

DECLARATION OF PERFORMANCE

DoP 0345

for fischer TermoFix PN 8 / TermoFix CN 8 (Plastic anchors for use in concrete and masonry)

EN

1. <u>Unique identification code of the product-type:</u>	DoP 0345	
2. <u>Intended use/es:</u>	Nailed-in plastic anchor for fixing of external thermal insulation composite systems (ETICS) with rendering in concrete and masonry, see appendix, especially annexes B1 - B3.	
3. <u>Manufacturer:</u>	fischerwerke GmbH & Co. KG, Klaus-Fischer-Str. 1, 72178 Waldachtal, Germany	
4. <u>Authorised representative:</u>	-	
5. <u>System/s of AVCP:</u>	2+	
6. <u>European Assessment Document:</u>	EAD 330196-01-0604	
European Technical Assessment:	ETA-23/0453; 2023-11-06	
Technical Assessment Body:	TZÚS - Technical and Test Institute for Construction Prague	
Notified body/ies:	2873 TU Darmstadt	
7. <u>Declared performance/s:</u>		
Safety in use (BWR 4)		
Characteristic load bearing capacity:	Characteristic resistance under tension load:	Annexes C1, C2
	Minimum edge distance:	Annex B2
	Minimum spacing:	Annex B2
Displacements:	Tension load with partial factor:	Annex C4
	Displacements:	Annex C4
Plate stiffness:	Diameter of the anchor plate:	Annex C3
	Load resistance of the anchor plate:	Annex C3
	Plate stiffness:	Annex C3
Energy economy and heat retention (BWR 6)		
Thermal transmittance:	Point thermal transmittance of an anchor:	Annex C3
	Insulating layer thickness of the ETICS:	Annex C3
8. <u>Appropriate Technical Documentation and/or Specific Technical Documentation:</u>	-	

The performance of the product identified above is in conformity with the set of declared performance/s. This declaration of performance is issued, in accordance with Regulation (EU) No 305/2011, under the sole responsibility of the manufacturer identified above.

Signed for and on behalf of the manufacturer by:



Dr.-Ing. Oliver Geibig, Managing Director Business Units & Engineering
Tumlingen, 2023-12-18



Jürgen Grün, Managing Director Chemistry & Quality

This DoP has been prepared in different languages. In case there is a dispute on the interpretation the English version shall always prevail.

The Appendix includes voluntary and complementary information in English language exceeding the (language-neutrally specified) legal requirements.

1. Technical description of the product

The fischer nailed-in anchor TermoFix PN 8 and TermoFix CN 8 consists of a plastic sleeve with plate made of polypropylene and accompanying specific nail.

TermoFix PN plastic nail is made of glass-fiber reinforced polyamide.

TermoFix CN compound nail is made of galvanised steel and glass-fiber reinforced polyamide.

The anchor may in addition be combined with the anchor plates DT 90, DT 110 and DT 140.

The anchor is expanded by hammering the expansion element into the anchor sleeve.

The product description is given in Annex A.

2. Specification of the intended use in accordance with the applicable European Assessment Document (EAD)

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 provisions made in this European Technical Assessment are based on an assumed working life of the anchor of 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 in case of fire (BWR 2)

Not assessed based on EAD 330196-01-0604.

3.2 Safety in use (BWR 4)

Essential characteristic	Performance
Characteristic resistance under tension loads	See Annex C 1 and C 2
Minimum edge distance and spacing	See Annex B 2
Displacement	See Annex C 4
Plate stiffness	See Annex C 3

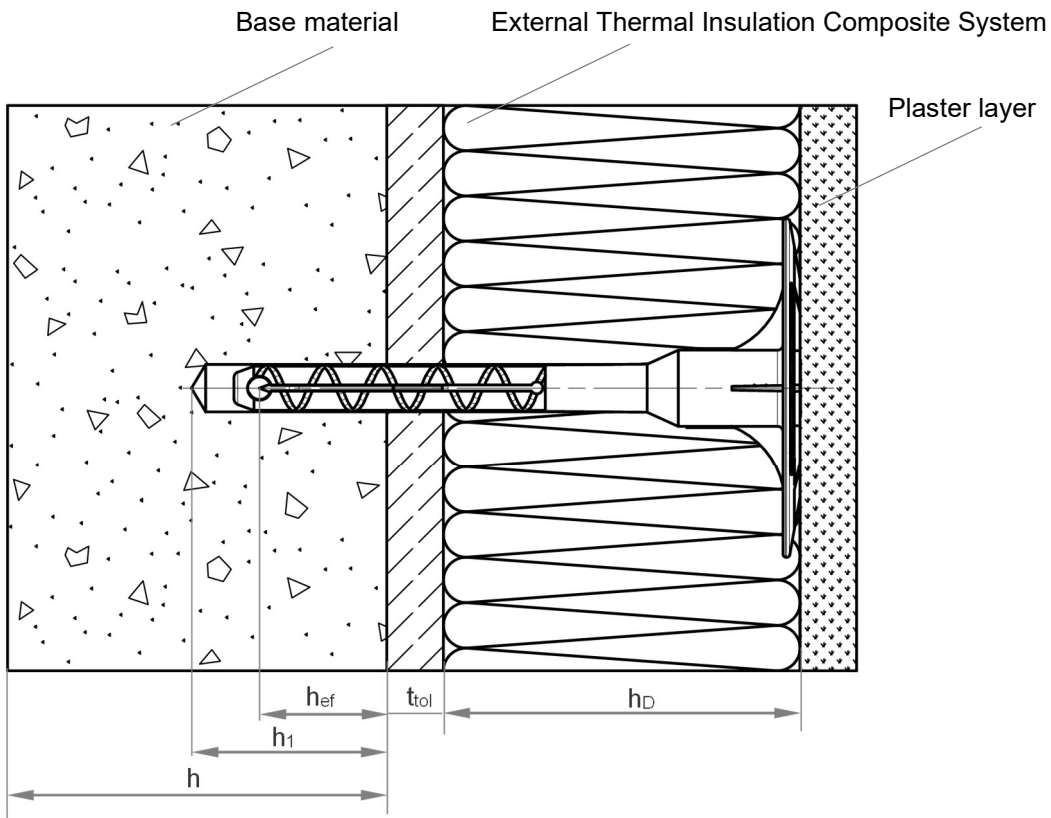
3.3 Energy economy and heat retention (BWR 6)

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

According to the Decision 97/463/EC of the European Commission¹, the system 2+ of assessment verification of constancy of performance (see Annex V to the Regulation (EU) No 305/2011) apply.

TermoFix PN 8 / 95 - 215 | TermoFix CN 8 / 95 - 235 – flush mounting



Legend

- h_{ef} = Effective anchorage 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

Figure not to scale

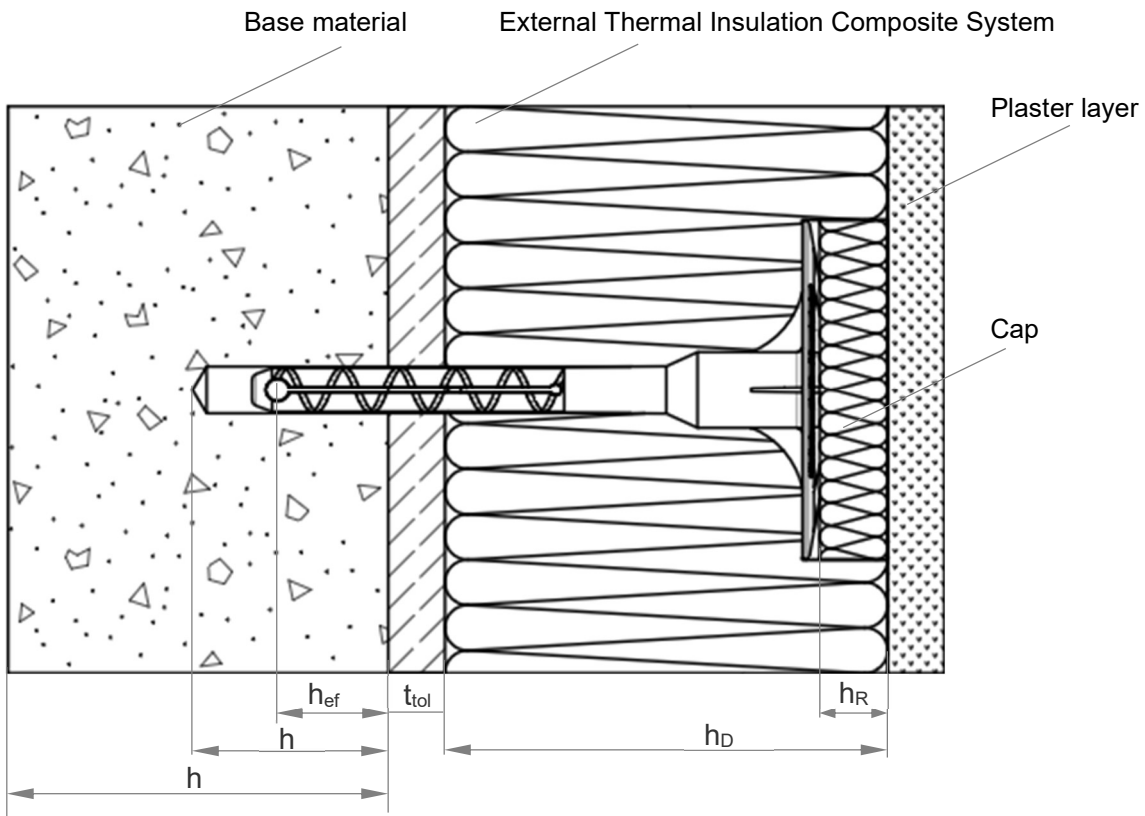
fischer TermoFix PN 8 | fischer TermoFix CN 8

Product description
Installed anchor – flush mounting

Annex A 1

Appendix 2 / 13

TermoFix PN 8 / 95 - 215 | TermoFix CN 8 / 95 - 235 – countersunk mounting



Legend

- h_{ef} = Effective anchorage 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

Figure not to scale

fischer TermoFix PN 8 | fischer TermoFix CN 8

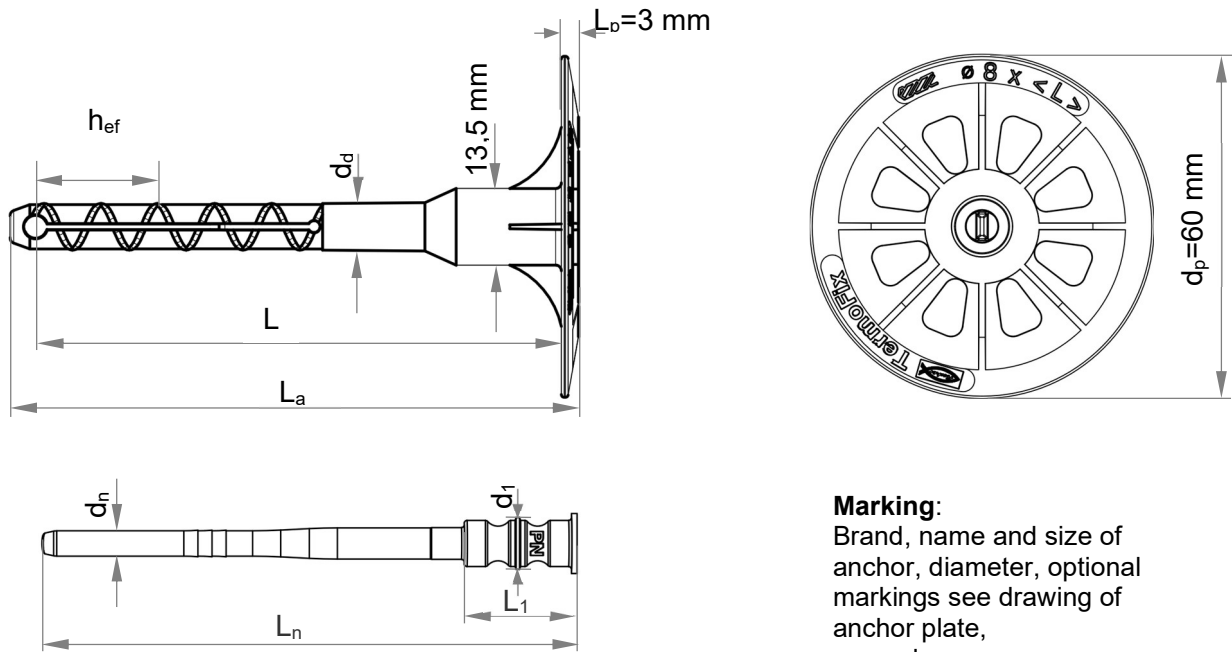
Product description

Installed anchor – countersunk mounting

Annex A 2

Appendix 3 / 13

TermoFix PN 8 / 95 - 215



Marking:
 Brand, name and size of anchor, diameter, optional markings see drawing of anchor plate, example TermoFix 8

Various lengths of the anchors are possible.

e.g. for TermoFix PN 8 / 95 - 215:
 $100 \text{ mm} \leq L_a \leq 220 \text{ mm}$
 $L_a = L + 5 \text{ mm}$

Table A3.1: Dimensions TermoFix PN 8 / 95 – 215

Anchor type	Anchor sleeve with plate		Plastic nail		Plastic cylinder	
	d_d [mm]	h_{ef} [mm]	L_n [mm]	d_n [mm]	L_1 [mm]	d_1 [mm]
TermoFix PN 8 / 95 - 215	8	25	L	4,4	20	9

Determination of anchor size
 flush mounting:

e.g. for TermoFix PN 8:
 $h_D = 120 \text{ mm}$, $h_{ef} = 25 \text{ mm}$, $t_{tol} = 10 \text{ mm}$

countersunk mounting:

e.g. for TermoFix PN 8:
 $h_D = 120 \text{ mm}$, $h_{ef} = 25 \text{ mm}$, $t_{tol} = 10 \text{ mm}$

minimum $L = h_D + h_{ef} + t_{tol}$

minimum $L = 120 + 25 + 10 = 155 \text{ mm}$
 → recommended size: TermoFix PN 8x155

minimum $L = h_D + h_{ef} + t_{tol} - 20 \text{ mm}$

minimum $L = 120 + 25 + 10 - 20 = 135 \text{ mm}$
 → recommended size: TermoFix PN 8x135

Figures not to scale

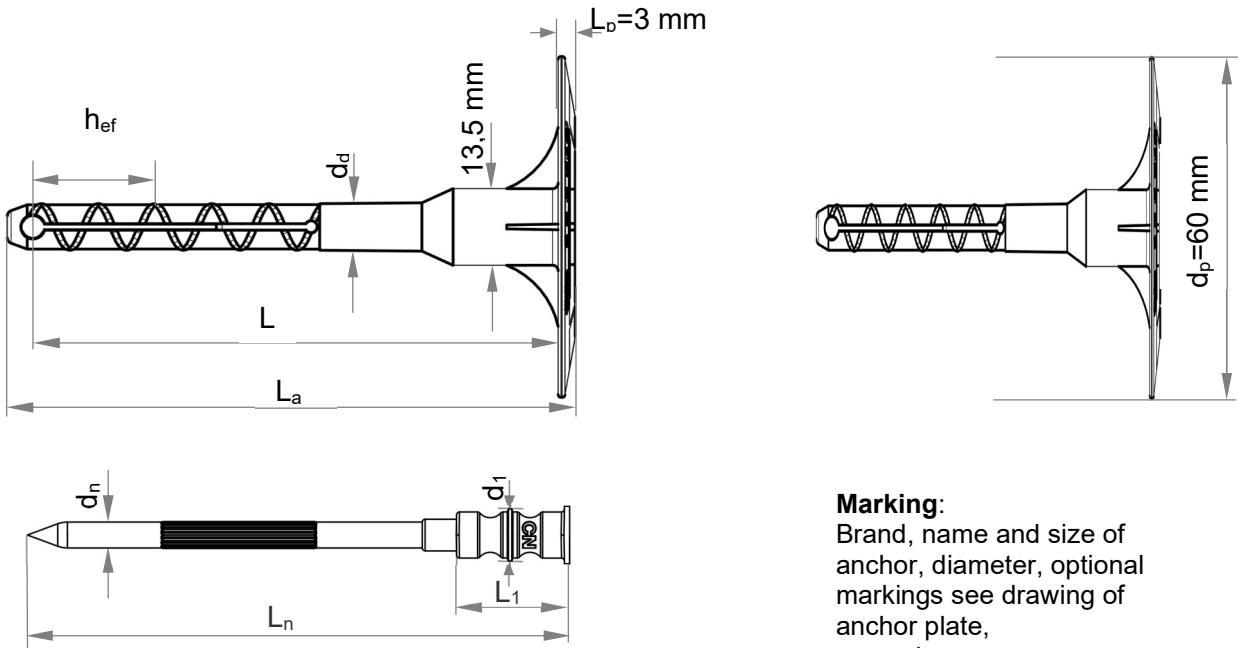
fischer TermoFix PN 8 | fischer TermoFix CN 8

Product description
 Dimensions TermoFix PN 8 / 95 - 215

Annex A 3

Appendix 4 / 13

TermoFix CN 8 / 95 - 235



Marking:
Brand, name and size of anchor, diameter, optional markings see drawing of anchor plate, example TermoFix 8

Various lengths of the anchors are possible.

e.g. for TermoFix CN 8 / 95 - 235:
 $100 \text{ mm} \leq L_a \leq 240 \text{ mm}$
 $L_a = L + 5 \text{ mm}$

Table A4.1: Dimensions TermoFix CN 8 / 95 – 235

Anchor type	Anchor sleeve with plate		Specific compound nail			
	d_d [mm]	h_{ef} [mm]	L_n [mm]	d_n [mm]	L_1 [mm]	d_1 [mm]
TermoFix CN 8 / 95 - 235	8	25	L	4,5	20	9

Determination of anchor size
flush mounting:

$$\text{minimum } L = h_D + h_{ef} + t_{tol}$$

e.g. for TermoFix CN 8:
 $h_D = 120 \text{ mm}$, $h_{ef} = 25 \text{ mm}$, $t_{tol} = 10 \text{ mm}$

$$\text{minimum } L = 120 + 25 + 10 = 155 \text{ mm}$$

→ recommended size: TermoFix CN 8x155

countersunk mounting:

$$\text{minimum } L = h_D + h_{ef} + t_{tol} - 20 \text{ mm}$$

e.g. for TermoFix CN 8:
 $h_D = 120 \text{ mm}$, $h_{ef} = 25 \text{ mm}$, $t_{tol} = 10 \text{ mm}$

$$\text{minimum } L = 120 + 25 + 10 - 20 = 135 \text{ mm}$$

→ recommended size: TermoFix CN 8x135

Figures not to scale

fischer TermoFix PN 8 | fischer TermoFix CN 8

Product description
Dimensions TermoFix CN 8 / 95 - 235

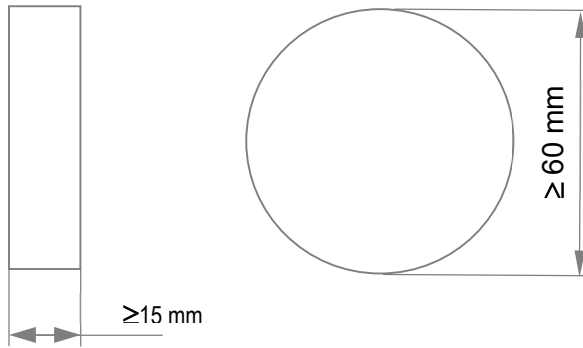
Annex A 4

Appendix 5 / 13

Table A5.1: Materials

Designation	Material
Anchor sleeve with plate	PP, colour: natural
Plastic nail TermoFix PN 8	PA6 GF, colour: natural
Specific compound nail TermoFix CN 8	PA6 GF (plastic part of compound nail), colour: red, with galvanised steel 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

Cap



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

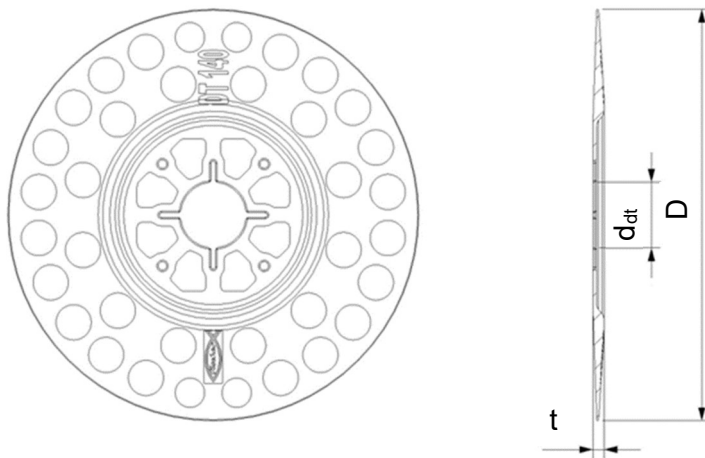


Table A5.2: Slip-on plate and dimensions

Anchor type	D [mm]	d_{dt} [mm]	t [mm]
DT 90 / 110 / 140	90 / 110 / 140	22,5	3,9

Figures not to scale

fischer TermoFix PN 8 | fischer TermoFix CN 8

Product description

Materials, dimensions cap and slip-on plate for TermoFix PN 8 and TermoFix CN 8

Annex A 5

Appendix 6 / 13

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.
- For other comparable base materials of the base material group "A", "B" and "C" 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 TermoFix PN 8 | fischer TermoFix CN 8

Intended use
Specifications

Annex B 1

Appendix 7 / 13

Table B2.1: Installation parameters for base material groups “A” concrete, “B” solid bricks, “C” hollow or perforated bricks – flush mounting

Anchor type		TermoFix PN 8 TermoFix CN 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]	40
Effective anchorage depth in the base material	$h_{ef} \geq$ [mm]	25

Table B2.2: Installation parameters for base material groups “A” concrete, “B” solid bricks, “C” hollow or perforated bricks – countersunk mounting¹⁾

Anchor type		TermoFix PN 8 TermoFix CN 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]	40
Effective anchorage depth in the base material	$h_{ef} \geq$ [mm]	25

¹⁾ Recommended insulation thickness $h_D + 20$ mm compared to flush mounting. Installation by pre-milling.

Table B2.3: Minimum thickness of member, edge distances and spacing in all regulated base material groups

Anchor type		TermoFix PN 8 TermoFix CN 8
Minimum thickness of member	$h_{min} =$ [mm]	100
Minimum spacing	$s_{min} =$ [mm]	100
Minimum edge distance	$c_{min} =$ [mm]	100

Scheme of edge distances and spacing
for base material group “A”, concrete,
group “B” solid bricks, group “C” hollow or
perforated masonry

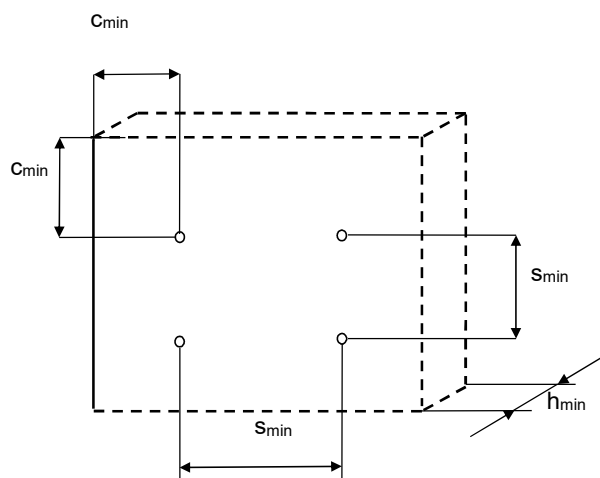


Figure not to scale

fischer TermoFix PN 8 | fischer TermoFix CN 8

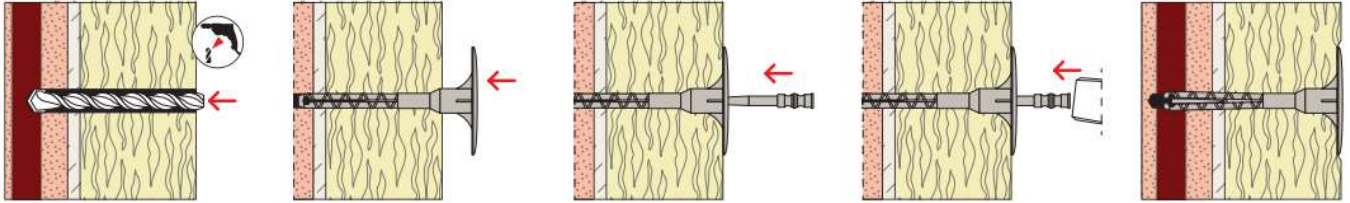
Intended use
Installation parameters
Minimum thickness of member, edge distances and spacing

Annex B 2

Appendix 8 / 13

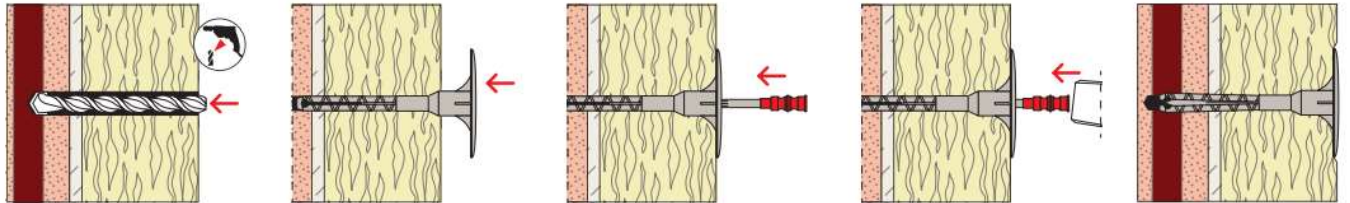
Installation instruction

Setting of anchor (flush mounting) by hammer / TermoFix PN 8



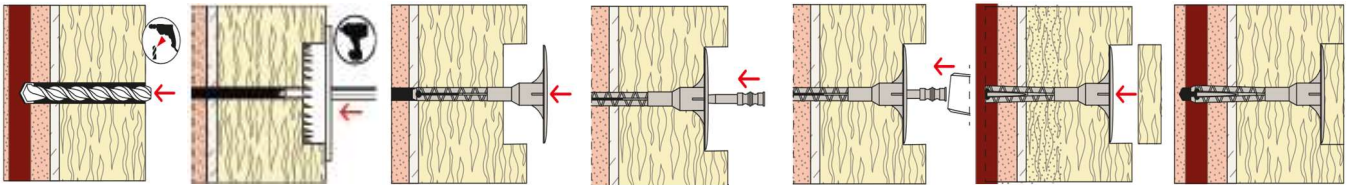
1. Drill hole by corresponding drilling method
2. Insert anchor sleeve manually
3. Insert nail manually
4. Set anchor by hammer blows
5. Correctly installed anchor

Setting of anchor (flush mounting) by hammer / TermoFix CN 8



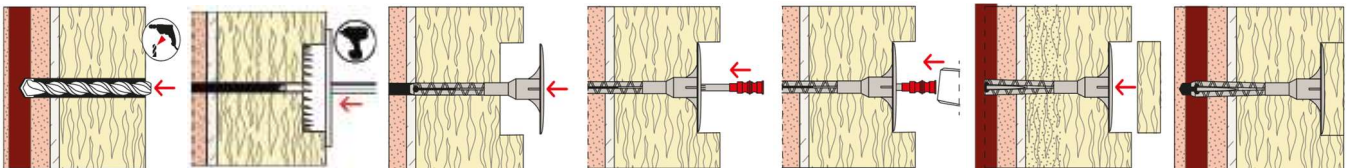
1. Drill hole by corresponding drilling method
2. Insert anchor sleeve manually
3. Insert nail manually
4. Set anchor by hammer blows
5. Correctly installed anchor

Setting of anchor (countersunk mounting) by pre-milling / TermoFix PN 8



1. Drill hole by corresponding drilling method
2. Pre-milling of the insulation to a depth of 20 mm
3. Insert anchor sleeve manually
4. Insert nail manually
5. Set anchor by hammer blows
6. Put on cap
7. Correctly installed anchor

Setting of anchor (countersunk mounting) by pre-milling / TermoFix CN 8



1. Drill hole by corresponding drilling method
2. Pre-milling of the insulation to a depth of 20 mm
3. Insert anchor sleeve manually
4. Insert nail manually
5. Set anchor by hammer blows
6. Put on cap
7. Correctly installed anchor

fischer TermoFix PN 8 | fischer TermoFix CN 8

Intended use
Installation instruction

Annex B 3

Appendix 9 / 13

Table C1.1: Characteristic resistance N_{Rk} to tension loads for single anchor TermoFix PN 8

Base material	Group	Bulk density ρ [kg/dm ³]	Mean compressive strength / minimum compressive strength single brick as per EN 771 ⁴⁾ [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	0,40
Solid Clay bricks, Mz as per EN 771-1	B ²⁾	≥ 1,8	≥ 35/28	-	H	0,45
Calcium silicate solid bricks, KS as per EN 771-2	B ²⁾	≥ 2,0	≥ 35/28	-	H	0,40
Solid concrete blocks, Vbl as per EN 771-3	B ²⁾	≥ 2,0	≥ 25/20	-	H	0,35
Vertically perforated clay bricks, HLz as per EN 771-1	C ³⁾	≥ 1,6	≥ 60/48	-	R	0,45
Hollow calcium silicate brick, KSL as per EN 771-2	C ³⁾	≥ 1,4	≥ 20/16	Exterior web thickness ≥ 16 mm.	H	0,40
Lightweight concrete hollow blocks, Hbn as per EN 771-3	C ³⁾	≥ 1,4	≥ 15/12	-	H	0,40

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

fischer TermoFix PN 8 | fischer TermoFix CN 8

Performances
Characteristic resistance to tension load TermoFix PN 8

Annex C 1

Appendix 10 / 13

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

Base material	Group	Bulk density ρ [kg/dm ³]	Mean compressive strength / minimum compressive strength single brick as per EN 771 ⁴⁾ [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	0,40
Solid Clay bricks, Mz as per EN 771-1	B ²⁾	≥ 1,8	≥ 35/28	-	H	0,45
Calcium silicate solid bricks, KS as per EN 771-2	B ²⁾	≥ 2,0	≥ 35/28	-	H	0,40
Solid concrete blocks, Vbl as per EN 771-3	B ²⁾	≥ 2,0	≥ 25/20	-	H	0,45
Vertically perforated clay bricks, HLz as per EN 771-1	C ³⁾	≥ 1,6	≥ 60/48	-	R	0,45
Hollow calcium silicate brick, KSL as per EN 771-2	C ³⁾	≥ 1,4	≥ 20/16	Exterior web thickness ≥ 16 mm.	H	0,45
Lightweight concrete hollow blocks, Hbn as per EN 771-3	C ³⁾	≥ 1,4	≥ 15/12	-	H	0,45

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

fischer TermoFix PN 8 | fischer TermoFix CN 8

Performances

Characteristic resistance to tension load TermoFix CN 8

Annex C 2

Appendix 11 / 13

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

Anchor type	Mounting type	Thickness of insulation material h_D [mm]	Point thermal transmittance χ [W/K]
TermoFix PN 8	flush mounting	60 - 180	0,000
	countersunk mounting	80 - 200	0,000
TermoFix CN 8	flush mounting	60 - 180	0,003
		200	0,002
	countersunk mounting	80 - 220	0,002

**Table C3.2: Plate stiffness according to EOTA Technical Report TR 026
TermoFix PN 8 and TermoFix CN 8**

Anchor type	Max. size of the anchor plate d_p [mm]	Load resistance of the anchor plate [kN]	Plate stiffness c [kN/mm]
TermoFix PN 8 and TermoFix CN 8	60	1,0	0,30

fischer TermoFix PN 8 | fischer TermoFix CN 8

Performances
Point thermal transmittance
Plate stiffness

Annex C 3

Appendix 12 / 13

Table C4.1: Displacements of TermoFix PN 8

Base material	Mean compressive strength / minimum compressive strength single brick as per EN 771 ¹⁾ [N/mm ²]	Tension load	Displacements
		N [kN]	$\Delta\delta_N$ [mm]
Concrete, C12/15 as per EN 206	-	0,13	0,11
Concrete, C20/25 as per EN 206	-	0,13	0,09
Concrete, C50/60 as per EN 206	-	0,13	0,07
Solid Clay bricks, Mz as per EN 771-1	$\geq 35/28$	0,15	0,14
Calcium silicate solid bricks, KS as per EN 771-2	$\geq 35/28$	0,13	0,13
Solid concrete blocks, Vbl as per EN 771-3	$\geq 25/20$	0,12	0,12
Vertically perforated clay bricks, HLz as per EN 771-1	$\geq 60/48$	0,15	0,19
Hollow calcium silicate brick, KSL as per EN 771-2	$\geq 20/16$	0,13	0,11
Lightweight concrete hollow blocks, Hbl as per EN 771-3	$\geq 15/12$	0,13	0,13

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

Table C4.2: Displacements of TermoFix CN 8

Base material	Mean compressive strength / minimum compressive strength single brick as per EN 771 ¹⁾ [N/mm ²]	Tension load	Displacements
		N [kN]	$\Delta\delta_N$ [mm]
Concrete, C12/15 as per EN 206	-	0,13	0,11
Concrete, C20/25 as per EN 206	-	0,13	0,06
Concrete, C50/60 as per EN 206	-	0,13	0,08
Solid Clay bricks, Mz as per EN 771-1	$\geq 35/28$	0,15	0,19
Calcium silicate solid bricks, KS as per EN 771-2	$\geq 35/28$	0,13	0,13
Solid concrete blocks, Vbl as per EN 771-3	$\geq 25/20$	0,15	0,13
Vertically perforated clay bricks, HLz as per EN 771-1	$\geq 60/48$	0,15	0,22
Hollow calcium silicate brick, KSL as per EN 771-2	$\geq 20/16$	0,15	0,14
Lightweight concrete hollow blocks, Hbl as per EN 771-3	$\geq 15/12$	0,15	0,14

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

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Performances
Displacements

Annex C 4