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Authorised and notified according to Article 29 of the Regulation (EU) No 305/2011 of the European Parliament and of the Council of 9 March 2011

European Technical Assessment ETA-15/0641 of 2021/12/21

I General Part

Technical Assessment Body issuing the ETA and designated according to Article 29 of the Regulation (EU) No 305/2011: ETA-Danmark A/S	
Trade name of the construction product:	Tecfi ZZE Handyplug Thermo
Product family to which the above construction product belongs:	Nailed-in plastic anchor for fixing of external thermal insulation composite systems with rendering in concrete, masonry, lightweight aggregate concrete and autoclaved aerated concrete
Manufacturer:	Tecfi SpA Strada Statale Appia, Km. 193 IT-81050 Pastorano (CE) Tel. +39 0823 88 33 38 Fax +39 0823 88 32 60 Internet www.tecfi.it
Manufacturing plant:	Tecfi S.p.A. plant 1 and 2
This European Technical Assessment contains:	13 pages including 8 annexes which form an integral part of the document
This European Technical Assessment is issued in accordance with Regulation (EU) No 305/2011, on the basis of:	EAD 330196-01-0604 - Plastic anchors made of virgin or non-virgin material for fixing of ETICS with rendering
This version replaces:	The previous ETA with the same number issued on 2015-12-09

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II SPECIFIC PART OF THE EUROPEAN TECHNICAL ASSESSMENT

1 Technical description of product

Technical description of the product
The nailed-in plastic anchor ZZE Handyplug Thermo, type ZZE01 consists of a plastic sleeve made of polyethylene and an accompanying specific nail made of glass fibre reinforced polyamide PA6+30%GF as an expansion element.

The nailed-in plastic anchor ZZE Handyplug Thermo, type ZZE21, consists of a plastic sleeve made of polyethylene and accompanying specific nail that has a body made of zinc plated carbon steel and a head made of glass fibre reinforced polyamide PA6+30%GF.

The anchor is expanded by hammering the nail into the sleeve. It is possible to install the anchor flush or deep-mounted to the surface of the insulation.

The product description is given in Annex A.

2 Specification of the intended use in accordance with the applicable 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 B1 to B3

The provisions made in this European Technical Assessment are based on an assumed intended 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 or Assessment Body, 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 Characteristics of product

Mechanical resistance and stability (BWR 1):
The essential characteristics regarding mechanical resistance and stability are included under the Basic Works Requirement Safety in use.

Safety in case of fire (BWR 2):
No Performance Assessed

Safety in use (BWR4):
The essential characteristics mentioned in the EAD are detailed in the Annex C1.

Energy economy and heat retention (BWR6):
The essential characteristics mentioned in the EAD are detailed in the Annex D1.

General aspects
The verification of durability is part of testing of the essential characteristics. Durability is only ensured if the specifications of intended use according to Annex B are taken into account.

3.2 Methods of assessment

The assessment of fitness of the anchor for the intended use in relation to the requirements for mechanical resistance and stability and safety in use in the sense of the Basic Works Requirements 4 has been made in accordance with the EAD 330196-01-0604 - Plastic anchors made of virgin or non-virgin material for fixing of ETICS with rendering.

4 Assessment and verification of constancy of performance (AVCP)

4.1 AVCP system

According to the decision 97/463/EC of the European Commission, the system(s) of assessment and verification of constancy of performance (see Annex V to Regulation (EU) No 305/2011) is 2+.

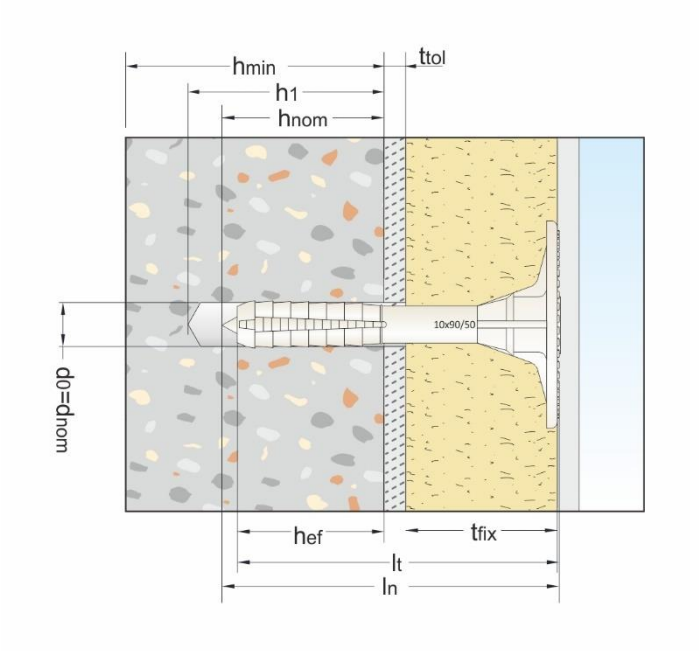
5 Technical details necessary for the implementation of the AVCP system, as foreseen in the applicable EAD

Technical details necessary for the implementation of the AVCP system are laid down in the control plan deposited at ETA-Danmark prior to CE marking

Issued in Copenhagen on 2021-12-21 by

Thomas Bruun
Managing Director, ETA-Danmark A/S

Installed conditions



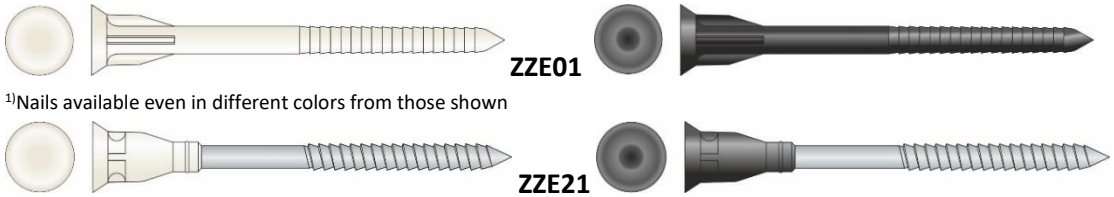
Installation details

d_{nom}	Outside diameter of the anchor
d_n	Outside diameter of the nail (not shown in the picture)
Ø	Anchor's plate diameter (not shown in the picture)
t_{fix}	Thickness of the insulating panel
t_{tol}	Thickness of equalizing layer for compensation of tolerances or non-loadbearing coating
d_0	Diameter of the drill hole
h_{min}	Minimum thickness of the concrete member
h_{nom}	Overall plastic anchor embedment depth in the base material
h_{ef}	Effective anchorage depth
l_n	Nail's length
l_t	Anchor's length

Plastic anchor for the fixing of ETICS, Tecfi ZZE Handyplug Thermo	**Annex A1** of European Technical Assessment ETA-15/0641
Product description - Installed anchor	

Marking

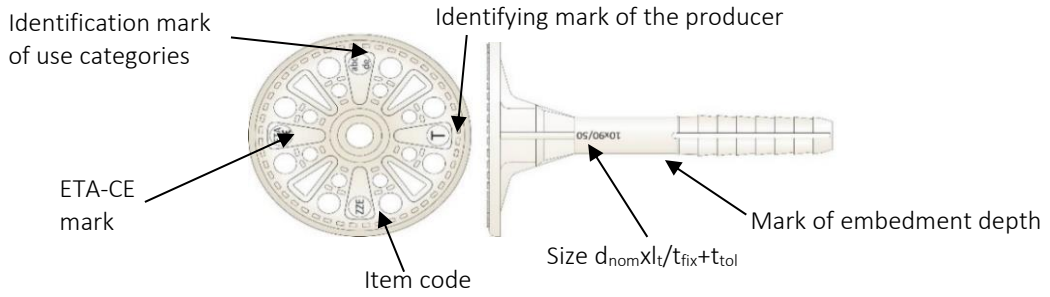
Nail[1)]



[1)]Nails available even in different colors from those shown

Steel Version

Plug



Materials

ITEM	Description	Color
Nail	ZZE01 Fiber glass reinforced virgin polyamide ZZE21 with a body made in steel and head in fiber glass reinforced polyamide	White, Black, Other Color
Plug	Virgin High density Polyethylene	White

Dimensions

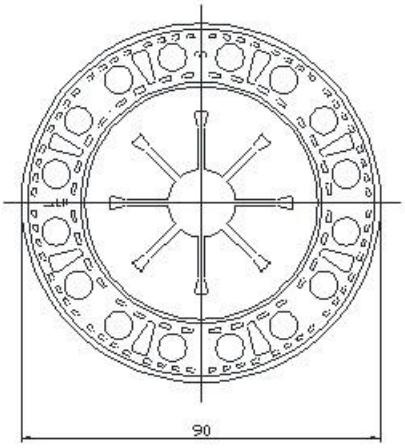
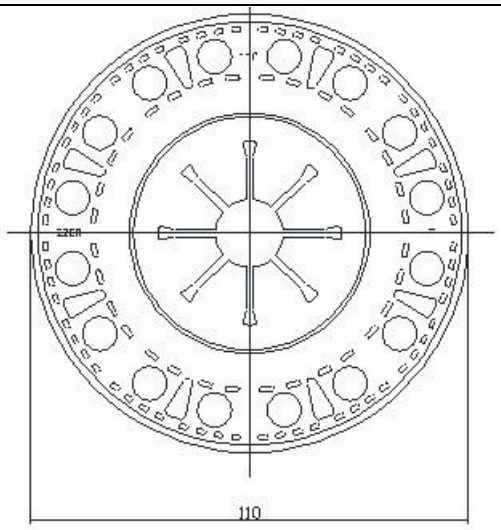
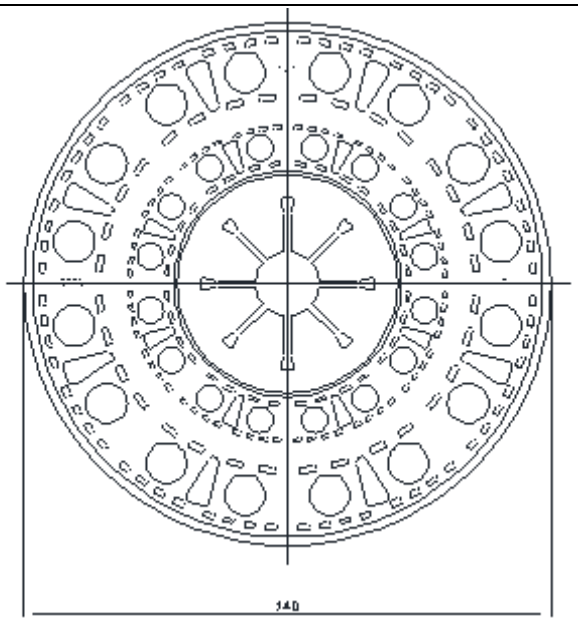
Item code	Plug dimensions (d_{nom} x l_t) [mm]	t_{fix}+t_{tol} [mm]	Anchor's plate diameter Ø [mm]	Nail dimensions (d_n x l_n) [mm]
ZZE xx 10 070	10x70	30	58	6x75
ZZE xx 10 090	10x90	50		6x95
ZZE xx 10 110	10x110	70		6x115
ZZE xx 10 130	10x130	90		6x135
ZZE xx 10 150	10x150	110		6x155
ZZE xx 10 180	10x180	140		6x185
ZZE xx 10 210	10x210	170		6x215
ZZE xx 10 240	10x240	200		6x245

With xx=01-21

Setting tools

Tool	Item code – anchor's size [mm]	Image
Drill bits	EO 01 10 110 – 10x70 and 10x90 EO 01 10 160 – 10x110 and 10x150 EO 01 10 210 – 10x180 EO 01 10 260 – 10x210 and 10x240	
Blowing pump	DW 01 00 001 – all sizes For drill holes deeper than 70 [mm] a blowing pump extension shall be used (alternatively, for the hole cleaning, vacuum cleaner should be used)	

Additional Plates ZZER

Diameter	Drawing	Marks
Ø 90		T; ZZER; Ø90
Ø 110		T; ZZER; Ø110
Ø 140		T; ZZER; Ø140

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 thermal insulation composite system

Base materials:

- Normal weight concrete (use category A) according to Annex C1.
- Solid masonry (use category B), according to Annex C1.
- Hollow or perforated masonry (use category C), according to Annex C1 and C2.
- Lightweight aggregate concrete (use category D), according to Annex C2
- Autoclaved aerated concrete (use category E), according to Annex 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 according to TR051.

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 in accordance with EAD 330196-01-0604 under the responsibility of an engineer experienced in anchorages and masonry work.
- 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 for non-structural applications, according to EAD 330196-01-0604.

Installation:

- Drilling method 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.

Table B1: Installation parameters for use categories A, B, C, D and E

Anchor type				ZZExx Ø10
Nominal drill hole diameter	d_0	=	[mm]	**10**
Cutting diameter of drill bit	d_{cut}	≤	[mm]	**10,45**
Depth of drill hole to deepest point	h_1	≥	[mm]	**50**
Overall plastic anchor embedment depth in the base material	h_{nom}	≥	[mm]	**40**

With xx=01-21

Table B2: Installation parameters for cat. "C" only valid for tested masonry units (see Table C1 Annex 1)

Anchor type				ZZExx Ø10
Nominal drill hole diameter[1)]	d_0	=	[mm]	**10**
Cutting diameter of drill bit	d_{cut}	≤	[mm]	**10,45**
Depth of drill hole to deepest point	h_1	≥	[mm]	**50**
Overall plastic anchor embedment depth in the base material	h_{nom}	≥	[mm]	**40**

1) The hole must be drilled in rotary mode only

With xx=01-21

Table B3: Installation parameters alternative option for use category "E"

Anchor type				ZZExx Ø10
Nominal drill hole diameter	d_0	=	[mm]	**10**
Cutting diameter of drill bit	d_{cut}	≤	[mm]	**10,00[2)]**
Depth of drill hole to deepest point	h_1	≥	[mm]	**50**
Overall plastic anchor embedment depth in the base material	h_{nom}	≥	[mm]	**40**

2) Use a drill bit for metals

With xx=01-21

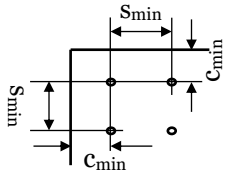
Table B4: Anchor distances and dimensions of members

Anchor type				ZZExx Ø10
Minimum thickness of member for wheater resistant skin of external wall panels	h_{min}[3)]	≥	[mm]	**50**
Minimum thickness of member	h_{min}	≥	[mm]	**100**
Minimum spacing	s_{min}	=	[mm]	**100**
Minimum edge distance	c_{min}	=	[mm]	**100**

3) Only valid for weater resistant skin of external wall panels

With xx=01-21

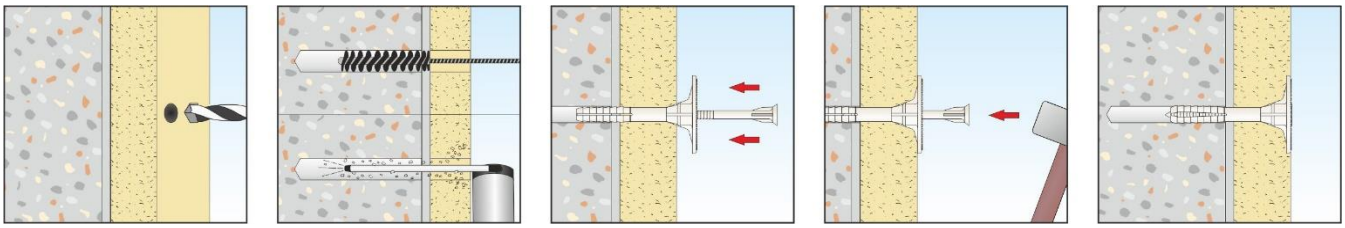
Scheme of distances and spacing



Plastic anchor for the fixing of ETICS, Tecfi ZZE Handyplug Thermo	**Annex B2** of European Technical Assessment ETA-15/0641
Installation parameters for use categories	

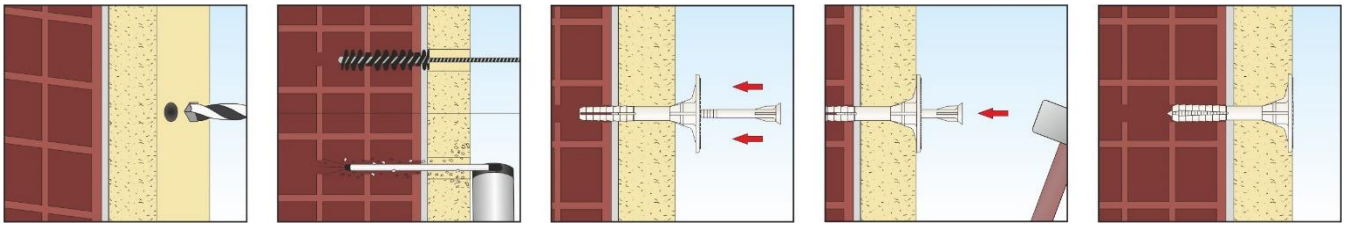
Installation instructions

Installation instructions for use categories A and B



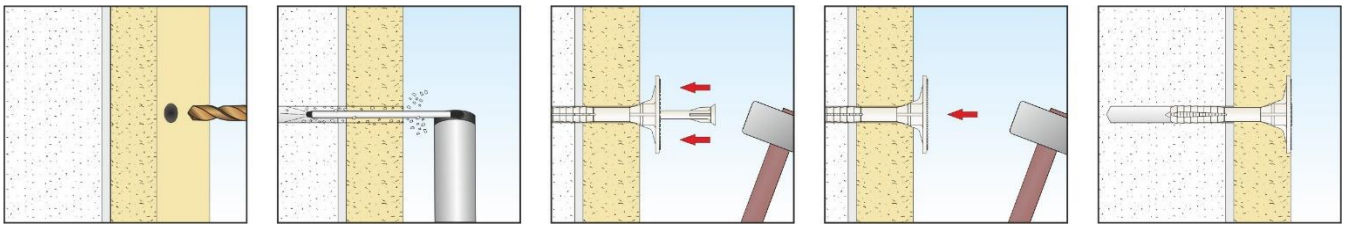
Step1	Drill a hole in the insulating panel and in the concrete in rotary plus hammer mode
Step2	Remove the dust into the hole using a brush and a blowing pump (or an aspirator)
Step3	Hammer the plug in the hole until the anchor's plate is in line with the insulating panel and place the nail
Step4	Hammer the nail in the plug

Installation instructions for use categories C and D



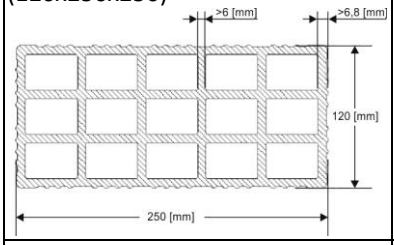
Step1	Drill a hole in the insulating panel and in the concrete in rotary mode
Step2	Remove the dust into the hole using a brush and a blowing pump (or an aspirator)
Step3	Hammer the plug in the hole until the anchor's plate is in line with the insulating panel and place the nail
Step4	Hammer the nail in the plug

Installation instructions for use category E



Step1	Drill a hole in the insulating panel and in the concrete in rotary mode using a drill bit for metals
Step2	Remove the dust into the hole using a brush and a blowing pump (or an aspirator)
Step3	Hammer the plug and the nail together in the hole until the anchor's plate is in line with the insulating panel

Table C1: Characteristic resistance to tension loads N_{Rk} in concrete and masonry for a single anchor in kN

Base material	Bulk density class ρ [kg/m³]	Minimum compressive strength f_b [N/mm²]	Remarks	Drill mode[1)]	Characteristic resistance $N_{Rk,ZZE01}$ [kN]	Characteristic resistance $N_{Rk,ZZE21}$ [kN]
Concrete C 12/15	-		EN 206-1:2000	R+H	**0,75**	**0,55**
Concrete C16/20 - C50/60					**1,1**	**0,75**
Solid masonry type "IBL U11-M" (120x250x55)	1.540	17	EN 771-1:2011	R+H	**1,2**	**1,2**
Hollow masonry type "Toppetti blocco leggero" (120x250x250) 	538	6	EN 771-1:2011	R	**0,35**	**0,35**
Lightweight aggregate concrete type "Leca CLS 1600"	1.600	8	EN 12390-3, EN 206-1	R	**0,2**	**0,2**
		25			**0,6**	**0,6**
Autoclaved Aerated Concrete type "LPMSC"	350	2	EN 771-4	R	**0,10**	**0,10**
Partial safety factor				γ_M[2)]	**2**	

1) H = Hammer drilling, R = Rotary drilling
2) In absence of other national regulations

Table C2: Plate stiffness according to EOTA Technical Report TR 026: 2016-05

Anchor type	Max. size of the anchor plate [mm]	Load resistance of the anchor plate [kN]	Plate stiffness [kN/mm]
ZZExx Ø10	58	1,63	0,3

With xx=01-21

Table C3: Displacements

Base material	Tension load $F_{Rd,ZZE01}$ [kN]	Displacements $\delta_{m,\ ZZE01}$ [mm]	Tension load $F_{Rd,\ ZZE21}$ [kN]	Displacements $\delta_{m,\ ZZE21}$ [mm]
Concrete (use category A)	0,37	0,5	0,25	0,4
Solid masonry (use category B)	0,40	0,6	0,40	0,6
Hollo masonry (use category C)	0,12	0,1	0,12	0,1
Lightweight concrete (use category D)	0,07	0,2	0,07	0,2
Autoclaved Aerated Concrete (use category E)	0,03	0,1	0,03	0,1

Table D1: Point thermal transmittance according to EOTA Technical Report TR 025: 2016-05

Base material group	Description	Point thermal transmittance χ [W/K]	
		For thickness of insulation layer	
		30≤h<150 mm	150≤h≤200 mm
For ZZE01			
A	Normal weight concrete	0,002	0,000
B	Solid masonry	0,002	0,000
C	Hollow or perforated masonry	0,001	0,000
D	Lightweight aggregate concrete with open structure	0,001	0,000
E	Autoclaved aerated concrete	0,001	0,000
For ZZE21			
A	Normal weight concrete	0,004	0,004
B	Solid masonry	0,004	0,004
C	Hollow or perforated masonry	0,003	0,004
D	Lightweight aggregate concrete with open structure	0,002	0,003
E	Autoclaved aerated concrete	0,001	0,003