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European Technical Assessment

ETA 23/0888
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English translation prepared by IETcc. Original version in Spanish language

General Part

Technical Assessment Body issuing the European Technical Assessment:
Instituto de Ciencias de la Construcción Eduardo Torroja (IETcc)

**Trade name of the construction
product**

B-NA nail anchor

**Product family to which the
construction product belongs**

Anchor made of galvanized steel for use in concrete for
redundant non-structural systems.

Manufacturer

Bilontec Industrial S.L.
Bizkargi 6
Poligono Industrial Sarrikola
48195 Larrabetzu (Bizkaia) España

Manufacturing plant

Bilontec plant 2

**This European Technical
Assessment contains**

9 pages with 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**

European Technical Assessment EAD 330747-00-0601
"Fasteners for use in concrete for redundant non-structural
systems", ed. May 2018

This ETA replaces

ETA 23/0888 version 0 issued 17/10/2023



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SPECIFIC PART

1. Technical description of the product

The Bilontec B-NA nail anchor in diameter 6 is an anchor made of galvanized steel. The anchor is installed into a predrilled cylindrical hole and anchored by deformation-controlled expansion.

Product and product description is given in annex A1.

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

2.1 Intended use

This ETA covers fasteners redundant non-structural systems. Redundant non-structural systems mean applications where, if excessive slip or failure of one fastener occurs, it is assumed that the load can be transmitted to adjacent fasteners without violating the requirements on the fixture in the serviceability and ultimate limit state.

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.

2.2 Relevant general conditions for the use of the product

The assessment methods included or referred to in this EAD have been written based on the manufacturer's request to take into account a working life of the fastener for the intended use of 50 years when installed in the works (provided that the fastener is subject to appropriate installation). These provisions are based upon the current state of the art and the available knowledge and experience.

When assessing the product, the intended use as foreseen by the manufacturer shall be taken into account. The real working life may be, in normal use conditions, considerably longer without major degradation affecting the basic requirements for works.

The indications given as to the working life of the construction product cannot be interpreted as a guarantee neither given by the product manufacturer or its representative nor by EOTA when drafting this EAD nor by the Technical Assessment Body issuing an ETA based on this EAD, but are regarded only as a mean for expressing the expected economically reasonable working life of the product.

This ETA covers fasteners for installation in pre-drilled holes in compacted reinforced or unreinforced normal weight concrete without fibers considering annexes B and C.

3. Performance of the product and references to the methods used for its assessment

The identification tests and the assessment for the intended use of this product according to the Basic Work Requirements (BWR) were carried out in compliance with EAD 330747-00-0601, The characteristics of each system shall correspond to the respective values laid down in following tables of this ETA, checked by IETcc.

Methods of verification and of assessing and judging are listed afterwards.

3.1 Safety in case of fire (BWR 2)



Essential characteristic	Relevant clause in EAD	Performance	Annex
Reaction to fire	----	Anchorage satisfy requirements for class A1 according to EN 13501-1	--
Fire resistance	2.2.12	$F_{Rk,fi}^0$ [kN] $M_{Rk,S,fi}^0$ [Nm]	C3

3.2 Safety and accessibility in use (BWR 4)

Essential characteristic	Relevant clause in EAD	Performance	Annex
Characteristic resistance for all load directions and modes of failure	2.2.10	F_{Rk}^0 [kN] s_{cr} [mm] c_{cr} [mm]	C3
Durability	2.2.11	Zinc plated	A1

4. Assessment and Verification of Constancy of Performance (hereinafter AVCP) system applied, with reference to its legal base

The applicable European legal act for the system of Assessment and Verification of Constancy of Performance (see annex V to Regulation (EU) No 305/2011) is 97/161/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 European Assessment Document.

Technical details necessary for the implementation of the AVCP system are laid down in the quality plan which is deposited at IETcc⁽¹⁾.

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Issued in Madrid on 28th of April 2025

Mr. Ángel Castillo Talavera

Director

on behalf of Instituto de Ciencias de la Construcción Eduardo Torroja

⁽¹⁾ The Quality Plan is a confidential part of the ETA and only handed over to the notified certification body involved in the assessment and verification of constancy of performance.



Product versions

B-NA Nail anchor



B-NA-C



B-NA-E



B-NA-F



B-NA-G



B-NA-R

Marking: clip: "B-NA" + "Ø6" + company logo

Table A1: Materials

Item	Designation	Material for B-NA
1	Anchor body	Carbon steel, galvanized $\geq 5 \mu\text{m}$ ISO 4042 Zn5
2	Clip	Carbon steel, sherardized $\geq 40 \mu\text{m}$ EN 13811
3	Washer	Galvanized $\geq 5 \mu\text{m}$ ISO 4042 Zn5
4	Nut	DIN 934 class 6, galvanized $\geq 5 \mu\text{m}$ ISO 4042 Zn5
5	Coupling nut	Galvanized $\geq 5 \mu\text{m}$ ISO 4042 Zn5

B-NA Nail anchor

Product description

Product versions and materials

Annex A1



Specifications of intended use

Anchorage subjected to:

- Static or quasi static loads in redundant non-structural systems.
- Use for anchorages with requirements related to resistance of fire.
- The anchor may only be used if in the design and installation specifications for the fixture the excessive slip or failure of one anchor will not result in a significant violation of the requirements on the fixture in the serviceability and ultimate state.

Base materials:

- Reinforced or unreinforced normal weight concrete without fibres according to EN 206-1:2013+A2:2021.
- Strength classes C20/25 to C50/60 according to EN 206-1:2013+A2:2021.
- Cracked or uncracked concrete

Use conditions (environmental conditions):

- Temperature range of the anchorage base material during the working life: -40 °C to +80 °C.
- Anchorages subjected to dry internal conditions.

Design:

- Anchorages are designed under the responsibility of an engineer experienced in anchorages and concrete.
- Verifiable calculation rules and drawings are prepared taking into account of the loads to be anchored. The position of the anchor is indicated on the design drawings (e.g. position of the anchor relative to reinforcement or to supports, etc.).
- Anchorages under static or quasi-static actions are designed for design method C in accordance with EN 1992-4:2018
- Anchorages under fire exposure are designed in accordance to EN 1992-4:2018. It must be ensured that local spalling of the concrete cover does not occur.

Installation:

- Hole drilling by rotary plus hammer mode.
- Anchor installation carried out by appropriately qualified personal and under the supervision of the person responsible for technical matters of the site.
- In case of aborted hole: new drilling at a minimum distance away of twice the depth of aborted hole or smaller distance if the aborted hole is filled with high strength mortar and if under shear or oblique tension load it is not the direction of the load application.
- Anchor installation such the embedment depth is met.

B-NA Nail anchor

Intended use

Specifications

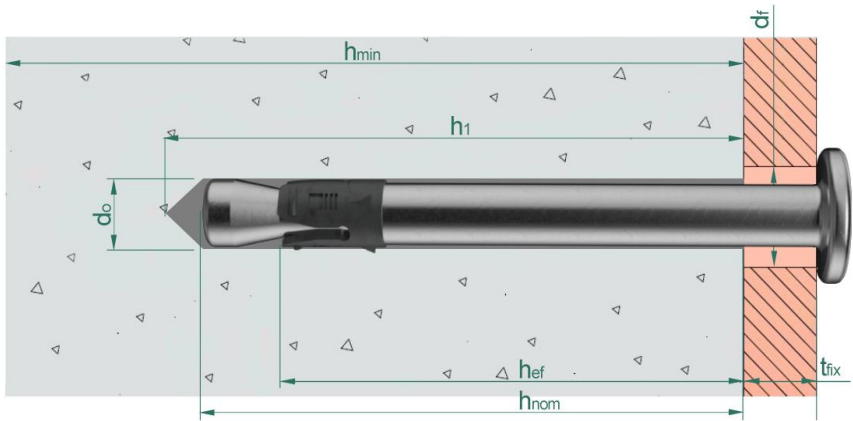
Annex B1



Table C1: Installation parameters

Installation parameters			Performances									
			B-NA-C		B-NA-E		B-NA-F		B-NA-R		B-NA-G	
d ₀	Drill bit nominal diameter:	[mm]	6		6		6		6		6	
d _t	Thread diameter:	[mm]	---		M6		M8/M10		---		---	
d _f	Fixture clearance hole diameter	[mm]	7		7		7		---		---	
T _{ins}	Installation torque:	[Nm]	---		7		---		---		---	
h ₁	Depth of drilled hole:	[mm]	35	40	35	40	35	40	35	40	35	40
h _{nom}	Overall anchor embedment depth:	[mm]	30	35	30	35	30	35	30	35	30	35
h _{ef}	Effective anchorage depth:	[mm]	25	30	25	30	25	30	25	30	25	30
h _{min}	Minimum thickness of concrete member:	[mm]	80		80		80		80		80	
t _{fix}	Fixture thickness ¹⁾ ≤	[mm]	L-30	L-35	L-39	L-44	--		--		--	
C _{cr}	Edge distance:	[mm]	50	65	50	65	50	65	50	65	50	65
S _{min}	Minimum allowable spacing	[mm]	35		35		35		35		35	
	for c ≥	[mm]	50		50		50		50		50	
C _{min}	Minimum allowable edge distance	[mm]	35		35		35		35		35	
	for s ≥	[mm]	80		80		80		80		80	

¹⁾ L = anchor length



- d₀: drill bit nominal diameter
- d_t: thread diameter
- d_f: fixture clearance hole diameter
- h_{ef}: effective anchorage depth
- h₁: depth of drilled hole
- h_{min}: minimum thickness of concrete member
- h_{nom}: overall anchor embedment depth
- t_{fix}: fixture thickness

B-NA Nail anchor	Annex C1
Performances	
Installation parameters	



Installation procedure

B-NA-C						
B-NA-E						
B-NA-F						
B-NA-R						
B-NA-G						

B-NA Nail anchor

Performances

Installation procedure

Annex C2



Table C2: Essential characteristics in concrete of design method C according to EN 1992-4

Characteristic resistance in concrete C20/25 to C50/60 for all loads directions and failure modes			Performances									
			B-NA-C		B-NA-E		B-NA-F		B-NA-R		B-NA-G	
h_{nom}	Embedment depth:	[mm]	30	35	30	35	30	35	30	35	30	35
h_{ef}	Effective depth:	[mm]	25	30	25	30	25	30	25	30	25	30
F_{Rk}^0	Characteristic resistance in concrete C20/25 to C50/60:	[kN]	3,0	5,0	3,0	5,0	3,0	5,0	1,5	1,5	1,5	1,5
γ_{ins}	Robustness:	[-]	1,2	1,0	1,2	1,0	1,2	1,0	1,2	1,0	1,2	1,0
Shear loads: steel failure with lever arm												
$M_{Rk,s}^0$	Characteristic bending moment:	[Nm]	12,1		12,1		12,10		NA		NA	
γ_{Ms}	Partial safety factor: ¹⁾	[-]	1,25		1,25		1,25		NA		NA	

¹⁾ In absence of other national regulations

Table C3: Essential characteristics under fire exposure in concrete according to EN 1992-4

Characteristic resistance under fire exposure in concrete C20/25 to C50/60 for all load directions and failure modes			Performances				
			B-NA-C	B-NA-E	B-NA-F	B-NA-R	B-NA-G
$F_{Rk,fi30}^0$	Characteristic resistance, 30 minutes	[kN]	1,43	0,27	0,44	0,27	0,27
$F_{Rk,fi60}^0$	Characteristic resistance, 60 minutes	[kN]	9,97	0,24	0,40	0,24	0,24
$F_{Rk,fi90}^0$	Characteristic resistance, 90 minutes	[kN]	5,67	0,19	0,37	0,19	0,19
$F_{Rk,fi120}^0$	Characteristic resistance, 120 minutes	[kN]	3,52	0,14	0,36	0,14	0,14
$M_{Rk,s,fi30}^0$	Characteristic bending moment, 30 minutes	[Nm]	1,05	0,20	0,32	NA	NA
$M_{Rk,s,fi60}^0$	Characteristic bending moment, 60 minutes	[Nm]	0,74	0,18	0,30	NA	NA
$M_{Rk,s,fi90}^0$	Characteristic bending moment, 90 minutes	[Nm]	0,42	0,14	0,27	NA	NA
$M_{Rk,s,fi120}^0$	Characteristic bending moment, 120 minutes	[Nm]	0,26	0,10	0,26	NA	NA

¹⁾ in absence of other national regulations the partial safety factor for resistance under fire exposure $\gamma_{M,fi}$ =1.0 is recommended.

²⁾ If fire attack is from more than one side, the design method may be taken if edge distance of the anchor is $c \geq 300$ mm

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B-NA Nail anchor

Performances

Essential characteristics in concrete

Essential characteristics under fire exposure

Annex C3

