

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 19 December 2017

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

21 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

This version replaces

ETA-09/0394 issued on 30 March 2017

European Technical Assessment
ETA-09/0394
English translation prepared by DIBt

Page 2 of 21 | 19 December 2017

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Specific Part

1 Technical description of the product

The fischer nailed-in anchor termoz CN 8 and termoz CNplus 8 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) (termoz CN 8 / 250-390) 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 specific nail for the anchor types termoz CN 8 / 250 – 390 and termoz CN 8 R / 250 – 310 is made of galvanized steel which is used together with a separate plastic cylinder made of glass fibre reinforced polyamide.

The serrated expanding part of the anchor sleeve is slotted.

The anchor 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 tension resistance | See Annex C 1 and C 2 |
| Edge distances and spacing | See Annex B 2 |
| Plate stiffness | See Annex C 4 |
| Displacements | See Annex C 4 |

3.2 Energy economy and heat retention (BWR 6)

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

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

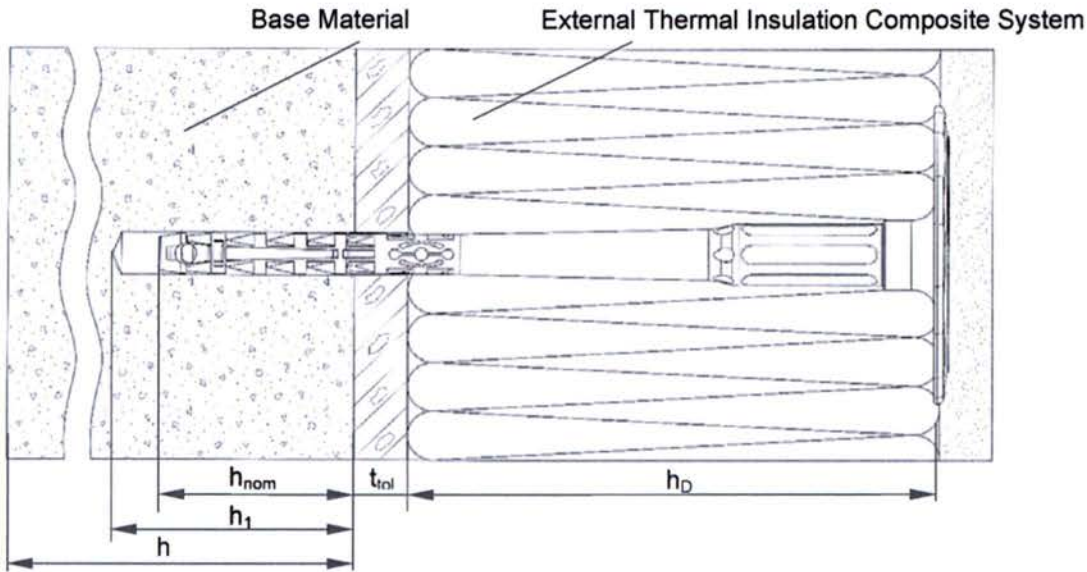
Technical details necessary for the implementation of the AVCP system are laid down in the control plan deposited with Deutsches Institut für Bautechnik.

Issued in Berlin on 19 December 2017 by Deutsches Institut für Bautechnik

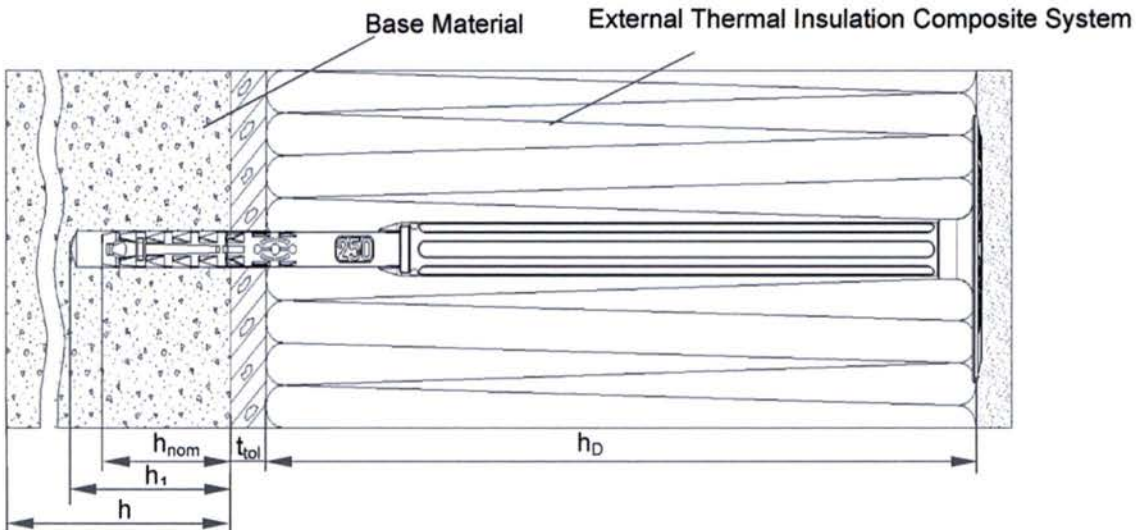
BD Dipl.-Ing. Andreas Kummerow
Head of Department

beglaubigt:
E. Aksünger

termoz CN 8 / 110 – 230 / termoz CNplus 8 / 110 – 230 – flush mounted



termoz CN 8 / 250 – 390 / termoz CN 8 R / 250 – 310 / termoz CNplus 8 / 250-390 – flush mounted



Legend

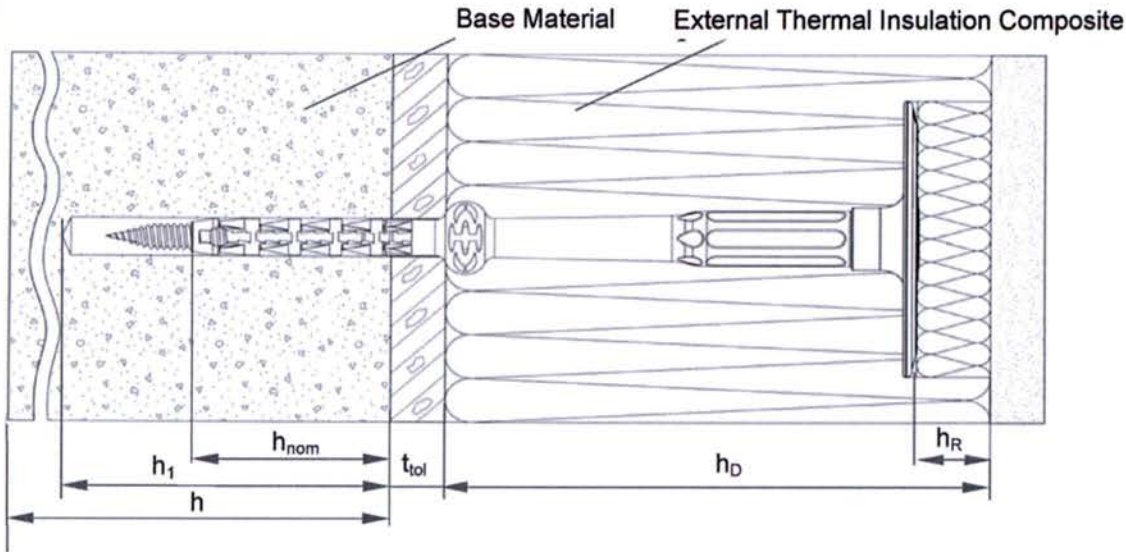
- h_{nom} = Overall plastic anchor embedment depth in the base material
- h_1 = Depth of drilled hole to deepest point
- h = Thickness of member (wall)
- h_D = Thickness of insulation material
- t_{tol} = Thickness of equalizing layer or non-load bearing coating

fischer termoz CN 8 | fischer termoz CN 8 R | fischer termoz CNplus 8

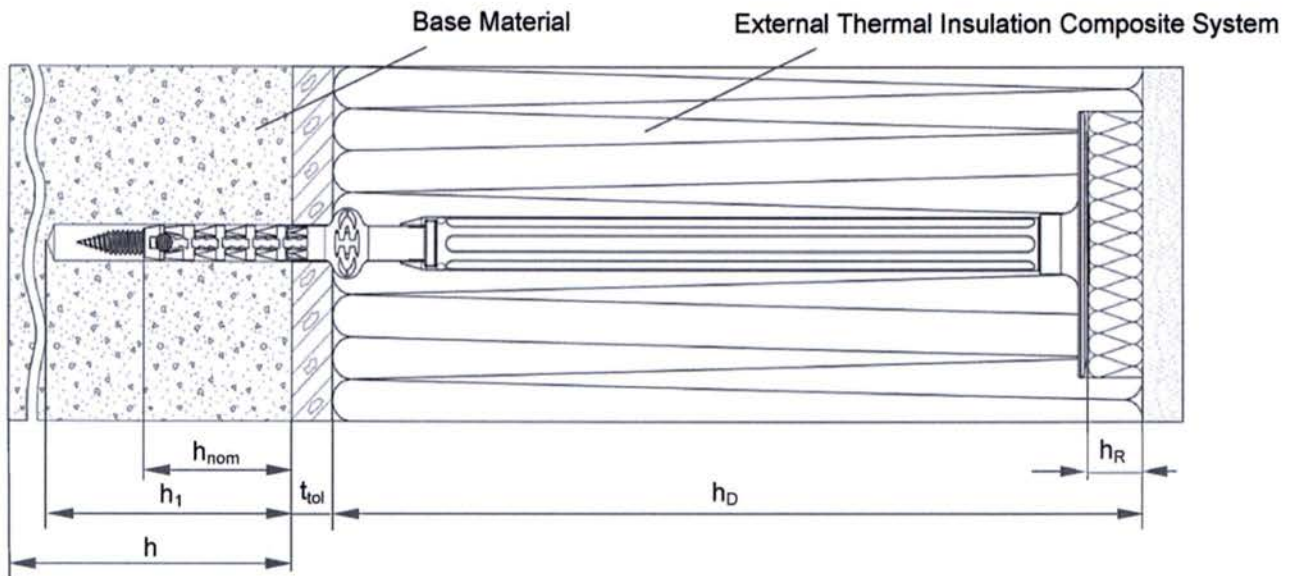
Product description
 Installed anchor – flush-mounted

Annex A1

termoz CNplus 8 / 110 – 230 – countersunk mounted



termoz CNplus 8 / 250 – 390 – countersunk mounted



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 insulation cap
- t_{tol} = Thickness of equalizing layer or non-load bearing coating

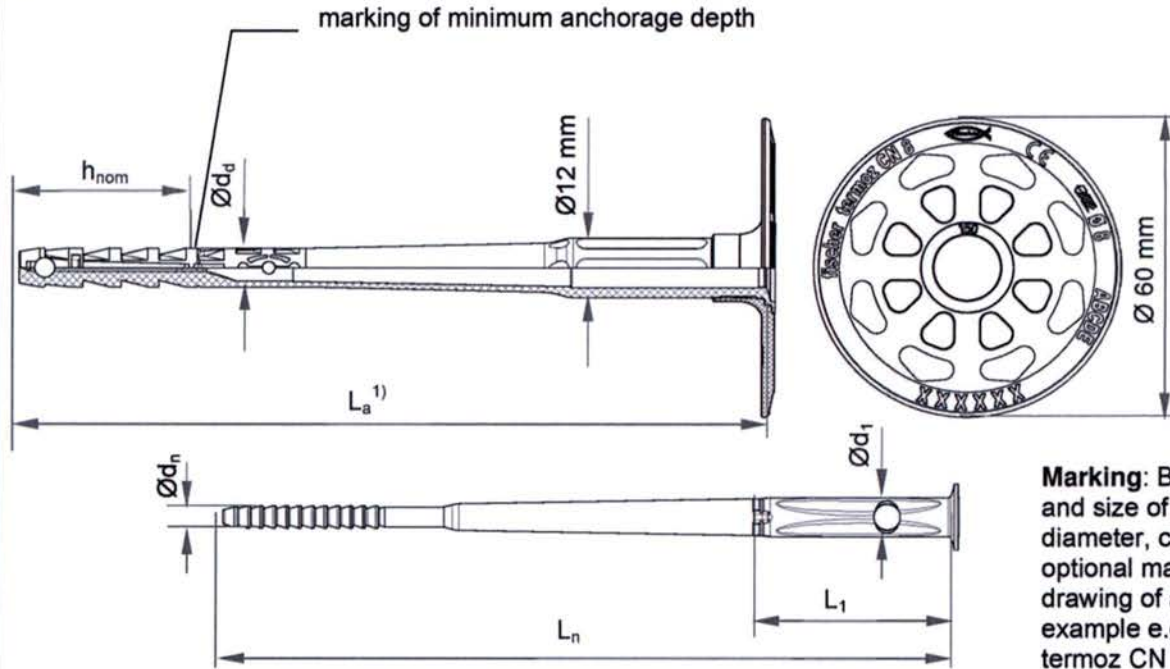
fischer termoz CN 8 | fischer termoz CN 8 R | fischer termoz CNplus 8

Annex A2

Product description

Installed anchor – countersunk mounted

termoz CN 8 / 110-230



Marking: Brand, name and size of anchor, diameter, categories, optional markings see drawing of anchor plate, example e.g. termoz CN 8 ABCDE

1) Various length of the anchors are possible

e.g. for termoz CN 8 / 110-230:
 $110 \text{ mm} \geq L_a \leq 230 \text{ mm}$
 $L_a = L_n + 4 \text{ mm}$

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

e.g. for termoz CN 8x150: $L_a = 148 \text{ mm}, h_{nom} = 35 \text{ mm}, t_{tol} = 10 \text{ mm}$

$h_D = 148 - 35 - 10 \approx 100$

Table A3.1: Dimensions termoz CN 8 / 110-230

| Anchor type | Anchor sleeve | | Specific compound nail | | |
|-----------------------|-----------------------|-----------------------|------------------------|---------------------|-----------------------|
| | Ø d _d [mm] | h _{nom} [mm] | Ø d _n [mm] | L ₁ [mm] | Ø d ₁ [mm] |
| termoz CN 8 / 110-230 | 8 | 35/55 ²⁾ | 4,5 | 40 | 8 |

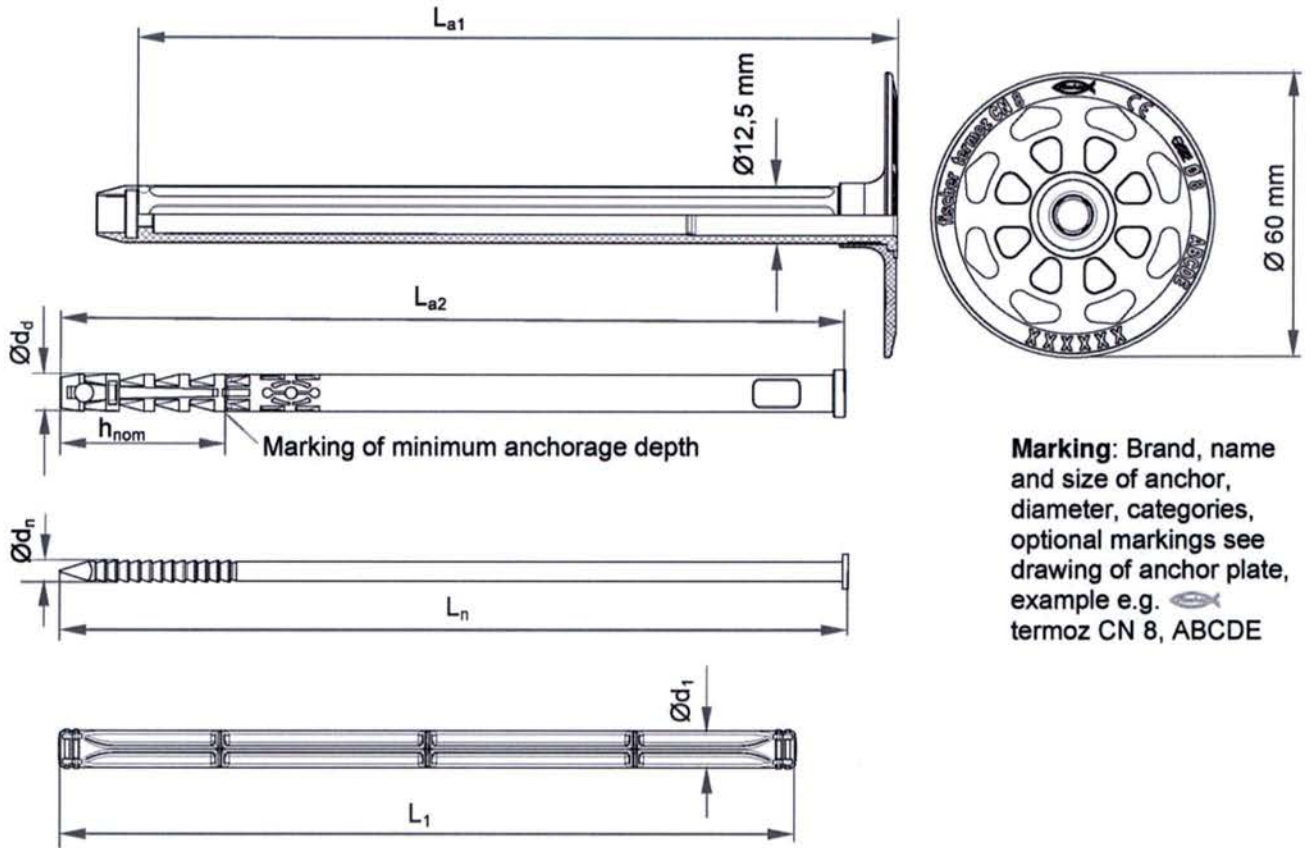
²⁾ Only for use cat. E

fischer termoz CN 8 | fischer termoz CN 8 R | fischer termoz CNplus 8

Annex A3

Product description
Dimensions termoz CN8 / 110-230

termoz CN 8 / 250 – 390



Marking: Brand, name and size of anchor, diameter, categories, optional markings see drawing of anchor plate, example e.g. termoz CN 8, ABCDE

Various lengths of the anchors are possible:

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

Determination of maximum thickness of insulation:

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

e.g. for termoz CN 8x330:

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

$$h_D = 328 - 35 - 10 \approx 280 \text{ mm}$$

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

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

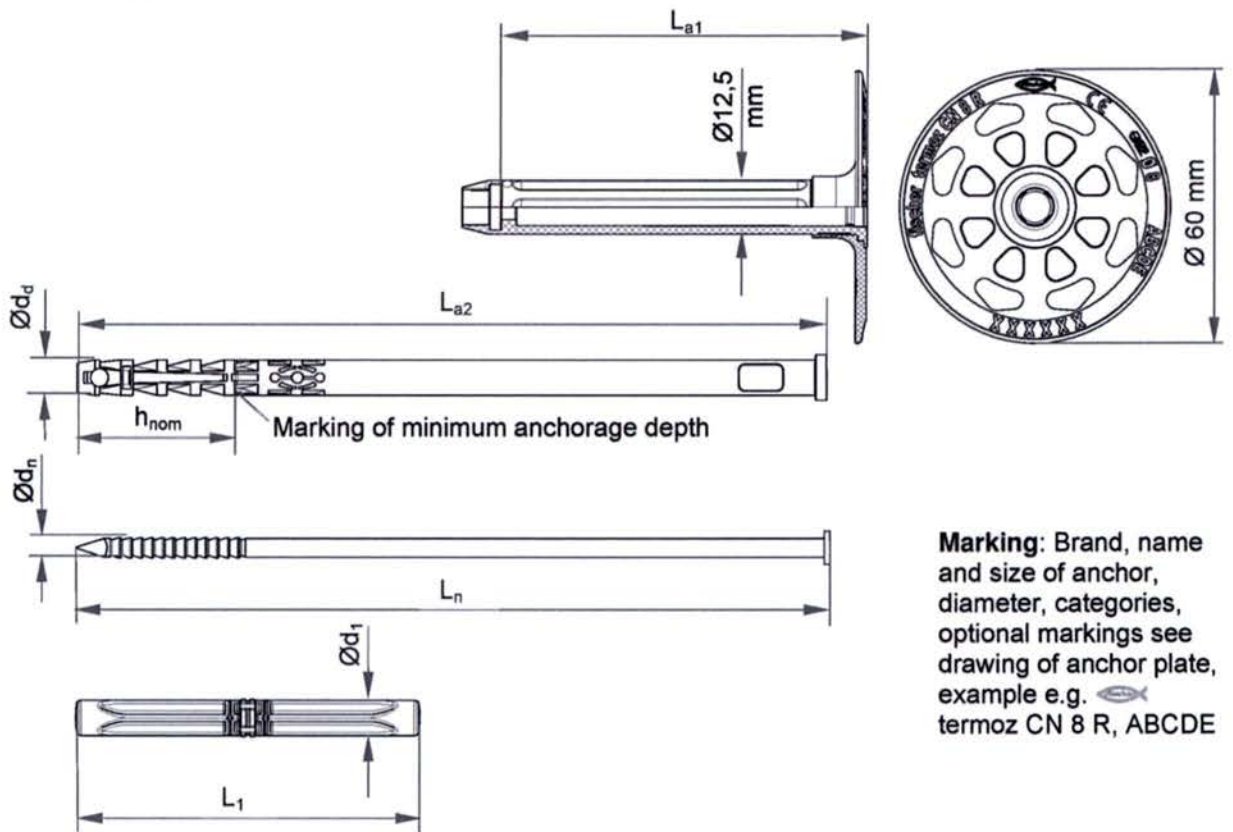
¹⁾ Only for use cat. E


fischer termoz CN 8 | fischer termoz CN 8 R | fischer termoz CNplus 8

Product description
Dimensions termoz CN8 / 250-390

Annex A4

termoz CN 8 R / 250 – 310



Marking: Brand, name and size of anchor, diameter, categories, optional markings see drawing of anchor plate, example e.g.  termoz CN 8 R, ABCDE

Various lengths of the anchors are possible:

e.g. for termoz CN 8 R / 250 – 310:
 $250 \text{ mm} \geq L_{a1} + L_{a2} \leq 310 \text{ mm}$
 $L_a = L_{a1} + L_{a2} = L_n + 80,5 \text{ mm}$

Determination of maximum thickness of insulation:

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

e.g. for termoz CN 8x250 R:

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

$$h_D = 248 - 35 - 10 \approx 200 \text{ mm}$$

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

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

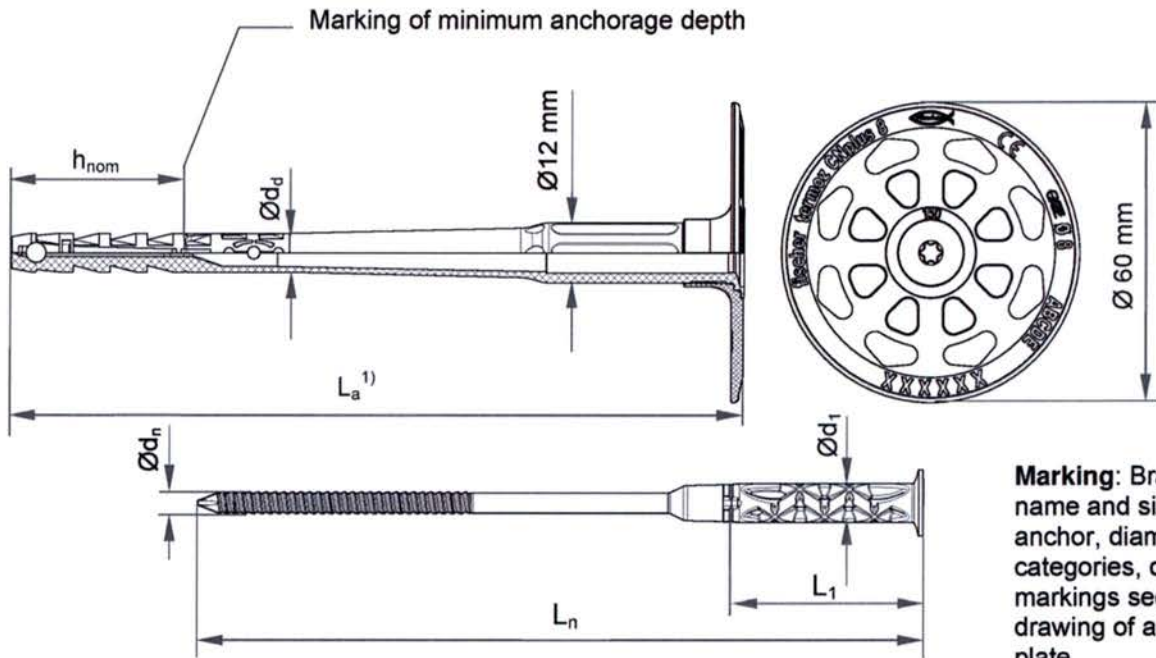
¹⁾ Only for use cat. E

fischer termoz CN 8 | fischer termoz CN 8 R | fischer termoz CNplus 8

Product description
Dimensions termoz CN8 R / 250-310

Annex A5

termoz CNplus 8 / 110–230



Marking: Brand, name and size of anchor, diameter, categories, optional markings see drawing of anchor plate, example e.g. termoz CNplus 8

¹⁾Various lengths of the anchors are permissible:

e.g. for termoz CNplus 8 / 110 – 230: $110 \text{ mm} \geq L_a \leq 230 \text{ mm}$
 $L_a = L_n + 1,5 \text{ mm}$

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

e.g. for termoz CNplus 8x150: $L_a = 148 \text{ mm}, h_{nom} = 35 \text{ mm}, t_{tol} = 10 \text{ mm}$
 $h_D = 148 - 35 - 10 \approx 100$

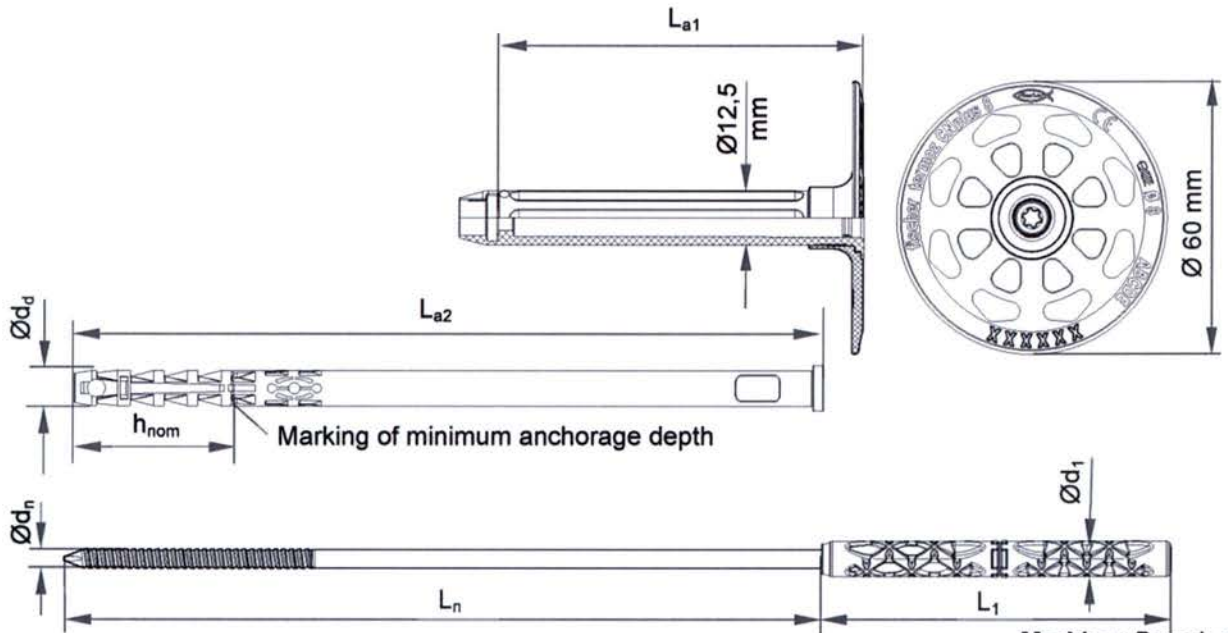
Table A6.1: Dimensions termoz CNplus 8 / 110–230

| Anchor type | Anchor sleeve | | Specific compound nail | | | |
|---------------------------|--------------------------|--------------------------|--------------------------|------------------------|------------------------|--------------------------|
| | Ø d _d [mm] | h _{nom} [mm] | Ø d _n [mm] | L _n [mm] | L ₁ [mm] | Ø d ₁ [mm] |
| termoz CNplus 8 / 110-230 | 8 | 35/55 ¹⁾ | 4,3 | L _a – 1,5 | 40 | 8 |

¹⁾ Only for use cat. D & E

| | |
|--|-----------------|
| fischer termoz CN 8 fischer termoz CN 8 R fischer termoz CNplus 8 | Annex A6 |
| Product description Dimensions termoz CNplus 8 / 110-230 | |

termoz CNplus 8 / 250–310



Marking: Brand, name and size of anchor, diameter, categories, optional markings see drawing of anchor plate, example e.g. termoz CNplus 8 ABCDE

Various lengths of the anchors are possible:

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

Determination of maximum thickness of insulation:

$$h_D = L_a - h_{nom} - t_{tot}$$

e.g. for termoz CNplus 8 x 250:

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

$$h_D = 248 - 35 - 10 \approx 200 \text{ mm}$$

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

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

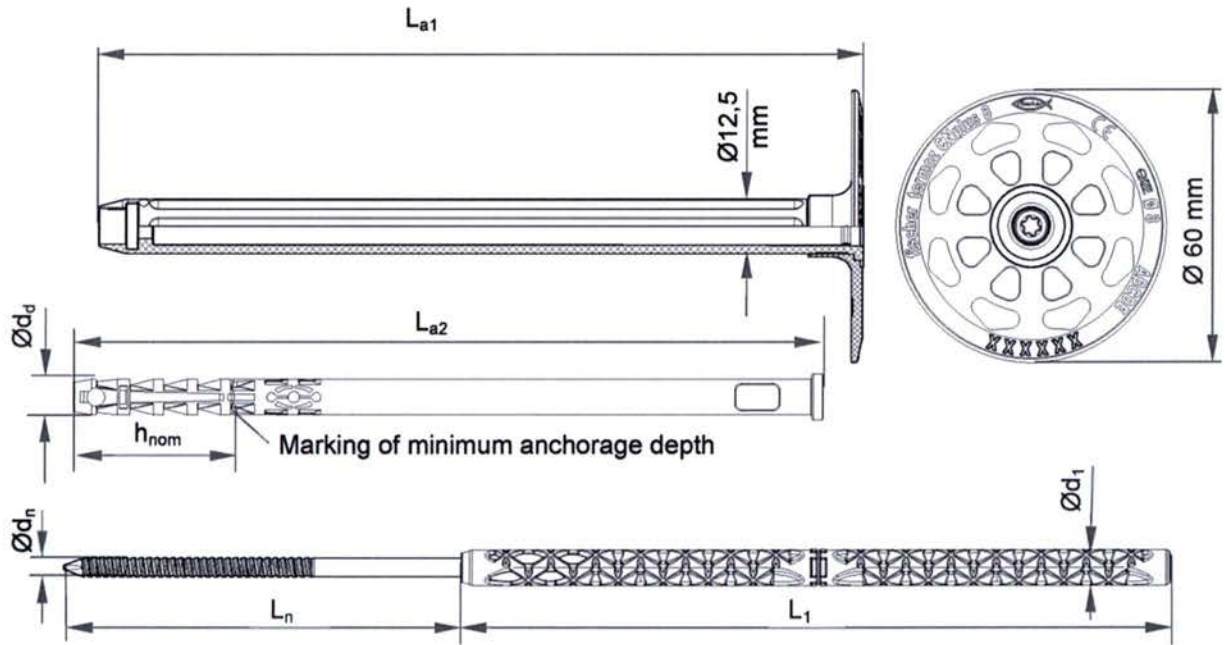
¹⁾ Only for use cat. D & E

fischer termoz CN 8 | fischer termoz CN 8 R | fischer termoz CNplus 8

Product description
Dimensions termoz CNplus 8 / 250-310

Annex A7

termoz CNplus 8 / 330–390



Various lengths of the anchors are possible:

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

Determination of maximum thickness of insulation:

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

e.g. for termoz CNplus 8 x 330:

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

$$h_D = 328 - 35 - 10 \approx 280 \text{ mm}$$

Marking: Brand, name and size of anchor, diameter, categories, optional markings see drawing of anchor plate
 example e.g. termoz CNplus 8
 ABCDE

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

| Anchor type | Shaft | Anchor sleeve | | | Specific compound nail | | | |
|----------------------------|------------------|---------------------------|---------------------|------------------|---------------------------|---------------------------|---------------|---------------------------|
| | L_{a1} [mm] | $\varnothing d_d$ [mm] | h_{nom} [mm] | L_{a2} [mm] | $\varnothing d_n$ [mm] | L_n [mm] | L_1 [mm] | $\varnothing d_1$ [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 for use cat. D & E

fischer termoz CN 8 | fischer termoz CN 8 R | fischer termoz CNplus 8

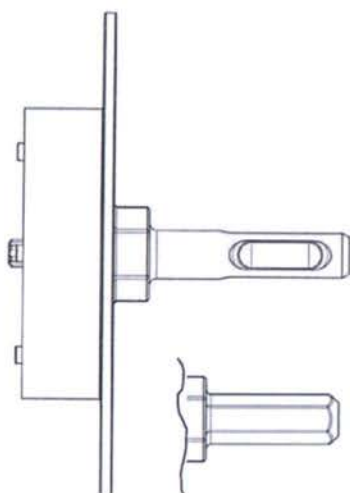
Product description
 Dimensions termoz CNplus 8 / 330-390

Annex A8

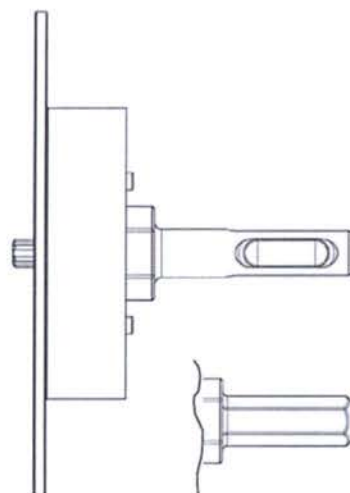
Setting tool with SDS adapter or hexagonal adapter available

fischer termoz CNplus 8

Countersunk setting ¹⁾

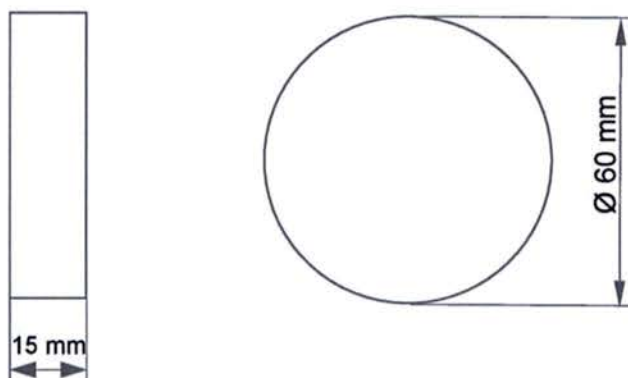


optional plain surface setting



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

Polystyrene or mineral wool cap



fischer termoz CN 8 | fischer termoz CN 8 R | fischer termoz CNplus 8

Product description
Setting tool for fischer termoz CNplus 8

Annex A9

Table A10.1: Material

| Designation | Material |
|---|--|
| Anchor sleeve | PP (virgin material), colour: grey |
| Shaft termoz CN 8 / 250 – 390 or CN 8 R / 250 – 310 or CNplus 8 / 250 - 390 | PA6 (virgin material)GF, colour: grey |
| Plastic cylinder termoz CN 8 / 250 – 390 or CN 8 R / 250 – 310 | PA6 (virgin material) GF |
| Specific nail termoz CN 8 / 250 – 390 or CN 8 R / 250 – 310 | Steel gal Zn A2G or A2F according to EN ISO 4042 : 1999 |
| Specific compound nail termoz CN 8 / 110 – 230 or CNplus 8 / 110 – 230 or CNplus 8 / 250 - 390 | PA6 GF (plastic part of compound nail) Steel gal Zn A2G or A2F according to EN ISO 4042 : 1999 |
| Anchor plate | PA6 (virgin material) GF colour: grey, orange, red, green, yellow, blue |
| Slip-on plate | PA6 (virgin material) GF colour: grey, orange, red, green, yellow, blue |

Drawing of the slip-on plates

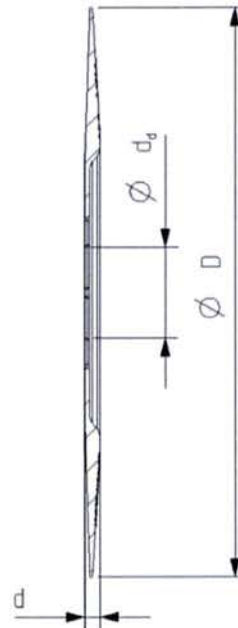
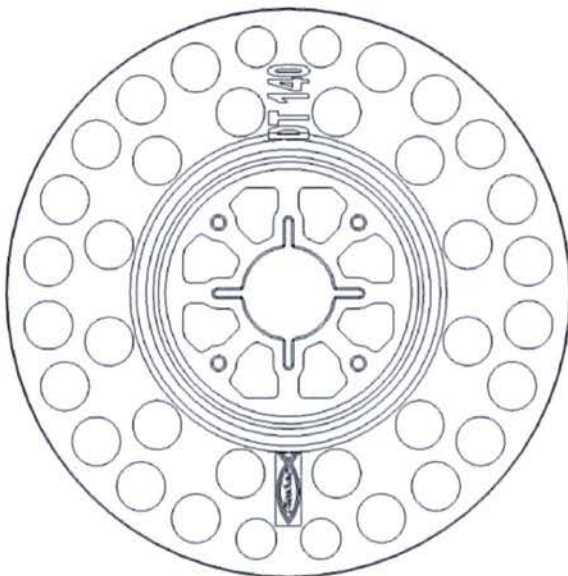


Table A10.2: Slip-on plate, diameters and material

| Slip-on plate | Ø D [mm] | Ø d _d [mm] | d [mm] | Material |
|-------------------|----------------|-----------------------|--------|----------|
| DT 90 / 110 / 140 | 90 / 110 / 140 | 22,5 | 3,9 | PA6 GF |

fischer termoz CN 8 | fischer termoz CN 8 R | fischer termoz CNplus 8

Product description

Material

Slip-on plates combined with termoz CN 8 | termoz CN 8 R | termoz CNplus 8

Annex A10

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:

- Normal weight concrete (use category A), according to Annex C1 and C2.
- Solid masonry (use category B), according to Annex C1 and C2.
- Hollow or perforated masonry (use category C), according to Annex C1 and C2.
- Lightweight aggregate concrete (use category D), according to Annex C1 and C2.
- Autoclaved aerated concrete (use category E), according to Annex C1 and C2.
- 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 December 2016.

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:

- Hole drilling by the drill modes according to Annex C1 and C2.
- 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 ≤ 6 weeks.

| | |
|---|------------------------|
| <p>fischer termoz CN 8 fischer termoz CN 8 R fischer termoz CNplus 8</p> | <p>Annex B1</p> |
| <p>Intended use Specification</p> | |

Table B2.1: Installation parameters / flush mounted

| Anchor type | | | termoz CN 8 CN8 R termoz CNplus 8 |
|---|-----------|--------|--|
| 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] | 45/55 ¹⁾ /65 ²⁾ |
| Overall plastic anchor embedment depth in the base material | h_{nom} | ≥ [mm] | 35/45 ¹⁾ /55 ²⁾ |

¹⁾ Only CNplus 8: for weather shell (thin concrete slabs) : $35 \text{ mm} \leq h_{nom} \leq 45 \text{ mm}$

²⁾ termoz CN 8 | CN8 R : Only for use cat. "E" | termoz CNplus 8: Only for use cat. "D" & "E"

Table B2.2: Installation parameters / countersunk mounted

| Anchor type | | | termoz CNplus 8 |
|---|-----------|--------|---------------------------------------|
| 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] | 60/70 ¹⁾ /80 ²⁾ |
| Overall plastic anchor embedment depth in the base material | h_{nom} | ≥ [mm] | 35/45 ¹⁾ /55 ²⁾ |

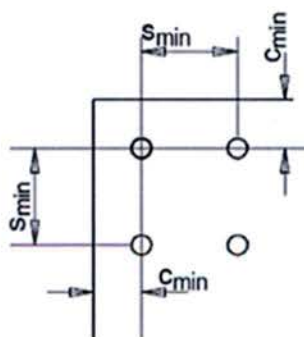
¹⁾ valid for weather shell (thin concrete slabs): $35 \text{ mm} \leq h_{nom} \leq 45 \text{ mm}$

²⁾ Only for use cat. "D" & "E"

Table B2.3: Minimum distances and spacing

| | | | termoz CN 8 CN8 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 |

Scheme of distance and spacing



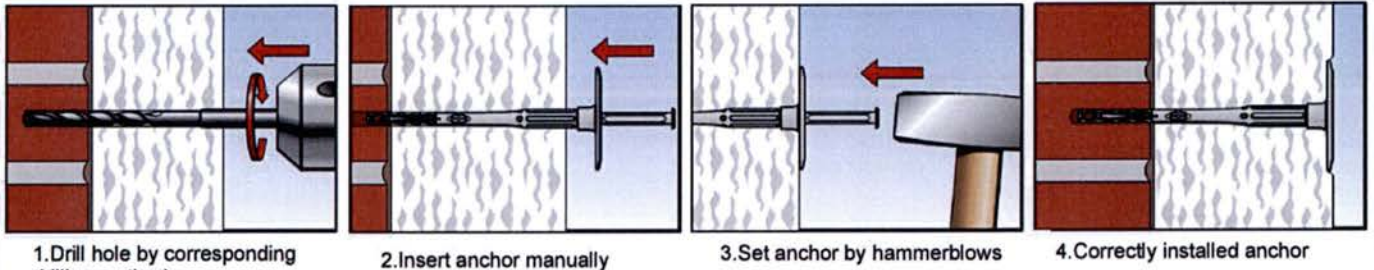
fischer termoz CN 8 | fischer termoz CN 8 R | fischer termoz CNplus 8

Intended use
Installation parameters
Minimum distances and spacing

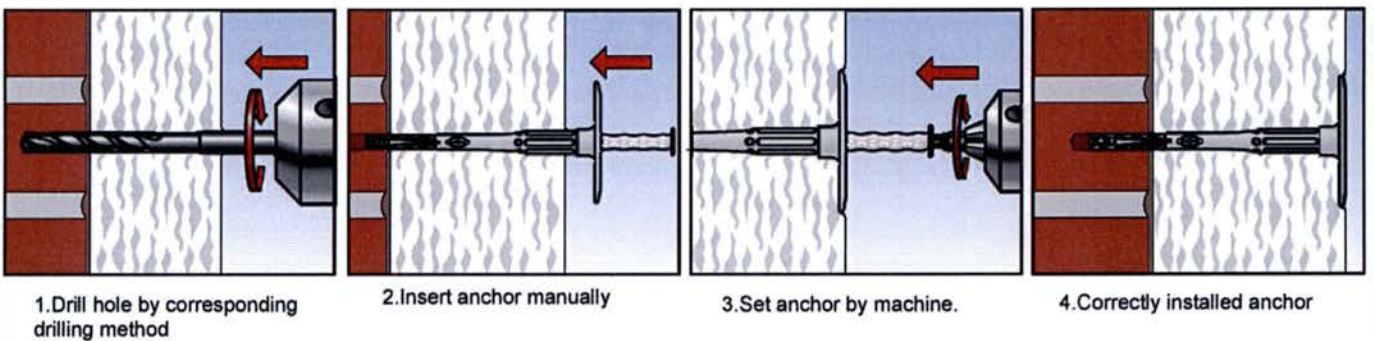
Annex B2

Installation instructions

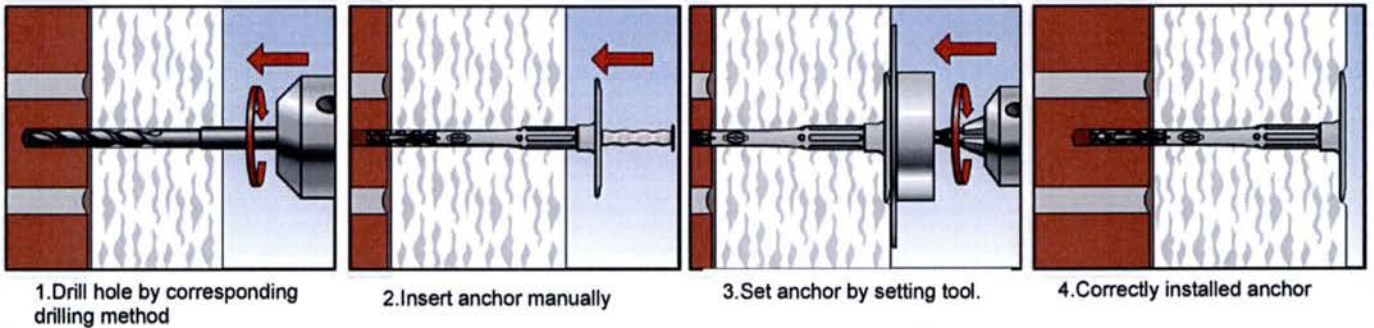
Setting of anchor (flush mounted) by hammer / fischer termoz CN 8 | termoz CN 8 R | termoz CNplus 8



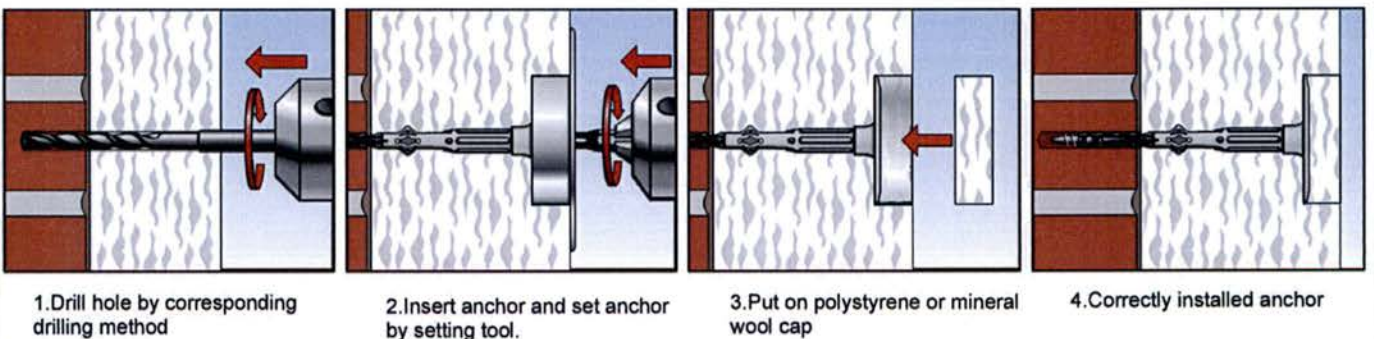
Setting of anchor (flush mounted) by machine / fischer termoz CNplus 8



Setting of anchor (flush mounted) by setting tool \ fischer termoz CNplus 8



Setting of anchor (countersunk mounted) by setting tool / fischer termoz CNplus 8



fischer termoz CN 8 | fischer termoz CN 8 R | fischer termoz CNplus 8

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. ¹⁾ | Min. compressive strength f_b [N/mm ²] | Bulk density ρ [kg/dm ³] | Remarks | Drill method ²⁾ | Characteristic resistance N_{Rk} [kN] termoz CN 8 termoz CN 8 R |
|---|------------------------|--|---|--|----------------------------|---|
| Concrete \geq C12/15 - C50/60 EN 206-1:2000 | A | - | - | - | H | 0,9 |
| Solid clay bricks Mz acc. to EN 771-1:2011 | B | 12 | $\geq 2,0$ | Cross section reduced up to 15% by perforation vertically to the resting area | H | 0,9 |
| Calcium silicate solid bricks KS e.g. acc. to EN 771-2:2011 | B | 12 | $\geq 1,8$ | | H | 0,9 |
| Solid concrete blocks Vbn acc. to EN 771-3:2011 | B | 20 | $\geq 2,0$ | | H | 0,75 |
| Lightweight concrete blocks Vbl acc. to EN 771-3:2011 | B | 8 | $\geq 1,4$ | | H | 0,6 |
| Vertically perforated clay bricks Hlz acc. to EN 771-1:2011 | C | 12 | $\geq 1,0$ | Cross section reduced between 15% and 50% by perforation vertically to the resting area. Exterior web thickness ≥ 15 mm | R | 0,6 |
| Hollow calcium silicate brick KSL acc. to EN 771-2:2011 | C | 20 | $\geq 1,4$ | Cross section reduced between 15% and 50% by perforation vertically to the resting area. Exterior web thickness ≥ 23 mm | H | 0,75 |
| | | 12 | | | | 0,5 |
| Lightweight concrete hollow blocks Hbl , acc. to EN 771-3:2011 | C | 10 | $\geq 1,2$ | Cross section reduced between 15% and 50% by perforation vertically to the resting area. Exterior web thickness ≥ 38 mm | H | 0,6 |
| Lightweight aggregate concrete LAC , acc. to EN 1520:2011, EN 771-3:2011 | D | 6 | $\geq 0,8$ | - | H | 0,6 |
| | | 4 | | | | 0,4 |
| Autoclaved aerated concrete blocks, AAC acc. to EN 771-4:2011 | E | 6 | $> 0,6$ | - | R | 0,3³⁾ |
| | | 4 | $> 0,4$ | | | 0,3³⁾ |

¹⁾ See Annex B1

²⁾ R = Rotary drilling | H = Hammer drilling

³⁾ Only valid for $h_{nom} \geq 55$ mm

fischer termoz CN 8 | fischer termoz CN 8 R | fischer termoz CNplus 8

Performance
Characteristic resistance termoz CN 8, termoz CN 8 R

Annex C1

Table C2.1: Characteristic resistance N_{Rk} in [kN] to tension loads for single anchor

| Base material | Use cat. ¹⁾ | Min. compressive strength f_b [N/mm ²] | Bulk density ρ [kg/dm ³] | Remarks | Drill method ²⁾ | Characteristic resistance N_{Rk} [kN] termoz CNplus 8 |
|---|------------------------|--|---|--|----------------------------|--|
| Concrete \geq C12/15 - C50/60 EN 206-1:2000 | A | - | - | - | H | 0,9 |
| Weather resistant concrete shell \geq C20/25 EN 206-1:2000 | A | - | - | $h \geq 42$ mm ; $t_{fix} \geq 35$ mm | H | 0,9 |
| Solid clay bricks Mz acc. to EN 771-1:2011 | B | 20 | $\geq 1,8$ | Cross section reduced up to 15% by perforation vertically to the resting area | H | 0,9 |
| Calcium silicate solid bricks KS acc. to EN 771-2:2011 | B | 20 | $\geq 1,8$ | | H | 0,9 |
| Solid concrete blocks Vbn acc. to EN 771-3:2011 | B | 20 | $\geq 2,0$ | | H | 0,9 |
| Lightweight concrete blocks Vbl acc. to EN 771-3:2011 | B | 10 | $\geq 1,6$ | | H | 0,75 |
| Vertically perforated clay bricks Hlz acc. to EN 771-1:2011 | C | 48 | $\geq 1,6$ | Cross section reduced between 15% and 50% by perforation vertically to the resting area. Exterior web thickness ≥ 17 mm | R | 0,75 |
| | | 12 | $\geq 1,0$ | Cross section reduced between 15% and 50% by perforation vertically to the resting area. Exterior web thickness ≥ 15 mm | | 0,5 |
| Hollow calcium silicate brick KSL acc. to EN 771-2:2011 | C | 16 | $\geq 1,4$ | Cross section reduced between 15% and 50% by perforation vertically to the resting area. Exterior web thickness ≥ 16 mm | H | 0,5 |
| Lightweight concrete hollow blocks Hbl , acc. to EN 771-3:2011 | C | 10 | $\geq 1,2$ | Cross section reduced between 15% and 50% by perforation vertically to the resting area. Exterior web thickness ≥ 38 mm | H | 0,6 |
| Lightweight aggregate concrete LAC , acc. to EN 1520:2011, EN 771-3:2011 | D | 6 | $\geq 0,9$ | - | H | 0,4³⁾ |
| Autoclaved aerated concrete blocks, AAC acc. to EN 771-4:2011 | E | 4 | $> 0,4$ | - | R | 0,3³⁾ |

¹⁾ See Annex B1

³⁾ Only valid for $h_{nom} \geq 55$ mm

²⁾ R = Rotary drilling | H = Hammer drilling

fischer termoz CN 8 | fischer termoz CN 8 R | fischer termoz CNplus 8

Performance
Characteristic resistance termoz CNplus 8

Annex C2

Table C3.1: Point thermal transmittance acc. to EOTA Technical Report TR 025 : 2016 – 05
fischer termoz CN 8 | fischer 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 acc. to EOTA Technical Report TR 025 : 2016 – 05
fischer termoz CNplus 8 - flush mounted

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

Table C3.3: Point thermal transmittance acc. to EOTA Technical Report TR 025 : 2016 – 05
fischer termoz CNplus 8 - countersunk mounted

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

fischer termoz CN 8 | fischer termoz CN 8 R | fischer termoz CNplus 8

Performance
Point thermal transmittance

Annex C3

Table C4.1: Plate stiffness acc. to EOTA Technical Report TR 026 : 2016 – 05

| Anchor type | Size of the anchor plate [mm] | Load resistance of the anchor plate [kN] | Plate stiffness [kN/mm] |
|-----------------------------|-------------------------------|--|-------------------------|
| termoz CN 8 termoz CN 8 R | 60 | 1,7 | 0,6 |

Table C4.2: Displacements termoz CN 8 | termoz CN 8 R

| Base material | termoz CN 8 termoz CN 8 R | |
|--|-----------------------------|-----------------------------|
| | Tension load F [kN] | Displacements δ [mm] |
| Concrete \geq C12/15 – C50/60 (EN 206-1:2000) | 0,30 | < 0,3 |
| Clay brick (EN 771-1:2011), Mz 12 | 0,30 | < 0,5 |
| Calcium silicate solid bricks (EN 771-2:2011), KS 12 | 0,30 | < 0,3 |
| Vertically perforated clay brick (EN 771-1:2011), Hlz 12 | 0,2 | < 0,2 |
| Hollow calcium silicate brick (EN 771-2:2011), KSL 12 | 0,15 | < 0,2 |
| Hollow calcium silicate brick (EN 771-2:2011), KSL 20 | 0,25 | < 0,3 |
| Solid concrete blocks (EN 771-3:2011), Vbn 20 | 0,25 | < 0,3 |
| Hollow brick lightweight concrete (EN 771-3:2011), Hbl 4 | 0,2 | < 0,2 |
| Lightweight concrete solid blocks (EN 771-3:2011), Vbl 8 | 0,2 | < 0,2 |
| Lightweight aggregate concrete (EN 1520:2011, EN 771-3:2011) | LAC 4 | < 0,3 |
| | LAC 6 | |
| Autoclaved aerated concrete blocks EN 771-4:2011 | AAC 4 | < 0,2 |
| | AAC 6 | < 0,3 |

Table C4.3: Displacements termoz CNplus 8

| Base material | termoz CNplus 8 | |
|--|---------------------|-----------------------------|
| | Tension load F [kN] | Displacements δ [mm] |
| Concrete \geq C12/15 – C50/60 (EN 206-1:2000) | 0,30 | < 0,1 |
| Weather resistant concrete shell \geq C20/25 (EN 206-1:2000) | 0,30 | < 0,1 |
| Clay brick (EN 771-1:2011), Mz 20 | 0,30 | < 0,2 |
| Calcium silicate solid bricks (EN 771-2:2011), KS 20 | 0,30 | < 0,2 |
| Solid concrete blocks (EN 771-3:2011), Vbn 20 | 0,30 | < 0,2 |
| Lightweight concrete solid blocks (EN 771-3:2011), Vbl 10 | 0,25 | < 0,1 |
| Vertically perforated clay brick (EN 771-1:2011), Hlz 48 | 0,25 | < 0,2 |
| Vertically perforated clay brick (EN 771-1:2011), Hlz 12 | 0,17 | < 0,1 |
| Hollow calcium silicate brick (EN 771-2:2011), KSL 16 | 0,17 | < 0,1 |
| Hollow brick lightweight concrete (EN 771-3:2011), Hbl 10 | 0,20 | < 0,1 |
| Lightweight aggregate concrete (EN 1520:2011, EN 771-3:2011) | LAC 6 | < 0,2 |
| Autoclaved aerated concrete blocks (EN 771-4:2011) | AAC 4 | < 0,1 |

fischer termoz CN 8 | fischer termoz CN 8 R | fischer termoz CNplus 8

Performance
Plate stiffness
Displacements

Annex C4