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European Technical Assessment

**ETA 23/0888
of 17/10/2023**

English translation prepared by IETcc. Original version in Spanish language

General Part

**Technical Assessment Body issuing
the ETA designated according to
Art. 29 of Regulation (EU) 305/2011:**

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
48915 Larrabetzu (Bizkaia)
Spain.

Manufacturing plants

Bilontec plant 2

**This European Technical
Assessment contains**

9 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**

European Assessment Document 330747-00-
0601 "Fasteners for use in concrete in redundant
non-structural systems", edition May 2018



This European Technical Assessment is issued by the Technical Assessment Body in its official language. Translations of this European Technical Assessment in other languages shall fully correspond to the original issued document and should be identified as such.

This European Technical Assessment may be withdrawn by the issuing Technical Assessment Body, in particular pursuant to information by the Commission according to article 25 (3) of Regulation (EU) No 305/2011.



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 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 verifications 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 50 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 mean to 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)

Essential characteristic	Performance
Reaction to fire	Anchorage satisfy requirements for class A1
Essential characteristics under fire exposure	See annex C3

3.2 Safety in use (BWR 4)

Essential characteristic	Performance
Essential characteristics in concrete	See annex C3

4. Assessment and Verification of Constancy of Performances (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 Performances (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.

The technical details necessary for the implementation of the AVCP system are laid down in the quality plan deposited at Instituto de Ciencias de la Construcción Eduardo Torroja.



Instituto de ciencias de la construcción Eduardo Torroja
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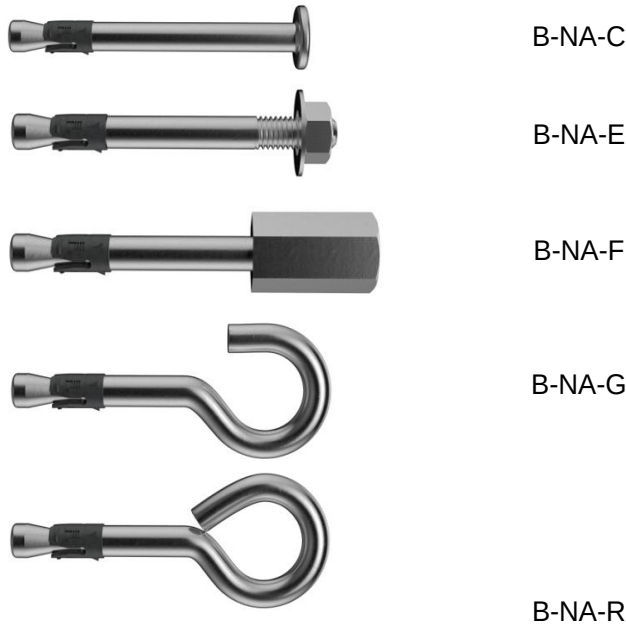
On behalf of the Instituto de Ciencias de la Construcción Eduardo Torroja
Madrid, 17th of October 2023,

Director IETcc - CSIC



Product versions

B-NA Nail anchor



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 B 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.
- Anchor expansion by impact on the tip up to the specified embedment depth.

B-NA Nail anchor

Intended use

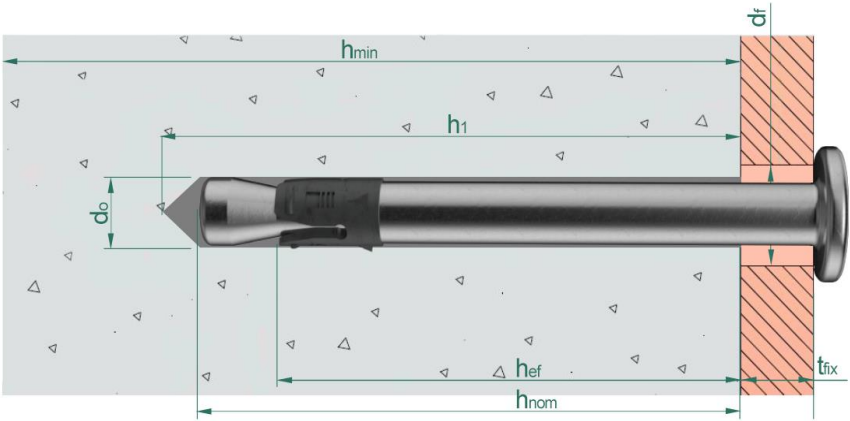
Specifications

Annex B1



Table C1: Installation parameters for B-NA Nail anchor

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	
h_{min}	Thread diameter	[mm]	---		M6		M8/M10		---		---	
d_f	Fixture clearance hole diameter $\leq$	[mm]	7		7		7		---		---	
T_{ins}	Maximum 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	
C_{cr}	Critical 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 $c \geq$	[mm]	50		50		50		50		50	
C_{min}	Minimum allowable edge distance	[mm]	35		35		35		35		35	
	for $s \geq$	[mm]	80		80		80		80		80	



d_0 : nominal diameter of drill bit
 d_f : fixture clearance of hole diameter
 h_{ef} : effective anchorage depth
 h_1 : depth of drilled hole
 h_{min} : minimum thickness of concrete member
 h_{nom} : nominal embedment depth
 t_{fix} : fixture thickness

B-NA Nail anchor	Annex C1
Performances	
Installation parameters	



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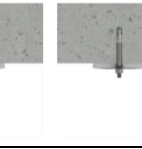
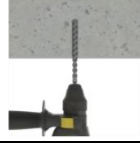
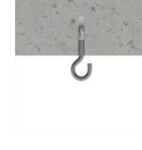
Installation procedure						
B-NA-C						
B-NA-E						
B-NA-F						
B-NA-R						
B-NA-G						
B-NA Nail anchor						Annex C1
Performances						
Installation procedure						



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

Characteristic resistance in concrete to loads in concrete C20/25 to C50/60 in any load direction			B-NA anchor									
			B-NA-C		B-NA-E		B-NA-F		B-NA-R		B-NA-G	
Any load direction												
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 ⁰ _{Rk}	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}	Installation factor	[-]	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 ⁰ _{Rk,s}	Characteristic bending moment	[Nm]	12,1		12,1		12,10		NA		NA	
γ _{Ms}	Partial safety factor	[-]	1,25		1,25		1,25		NA		NA	

Table C3: Essential characteristics under fire exposure in concrete in any load direction according to EN 1992-4 for NA nail anchor

Characteristic resistance under fire exposure in concrete C20/25 to C50/60 in any load direction			B-NA anchor				
			B-NA-C	B-NA-E	B-NA-F	B-NA-R	B-NA-G
$F_{Rk,fi30}^0$	Characteristic resistance, 30 minutes	[kN]	0,27	0,27	0,27	0,27	0,27
$F_{Rk,fi60}^0$	Characteristic resistance, 60 minutes	[kN]	0,24	0,24	0,24	0,24	0,24
$F_{Rk,fi90}^0$	Characteristic resistance, 90 minutes	[kN]	0,19	0,19	0,19	0,19	0,19
$F_{Rk,fi120}^0$	Characteristic resistance, 120 minutes	[kN]	0,14	0,14	0,14	0,14	0,14
$M_{Rk,s,fi30}^0$	Bending moment, 30 minutes	[Nm]	0,20	0,20	0,20	NA	NA
$M_{Rk,s,fi60}^0$	Bending moment, 60 minutes	[Nm]	0,18	0,18	0,18	NA	NA
$M_{Rk,s,fi90}^0$	Bending moment, 90 minutes	[Nm]	0,14	0,14	0,14	NA	NA
$M_{Rk,s,fi120}^0$	Bending moment, 120 minutes	[Nm]	0,10	0,10	0,10	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

B-NA Nail anchor

Performances

Essential characteristics in concrete
Essential characteristics under fire exposure

Annex C3

