 390

| Anchor type | Shaft | Anchor sleeve | | | Specific compound nail | | | |
|-----------------------------|------------------|---------------|---------------------|------------------|------------------------|---------------------------|---------------|---------------|
| | L_{a1} [mm] | d_d [mm] | h_{nom} [mm] | L_{a2} [mm] | d_n [mm] | L_n [mm] | L_1 [mm] | d_1 [mm] |
| Termoz CNplus 8 / 330 – 390 | 161 | 8 | 35/55 ¹⁾ | 167 - 247 | 4,3 | $(L_{a1}+L_{a2}) - 159,5$ | 157,5 | 8 |

¹⁾ Only valid for base material group "D" and "E".

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

e.g. for TermoZ CNplus 8x330:
 $L_a = 328 \text{ mm}$, $h_{nom} = 35 \text{ mm}$, $t_{tol} = 10 \text{ mm}$

maximum $h_D = 328 - 35 - 10 = 283 \text{ mm}$
 \rightarrow recommended $h_D = 280 \text{ mm}$

Figures not to scale

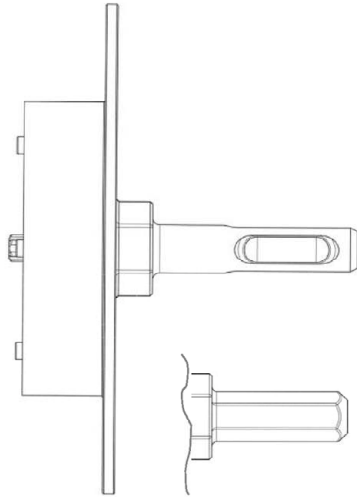
fischer TermoZ CN 8 | fischer TermoZ CN 8 R | fischer TermoZ CNplus 8

Product description
 Dimensions TermoZ CNplus 8 / 330 – 390

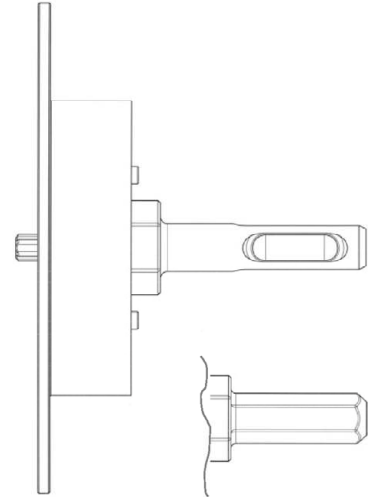
Annex A 8

Setting tool with SDS adapter or hexagonal adapter for TermoZ CNplus 8

Countersunk setting¹⁾

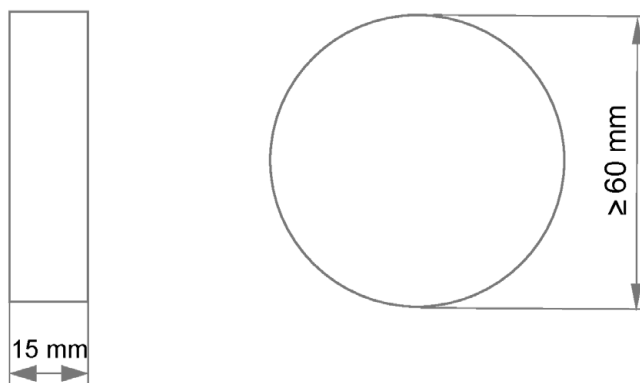


Optional: plain surface setting



¹⁾ Alternatively, it is possible to mill the insulation material with a standard, market-available milling tool.

Cap



Figures not to scale

fischer TermoZ CN 8 | fischer TermoZ CN 8 R | fischer TermoZ CNplus 8

Product description

Setting tool and dimensions of cap for fischer TermoZ CNplus 8

Annex A 9

Table A10.1: Materials

| Designation | Material |
|---|--|
| Anchor sleeve | PP, colour: grey |
| Shaft TermoZ CN 8 / 250 – 390 or TermoZ CN 8 R / 250 – 310 or TermoZ CNplus 8 / 250 – 390 | PA6 GF, colour: grey |
| Plastic cylinder TermoZ CN 8 / 250 – 390 or TermoZ CN 8 R / 250 – 310 | PA6 GF |
| Specific nail TermoZ CN 8 / 250 – 390 or TermoZ CN 8 R / 250 – 310 | Galvanised steel with Zn5/Ag or Zn5/An as per EN ISO 4042 |
| Specific compound nail TermoZ CN 8 / 110 – 230 or TermoZ CNplus 8 / 110 – 230 or TermoZ CNplus 8 / 250 – 390 | PA6 GF (plastic part of compound nail) with galvanised steel Zn5/Ag or Zn5/An as per EN ISO 4042 |
| Cap | Polystyrene; mineral wood, soft wood fibre |
| Anchor plate / slip-on plate | PA6 GF, colour: grey, yellow, red, orange, green, blue, mocca-latte, black |

Drawing of the slip-on plate (e.g. DT 140)

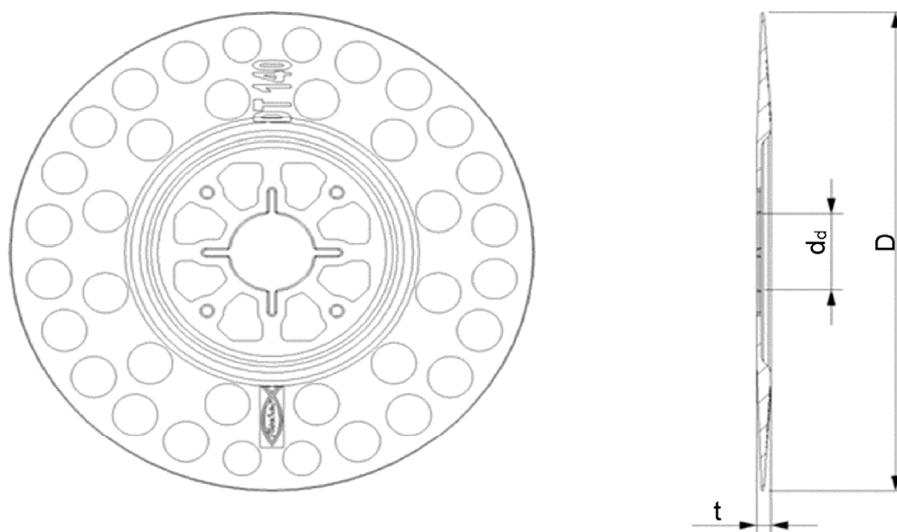


Table A10.2: Slip-on plate, dimensions and material

| Slip-on plate | D [mm] | d _{dt} [mm] | t [mm] |
|-------------------|----------------|-------------------------|-----------|
| DT 90 / 110 / 140 | 90 / 110 / 140 | 22,5 | 3,9 |

Figures not to scale

fischer TermoZ CN 8 | fischer TermoZ CN 8 R | fischer TermoZ CNplus 8

Product description

Material, Slip-on plate dimensions and material combined with fischer
TermoZ CN 8, TermoZ CN 8 R and TermoZ CNplus 8

Annex A 10

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 external thermal insulation composite system (ETICS).

Base materials:

- Compacted normal weight concrete without fibres, strength classes \geq C12/15 (base material group "A"), in accordance with EN 206, see Annex C 1 and C 2.
- Solid brick masonry (base material group "B") as per EN 771-1, EN 771-2 or EN 771-3, see Annex C 1 and C 2.
- Hollow brick masonry (base material group "C"), as per EN 771-1, EN 771-2 or EN 771-3, see Annex C 1 and C 2.
- Prefabricated reinforced components of lightweight aggregate concrete with open structure (base material group "D") as per EN 1520, see Annex C 1 and C 2.
- Unreinforced autoclaved aerated concrete (base material group "E") as per EN 771-4, see Annex C 1 and C 2.
- For other comparable base materials of the base material group "A", "B", "C", "D" and "E" the characteristic resistance of the anchor may be determined by job site tests in accordance with EOTA Technical Report TR 051.

Temperature Range:

- 0 °C to + 40 °C (max. short term temperature + 40 °C and max. long term temperature + 24 °C) of the base material.

Design:

- The anchorages are designed under the responsibility of an engineer experienced in anchorages and masonry work with the partial safety factors for material related resistances $\gamma_M = 2,0$ and for action loads $\gamma_F = 1,5$ 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 external thermal insulation composite system.

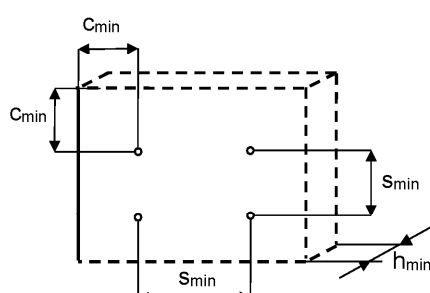
Installation:

- Drilling method according to Annex C 1 and C 2.
- 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.

fischer TermoZ CN 8 | fischer TermoZ CN 8 R | fischer TermoZ CNplus 8

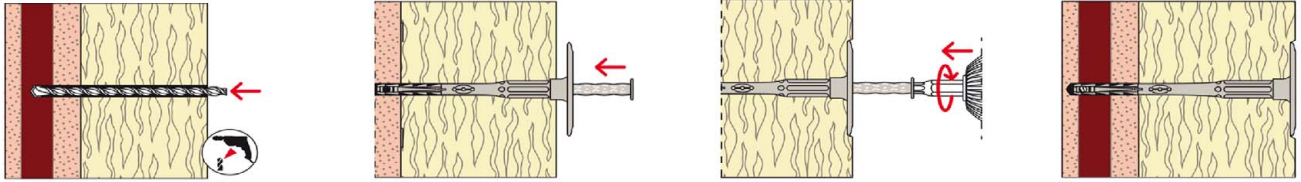
Intended Use
Specification

Annex B 1

| Table B2.1: Installation parameters for base material groups “A” concrete, “B” solid bricks, “C” hollow or perforated bricks, “D” lightweight aggregate concrete and “E” autoclaved aerated concrete – flush mounting | | |
|--|---------------------|--|
| Anchor type | | TermoZ CN 8 TermoZ CN 8 R TermoZ CNplus 8 |
| Nominal 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] | 45/55¹⁾/65²⁾ |
| Overall plastic anchor embedment depth in the base material | $h_{nom} \geq$ [mm] | 35/45¹⁾/55²⁾ |
| <p>¹⁾ Only TermoZ CNplus valid for weather shells (thin concrete slabs) : $35 \text{ mm} \leq h_{nom} \leq 45 \text{ mm}$. ²⁾ TermoZ CN 8 TermoZ CN 8 R : Only valid for base material group “E”. TermoZ CNplus 8: Only valid for base material group “D” and “E”.</p> | | |
| Table B2.2: Installation parameters for base material groups “A” concrete, “B” solid bricks, “C” hollow or perforated bricks, “D” lightweight aggregate concrete and “E” autoclaved aerated concrete – countersunk mounting | | |
| Anchor type | | TermoZ CNplus 8 |
| Nominal 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] | 60/70¹⁾/80²⁾ |
| Overall plastic anchor embedment depth in the base material | $h_{nom} \geq$ [mm] | 35/45¹⁾/55²⁾ |
| <p>¹⁾ Valid for weather shell (thin concrete slabs): $35 \text{ mm} \leq h_{nom} \leq 45 \text{ mm}$. ²⁾ Only valid for base material group “D” and “E”.</p> | | |
| Table B2.3: Minimum thickness of member, edge distances and spacing in all regulated base material groups | | |
| Anchor type | | TermoZ CN 8 TermoZ CN 8 R TermoZ CNplus 8 |
| Minimum thickness of member | $h_{min} =$ [mm] | 100 |
| Minimum spacing | $s_{min} =$ [mm] | 100 |
| Minimum edge distance | $c_{min} =$ [mm] | 100 |
| <p>Scheme of edge distances and spacing for base material group “A”, concrete, group “B” solid bricks, group “C” hollow or perforated masonry, group “D” lightweight aggregate concrete, group “E” autoclaved aerated concrete</p>  <p style="text-align: right;">Figure not to scale</p> | | |
| fischer TermoZ CN 8 fischer TermoZ CN 8 R fischer TermoZ CNplus 8 | | Annex B 2 |
| Intended Use Installation parameters Minimum thickness of member, edge distances and spacing | | |

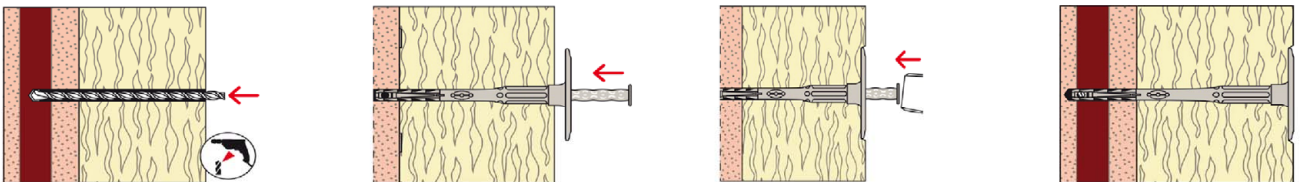
Installation instruction

Setting of anchor (plain surface setting) by machine / TermoZ CNplus 8



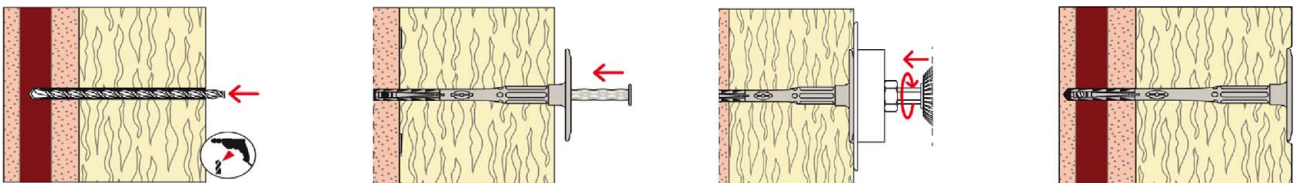
1. Drill hole by corresponding drilling method
2. Insert anchor manually
3. Set anchor by machine
4. Correctly installed anchor

Setting of anchor (plain surface setting) by hammer / TermoZ CN 8 | TermoZ CN 8 R | TermoZ CNplus 8



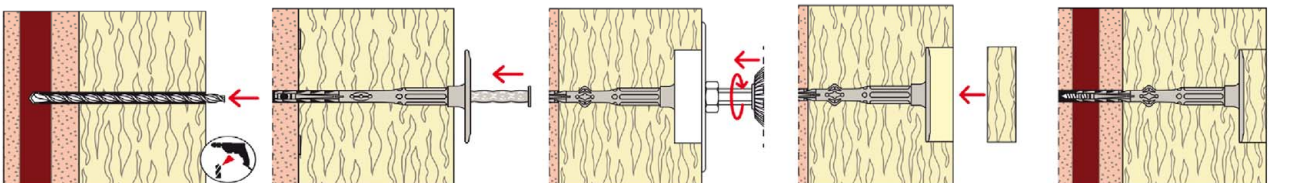
1. Drill hole by corresponding drilling method
2. Insert anchor manually
3. Set anchor by hammer blows
4. Correctly installed anchor

Setting of anchor (plain surface setting) by setting tool / TermoZ CNplus 8



1. Drill hole by corresponding drilling method
2. Insert anchor manually
3. Set anchor by setting tool with the machine
4. Correctly installed anchor

Setting of anchor (countersunk mounting) by setting tool / TermoZ CNplus 8



1. Drill hole by corresponding drilling method
2. Insert anchor manually
3. Set anchor by setting tool with the machine
4. Put on cap
5. Correctly installed anchor

fischer TermoZ CN 8 | fischer TermoZ CN 8 R | fischer TermoZ CNplus 8

Intended Use
Installation instruction

Annex B 3

| Table C1.1: Characteristic resistance N_{Rk} to tension loads for single anchor TermoZ CN 8 and TermoZ CN 8 R | | | | | | |
|---|-----------------|--|---|--|---|---|
| Base material | Group | Bulk density ρ [kg/dm ³] | Mean compressive strength / minimum compressive strength single brick as per EN 771⁵⁾ [N/mm ²] | Remarks | Drilling method ¹⁾ | Characteristic resistance to tension loads N_{Rk} [kN] |
| Concrete, C12/15 - C50/60 as per EN 206 | A | - | - | - | H | 0,90 |
| Solid Clay bricks, Mz as per EN 771-1 | B ²⁾ | ≥ 2,0 | 15/12 | - | H | 0,90 |
| Calcium silicate solid bricks, KS as per EN 771-2 | B ²⁾ | ≥ 1,8 | 15/12 | - | H | 0,90 |
| Solid concrete blocks, Vbn as per EN 771-3 | B ²⁾ | ≥ 2,0 | 25/20 | - | H | 0,75 |
| Lightweight concrete blocks, Vbl as per EN 771-3 | B ²⁾ | ≥ 1,4 | 10/8 | - | H | 0,60 |
| Vertically perforated clay bricks, HLz as per EN 771-1 | C ³⁾ | ≥ 1,0 | 15/12 | Exterior web thickness ≥ 15 mm. | R | 0,60 |
| Hollow calcium silicate brick, KSL as per EN 771-2 | C ³⁾ | ≥ 1,4 | 15/12 | Exterior web thickness ≥ 23 mm. | H | 0,50 |
| | | | 25/20 | | | 0,75 |
| Lightweight concrete hollow blocks, Hbl as per EN 771-3 | C ³⁾ | ≥ 1,2 | 12,5/10 | Exterior web thickness ≥ 38 mm. | H | 0,60 |
| Lightweight aggregate concrete, LAC as per EN 1520 / EN 771-3 | D ³⁾ | ≥ 0,8 | 7,5/6 | Min. thickness of brick h = 100 mm or min. exterior web thickness t = 50 mm. | H | 0,40 |
| | | | 5/4 | | | 0,60 |
| Unreinforced autoclaved aerated concrete members, AAC as per EN 771-4 | E | > 0,4 | 7,5/6 | - | R | 0,30⁴⁾ |
| | | > 0,6 | 5/4 | - | | 0,30⁴⁾ |
| ¹⁾ H = Hammer drilling, R = Rotary drilling. ²⁾ Vertically perforation ≤ 15%; cross section reduced by perforation vertically to the resting area. ³⁾ Vertically perforation > 15 % and ≤ 50 %, cross section reduced by perforation vertically to the resting area. ⁴⁾ Only valid for h _{nom} ≥ 55 mm. ⁵⁾ The compressive strength of the single brick must not be less than 80% of the mean compressive strength. | | | | | | |
| fischer TermoZ CN 8 fischer TermoZ CN 8 R fischer TermoZ CNplus 8 | | | | | | Annex C 1 |
| Performances Characteristic resistance to tension load TermoZ CN 8 and TermoZ CN 8 R | | | | | | |

Table C2.1: Characteristic resistance N_{Rk} to tension loads for single anchor TermoZ CNplus 8

| Base material | Group | Bulk density ρ [kg/dm ³] | Mean compressive strength / minimum compressive strength single brick as per EN 771 ⁵⁾ [N/mm ²] | Remarks | Drilling method ¹⁾ | Characteristic resistance to tension loads N_{Rk} [kN] |
|---|-----------------|---|---|--|-------------------------------|--|
| Concrete, C12/15 - C50/60 as per EN 206 | A | - | - | - | H | 0,90 |
| Weather resistant concrete shell \geq C20/25 as per EN 206 | A | - | - | $h \geq 42$ mm; $t_{fix} \geq 35$ mm. | H | 0,90 |
| Solid clay bricks, Mz as per EN 771-1 | B ²⁾ | $\geq 1,8$ | 25/20 | - | H | 0,90 |
| Calcium silicate solid bricks, KS as per EN 771-2 | B ²⁾ | $\geq 1,8$ | 25/20 | - | H | 0,90 |
| Solid concrete blocks, Vbn as per EN 771-3 | B ²⁾ | $\geq 2,0$ | 25/20 | - | H | 0,90 |
| Lightweight concrete blocks, Vbl as per EN 771-3 | B ²⁾ | $\geq 1,6$ | 12,5/10 | - | H | 0,75 |
| Vertically perforated clay bricks, Hlz as per EN 771-1 | C ³⁾ | $\geq 1,6$ | 15/12 | - | R | 0, 50 |
| | | $\geq 1,0$ | 60/48 | - | | 0,75 |
| Hollow calcium silicate brick, KSL as per EN 771-2 | C ³⁾ | $\geq 1,4$ | 20/16 | Exterior web thickness ≥ 16 mm. | H | 0,50 |
| Lightweight concrete hollow blocks, Hbl as per EN 771-2 | C ³⁾ | $\geq 1,2$ | 12,5/10 | Exterior web thickness ≥ 38 mm. | H | 0,60 |
| Lightweight aggregate concrete, LAC as per EN 1520 / EN 771-3 | D ³⁾ | $\geq 0,9$ | 7,5/6 | Minimum thickness of brick $h = 100$ mm or Minimum exterior web thickness $t = 50$ mm. | H | 0,40⁴⁾ |
| Unreinforced autoclaved aerated concrete members, AAC as per EN 771-4 | E | $> 0,4$ | 5/4 | - | R | 0,30⁴⁾ |

¹⁾ H = Hammer drilling, R = Rotary drilling.

²⁾ Vertically perforation $\leq 15\%$; cross section reduced by perforation vertically to the resting area.

³⁾ Vertically perforation $> 15\%$ and $\leq 50\%$, cross section reduced by perforation vertically to the resting area.

⁴⁾ Only valid for $h_{nom} \geq 55$ mm.

⁵⁾ The compressive strength of the single brick must not be less than 80% of the mean compressive strength.

fischer TermoZ CN 8 | fischer TermoZ CN 8 R | fischer TermoZ CNplus 8

Performances

Characteristic resistance to tension load TermoZ CNplus 8

Annex C 2

English translation prepared by DIBt

**Table C3.1: Point thermal transmittance according to EOTA Technical Report TR 025
TermoZ CN 8 and TermoZ CN 8 R**

| Anchor type | Thickness of insulation material h_D [mm] | Point thermal transmittance χ [W/K] |
|---------------------------|---|--|
| TermoZ CN 8 / 110 - 230 | 60 - 80 | 0,001 |
| | > 80 - 180 | 0,000 |
| TermoZ CN 8 / 250-350 | 200 - 300 | 0,000 |
| TermoZ CN 8 / 370-390 | > 300 - 340 | 0,001 |
| TermoZ CN 8 R / 250 - 310 | 200 - 260 | 0,001 |

**Table C3.2: Point thermal transmittance according to EOTA Technical Report TR 025
TermoZ CNplus 8 – countersunk setting**

| Thickness of insulation material h_D [mm] | Point thermal transmittance χ [W/K] Base material group | | | | |
|---|---|-------|-------|-------|-------|
| | A | B | C | D | E |
| 60 | 0,001 | 0,001 | 0,001 | 0,001 | 0 |
| 80 | | | | | 0,001 |
| 100 | 0,002 | | | | |
| 120 | | 0,002 | | | |
| 140 | | | | | |
| 160 | | | | | |
| 180 | 0,002 | 0,001 | | | |
| 200 | | | | | |
| 220 | 0,001 | 0 | | | |
| 240 | | | | | |
| 260 | | 0,001 | | | |
| 280 | | | | | |
| 300 | 0,001 | 0,001 | | | |
| 320 | | | | | |
| 340 | | | 1) | 1) | |

1) No performance assessed

fischer TermoZ CN 8 | fischer TermoZ CN 8 R | fischer TermoZ CNplus 8

Performances
Point thermal transmittance

Annex C 3

| Table C4.1: Point thermal transmittance according to EOTA Technical Report TR 025 TermoZ CNplus 8– countersunk setting | | | | | |
|---|---|-------|-------|-------|-------|
| Thickness of insulation material h_D [mm] | Point thermal transmittance χ [W/K] Base material group | | | | |
| | A | B | C | D | E |
| 80 | 0,001 | 0 | 0 | 0 | 0 |
| 100 | | 0,001 | 0,001 | 0,001 | 0,001 |
| 120 | | | | | |
| 140 | | | | | |
| 160 | 0,002 | 0,001 | 0,001 | 0,001 | |
| 180 | 0,002 | | | | |
| 200 | 0,001 | 0,001 | 0,001 | 0,001 | 0,001 |
| 220 | | | | | |
| 240 | | | | | |
| 260 | | | | | |
| 280 | 0 | 0 | 0 | 0 | 0 |
| 300 | 0,001 | 0,001 | 0,001 | 1) | 1) |
| 320 | | | | | |
| 340 | | | | | |

1) No performance assessed

| Table C4.2: Plate stiffness according to EOTA Technical Report TR 026 | | | |
|--|--|--|-----------------------------|
| Anchor type | Max. size of the anchor plate d_p [mm] | Load resistance of the anchor plate [kN] | Plate stiffness c [kN/mm] |
| TermoZ CN 8 TermoZ CN 8 R TermoZ CNplus 8 | 60 | 1,7 | 0,6 |

| | |
|--|------------------|
| fischer TermoZ CN 8 fischer TermoZ CN 8 R fischer TermoZ CNplus 8 | Annex C 4 |
| Performances Point thermal transmittance Plate stiffness | |

Table C5.1: Displacements of TermoZ CN 8 and TermoZ CN 8 R

| Base material | Mean compressive strength / minimum compressive strength single brick as per EN 771 ¹⁾ [N/mm ²] | Tension load N [kN] | Displacements $\Delta\delta_N$ [mm] |
|---|--|---------------------|-------------------------------------|
| Concrete, C12/15 - C50/60 as per EN 206 | - | 0,30 | < 0,30 |
| Solid Clay bricks, Mz as per EN 771-1 | 15/12 | 0,30 | < 0,50 |
| Calcium silicate solid bricks, KS as per EN 771-2 | 15/12 | 0,30 | < 0,30 |
| Solid concrete blocks, Vbn as per EN 771-3 | 25/20 | 0,25 | < 0,30 |
| Lightweight concrete blocks, Vbl as per EN 771-3 | 10/8 | 0,20 | < 0,20 |
| Vertically perforated clay, HLz bricks as per EN 771-1 | 15/12 | 0,20 | < 0,20 |
| Hollow calcium silicate brick, KSL as per EN 771-2 | 15/12 | 0,25 | < 0,30 |
| | 25/20 | 0,15 | < 0,20 |
| Lightweight concrete hollow blocks, Hbl as per EN 771 | 12,5/10 | 0,20 | < 0,20 |
| Lightweight aggregate concrete, LAC as per EN 1520 / EN 771-3 | 5/4 | 0,13 | < 0,30 |
| | 7,5/6 | 0,20 | < 0,30 |
| Autoclaved aerated concrete members, AAC as per EN 771-4 | 5/4 | 0,10 | < 0,30 |
| | 7,5/6 | 0,13 | < 0,20 |

¹⁾ The compressive strength of the single brick must not be less than 80% of the mean compressive strength.

Table C5.2: Displacements of TermoZ CNplus 8

| Base material | Mean compressive strength / minimum compressive strength single brick as per EN 771 ¹⁾ [N/mm ²] | Tension load N [kN] | Displacements $\Delta\delta_N$ [mm] |
|---|--|---------------------|-------------------------------------|
| Concrete, C12/15 - C50/60 as per EN 206 | - | 0,30 | < 0,10 |
| Weather resistant concrete shell \geq C20/25 as per EN 206 | - | 0,30 | < 0,10 |
| Solid Clay bricks, Mz as per EN 771-1 | 25/20 | 0,30 | < 0,20 |
| Calcium silicate solid bricks, KS as per EN 771-2 | 25/20 | 0,30 | < 0,20 |
| Solid concrete blocks, Vbn as per EN 771-3 | 25/20 | 0,30 | < 0,20 |
| Lightweight concrete blocks, Vbl as per EN 771-3 | 12,5/10 | 0,25 | < 0,10 |
| Vertically perforated clay, HLz bricks as per EN 771-1 | 15/12 | 0,17 | < 0,10 |
| Hollow calcium silicate brick, KSL as per EN 771-2 | 60/48 | 0,25 | < 0,20 |
| Hollow calcium silicate bricks, KSL as per EN 771-2 | 20/16 | 0,17 | < 0,10 |
| Lightweight concrete hollow blocks, Hbl as per EN 771 | 12,5/10 | 0,20 | < 0,10 |
| Lightweight aggregate concrete, LAC as per EN 1520 / EN 771-3 | 7,5/6 | 0,13 | < 0,20 |
| Autoclaved aerated concrete members, AAC as per EN 771-4 | 5/4 | 0,10 | < 0,10 |

¹⁾ The compressive strength of the single brick must not be less than 80% of the mean compressive strength.

fischer TermoZ CN 8 | fischer TermoZ CN 8 R | fischer TermoZ CNplus 8

Performances
Displacements

Annex C 5