DECLARAÇÃO DE DESEMPENHO

DoP 0345
para fischer TermoFix PN 8 / TermoFix CN 8 (Âncoras plásticas para betão e alvenaria) PT

1. Código de identificação único do produto-tipo:	**DoP 0345**	
2. Utilização(ões) prevista(s):	**Bucha plástica pregado para fixar sistemas compósitos de isolamento térmico exterior (ETICS) com reboco em betão e alvenaria, ver anexoss, especialmente anexos B1 - B3.**	
3. Fabricante:	**fischerwerke GmbH & Co. KG, Klaus-Fischer-Str. 1, 72178 Waldachtal, Alemanha**	
4. Representante autorizado:	**–**	
5. Sistema(s) de avaliação e verificação da regularidade do desempenho (AVCP):	**2+**	
6. Documento de Avaliação Europeu:	**EAD 330196-01-0604**	
Avaliação Técnica Europeia:	**ETA-23/0453; 2023-11-06**	
Organismo de Avaliação Técnica:	**TZÚS - Technical and Test Institute for Construction Prague**	
Organismo(s) notificado(s):	**2873 TU Darmstadt**	
7. Desempenho(s) declarado(s):		
Segurança em uso (BWR 4)		
Capacidade de carga característica:	**Resistência característica sob cargas de tração:**	**Anexos C1, C2**
	Distância ao bordo mínima:	**Anexo B2**
	Espaçamento mínimo:	**Anexo B2**
Deslocamentos:	**Carga de tração com fator de segurança parcial:**	**Anexo C4**
	Deslocamentos:	**Anexo C4**
Rigidez da placa:	**Diâmetro da placa de ancoragem:**	**Anexo C3**
	Resistência da placa de ancoragem:	**Anexo C3**
	Rigidez da placa:	**Anexo C3**
Economia de energia e retenção de calor (BWR 6)		
Transmitância térmica:	**Ponto de transmissão térmica de uma ancoragem:**	**Anexo C3**
	Espessura da camada isolamento do ETICS:	**Anexo C3**
8. Documentação Técnica Adequada e/ou Documentação Técnica Específica:	**–**	

O desempenho do produto identificado acima está em conformidade com o conjunto de desempenhos declarados. A presente declaração de desempenho é emitida, em conformidade com o Regulamento (UE) n.o 305/2011, sob a exclusiva responsabilidade do fabricante identificado acima.

Assinado por e em nome do fabricante por:



Dr.-Ing. Oliver Geibig, Diretor Administrativo de Unidades de Negócios e Engenharia



Jürgen Grün, Diretor Administrativo de Química e Qualidade

Tumlingen, 2023-12-18

Este DoP foi preparado em diferentes línguas. Em caso de litígio sobre a interpretação, a versão em inglês prevalecerá sempre.

O Anexo inclui informações voluntárias e complementares em inglês que excedem os requisitos legais (linguisticamente especificados).

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

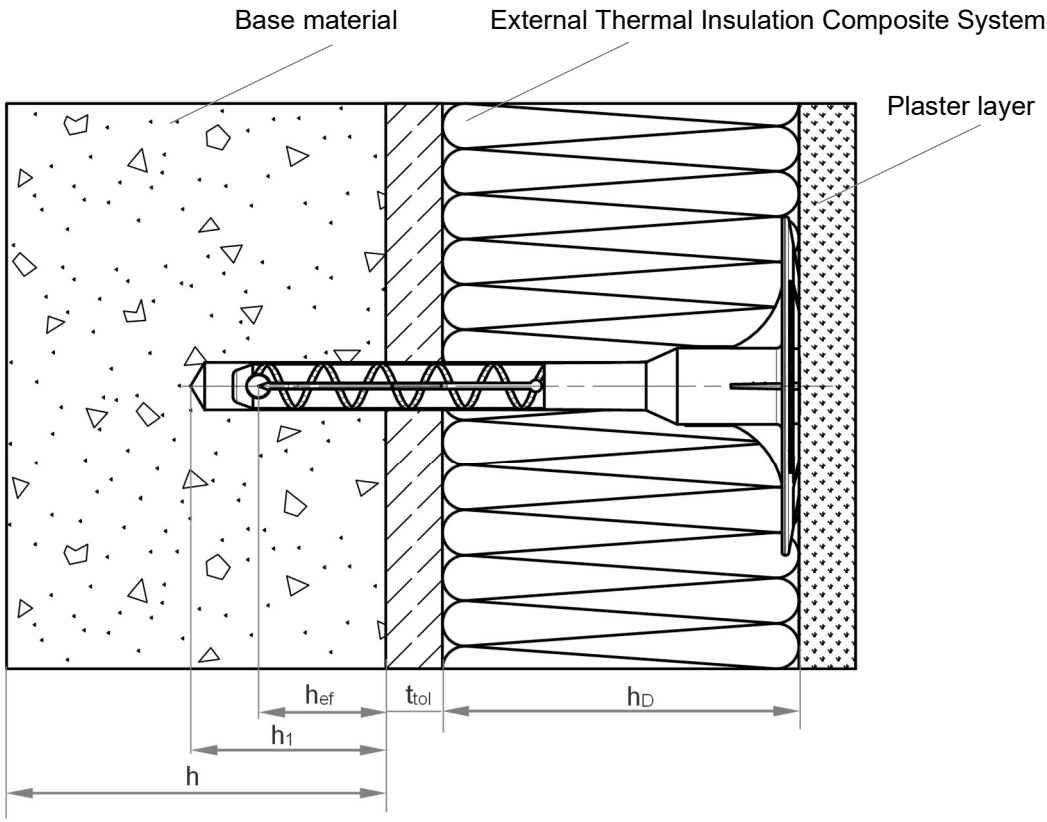
3.3 Energy economy and heat retention (BWR 6)

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 Commission[1], 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

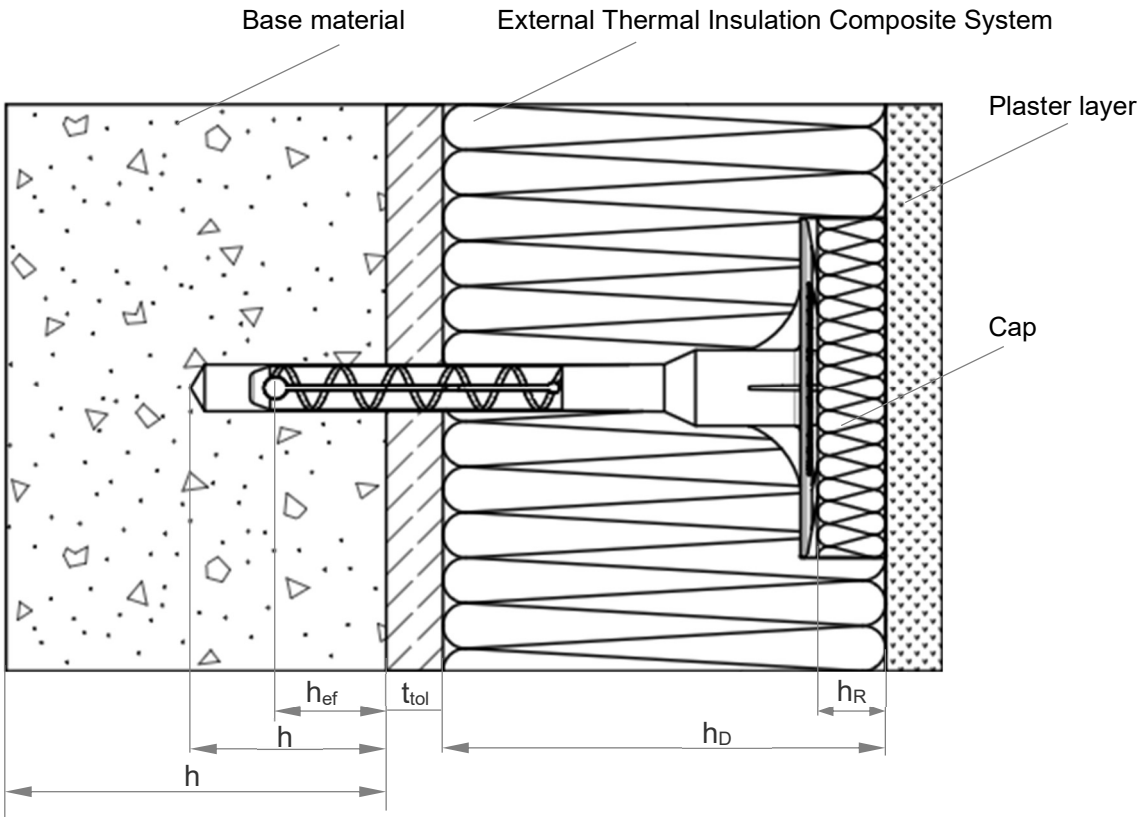


Legend

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

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

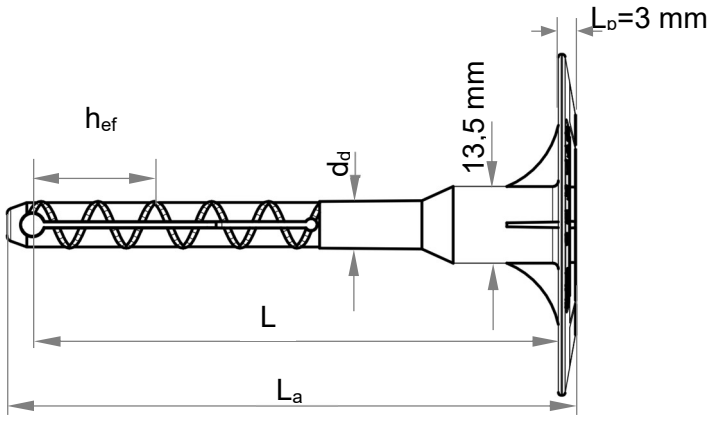


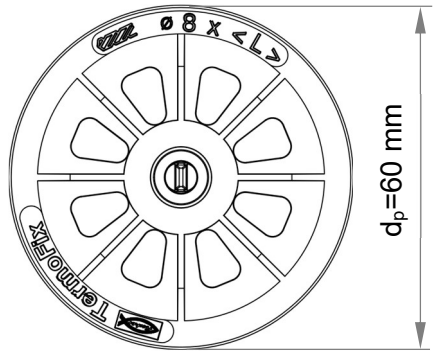
Legend

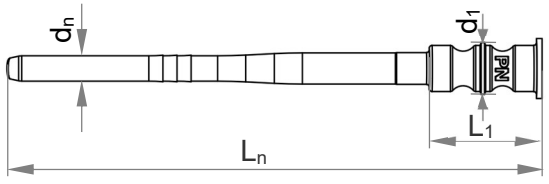
h_{ef} = Effective anchorage depth in the base material
h_1 = Depth of drilled hole to deepest point
h = Thickness of member (wall)
h_D = Thickness of insulation material
h_R = Thickness of cap
t_{tol} = Thickness of equalising layer and / or non-load bearing coating

Figure not to scale

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 mm ≤ L_a ≤ 220 mm
L_a = L + 5 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: minimum L = h_D + h_{ef} + t_{tol}

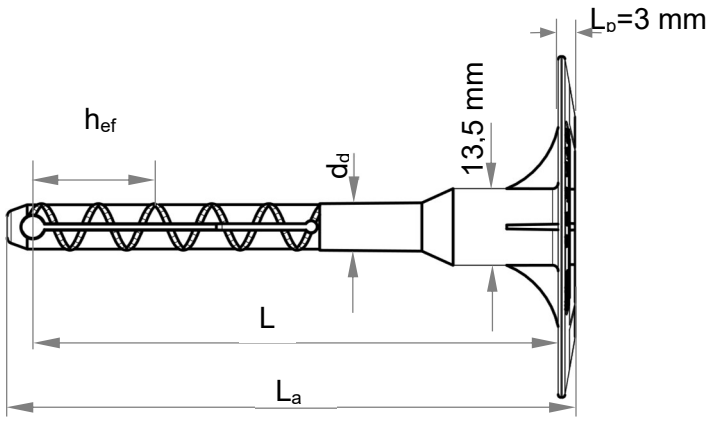
e.g. for TermoFix PN 8:
h_D = 120 mm, h_{ef} = 25 mm, t_{tol} = 10 mm
minimum L = 120 + 25 + 10 = 155 mm
→ recommended size: TermoFix PN 8x155

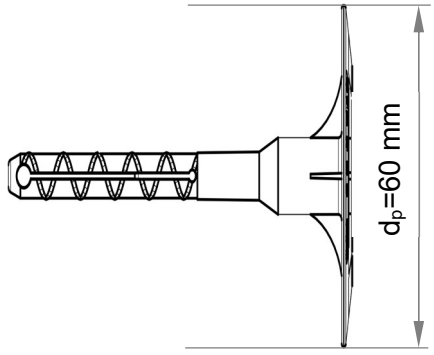
countersunk mounting: minimum L = h_D + h_{ef} + t_{tol} - 20 mm

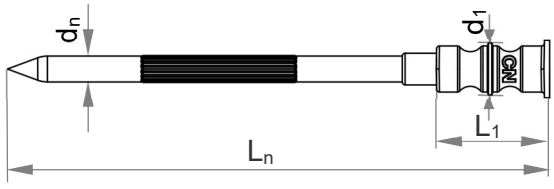
e.g. for TermoFix PN 8:
h_D = 120 mm, h_{ef} = 25 mm, t_{tol} = 10 mm
minimum L = 120 + 25 + 10 - 20 = 135 mm
→ recommended size: TermoFix PN 8x135

Figures not to scale

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 mm ≤ L_a ≤ 240 mm
L_a = L + 5 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: minimum L = h_D + h_{ef} + t_{tol}

e.g. for TermoFix CN 8:
h_D = 120 mm, h_{ef} = 25 mm, t_{tol} = 10 mm
minimum L = 120 + 25 + 10 = 155 mm
→ recommended size: TermoFix CN 8x155

countersunk mounting: minimum L = h_D + h_{ef} + t_{tol} - 20 mm

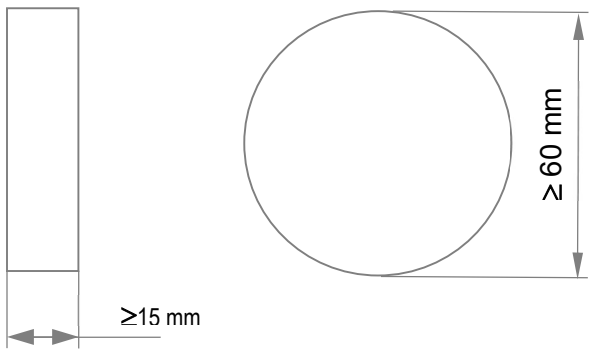
e.g. for TermoFix CN 8:
h_D = 120 mm, h_{ef} = 25 mm, t_{tol} = 10 mm
minimum L = 120 + 25 + 10 - 20 = 135 mm
→ recommended size: TermoFix CN 8x135

Figures not to scale

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)

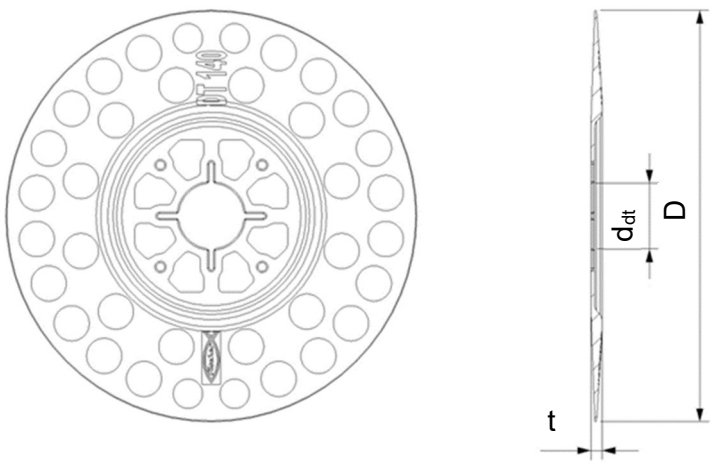


Table A5.2: Slip-on plate and dimensions

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

Figures not to scale

Specifications of intended use

Anchorages 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 ≥ 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 γ_M = 2,0 and for action loads γ_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 ≤ 6 weeks.

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}	≤	[mm]	**8,45**
Depth of drilled hole to deepest point	h_1	≥	[mm]	**40**
Effective anchorage depth in the base material	h_{ef}	≥	[mm]	**25**

Table B2.2: Installation parameters for base material groups "A" concrete, "B" solid bricks, "C" hollow or perforated bricks – countersunk mounting[1)]

Anchor type				TermoFix PN 8 TermoFix CN 8
Nominal 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]	**40**
Effective anchorage depth in the base material	h_{ef}	≥	[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

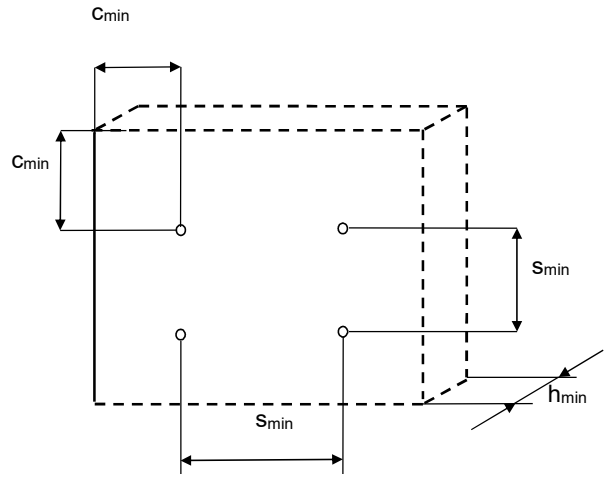
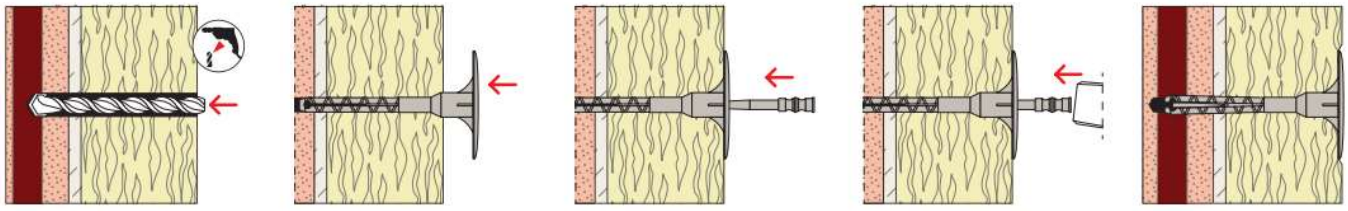


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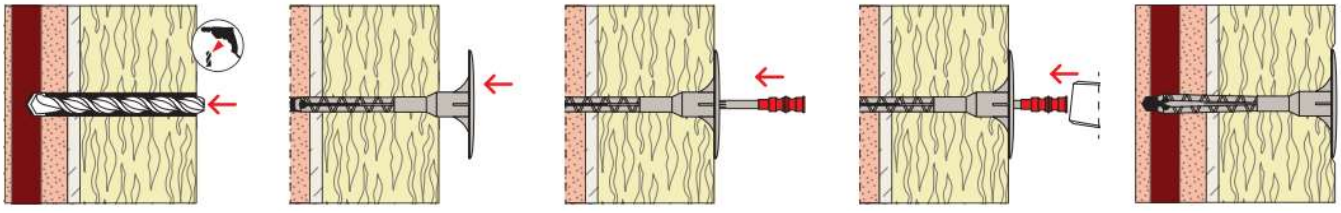
Installation instruction

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



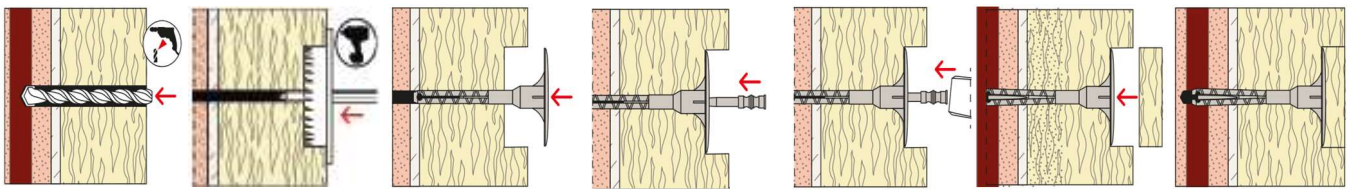
1. Drill hole by corresponding drilling method
2. Insert anchor sleeve manually
3. Insert nail manually
4. Set anchor by hammer blows
5. Correctly installed anchor

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



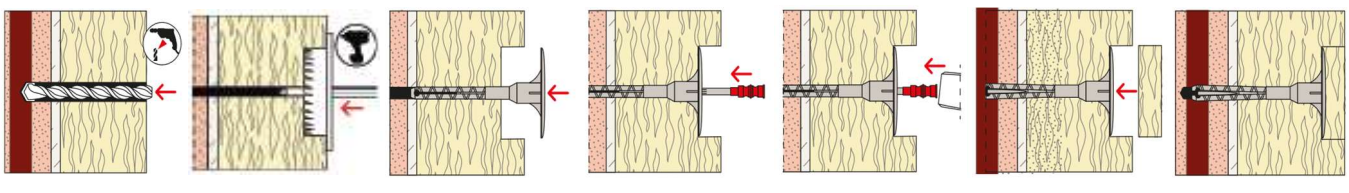
1. Drill hole by corresponding drilling method
2. Insert anchor sleeve manually
3. Insert nail manually
4. Set anchor by hammer blows
5. Correctly installed anchor

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

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

Base material	Group	Bulk density ρ [kg/dm³]	Mean compressive strength / minimum compressive strength single brick as per EN 771[4] [N/mm²]	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.

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

Base material	Group	Bulk density ρ [kg/dm³]	Mean compressive strength / minimum compressive strength single brick as per EN 771[4] [N/mm²]	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.

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

Table C4.1: Displacements of TermoFix PN 8

Base material	Mean compressive strength / minimum compressive strength single brick as per EN 771[1)] [N/mm²]	Tension load N [kN]	Displacements $\Delta\delta_N$ [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	≥ 35/28	0,15	0,14
Calcium silicate solid bricks, KS as per EN 771-2	≥ 35/28	0,13	0,13
Solid concrete blocks, Vbl as per EN 771-3	≥ 25/20	0,12	0,12
Vertically perforated clay bricks, HLz as per EN 771-1	≥ 60/48	0,15	0,19
Hollow calcium silicate brick, KSL as per EN 771-2	≥ 20/16	0,13	0,11
Lightweight concrete hollow blocks, Hbl as per EN 771-3	≥ 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/mm²]	Tension load N [kN]	Displacements $\Delta\delta_N$ [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	≥ 35/28	0,15	0,19
Calcium silicate solid bricks, KS as per EN 771-2	≥ 35/28	0,13	0,13
Solid concrete blocks, Vbl as per EN 771-3	≥ 25/20	0,15	0,13
Vertically perforated clay bricks, HLz as per EN 771-1	≥ 60/48	0,15	0,22
Hollow calcium silicate brick, KSL as per EN 771-2	≥ 20/16	0,15	0,14
Lightweight concrete hollow blocks, Hbl as per EN 771-3	≥ 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.