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European Technical Assessment

ETA 24/1221
23/01/2025

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**

Screw anchors B-SFT

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

Screw anchor of size 6 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

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FIRMANTE(1) : ANGEL CASTILLO TALAVERA | FECHA : 27/01/2025 14:47 | Sin acción específica



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SPECIFIC PART

1. Technical description of the product

The Bilontec screw anchor B-SFT is a fastener made of carbon steel of size 6. The fastener is installed into a predrilled cylindrical drilled hole. The anchorage is characterised by mechanical interlock between fastener thread and concrete.

Product and installation descriptions are given in annex A1 y C2.

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: SFP, SHT, SHM: SHP, SHT, SHM:	2.2.11	Zinc plated Atlantis coated	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⁾.

Prepared by: PhD Julián Rivera (Innovative Products Assessment Unit, IETcc-CSIC)

Issued in Madrid on 23TH of January 2025

Mr. Ángel Castillo Talavera

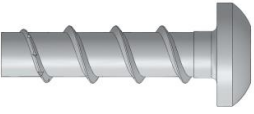
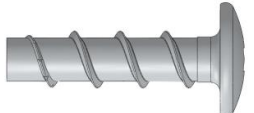
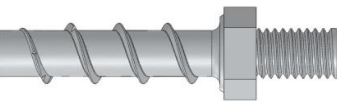
Director

on behalf of Instituto de Ciencias de la Construcción Eduardo Torroja (IETcc – CSIC)

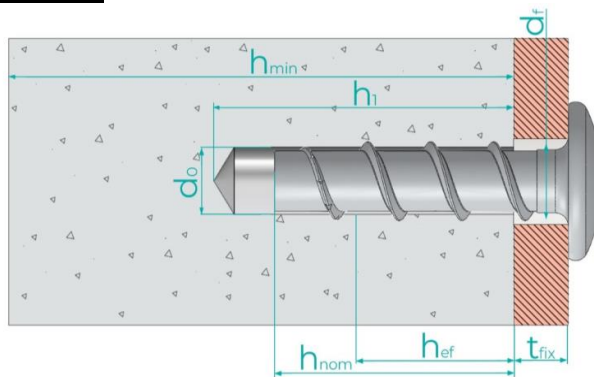
⁽¹⁾ The Quality Plan is a confidential part of the ETA and only handed over to the notified certification body involved in the assessment and verification of constancy of performance.



Product types

Picture	Sizes	Code	Coating
	Pan head. Six lob recess	B-SFP	Zinc plated
		B-SHP	Atlantis
	Truss head. Six lob recess	B-SFT	Zinc plated
		B-SHT	Atlantis
	Male thread External thread M6	B-SFM	Zinc plated
		B-SHM	Atlantis

Installed condition in concrete



- d_0 : Nominal diameter of drill bit
- d_f : Fixture clearance hole diameter
- h_{ef} : Effective anchorage depth
- h_1 : Depth of drilled hole
- h_{nom} : Overall fastener embedment depth in the concrete
- h_{min} : Minimum thickness of concrete member
- t_{fix} : Fixture thickness

Identification on head of fastener: company logo + size x length

Table A1: Materials

Item	Designation	Material for screw anchor
1	Fastener body	Carbon steel, galvanized $\geq 5 \mu\text{m}$ ISO 4042 Zn5 Carbon steel, Atlantis coating

B-SFT screw anchor

Product description

Screw types, installed condition in concrete and materials

Annex A1



Specifications of intended use

Anchorage subjected to:

- Static or quasi static loads for 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 fibers according with EN 206:2013 + A2:2021
- Strength classes C20/25 to C50/60 according with EN 206:2013 + A2:2021
- Cracked or uncracked concrete.

Use conditions (environmental conditions):

- Anchorages subjected to dry internal conditions.

Design:

- Anchorages are designed under the responsibility of an engineer experienced in anchorages and concrete work.
- Verifiable calculation rules and drawings are prepared taking into account of the loads to be anchored. The position of the fastener is indicated on the design drawings (e.g. position of the fastener 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 with 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.
- Fastener 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 non-shrinkage mortar with a strength at least or equal of the base material and $\geq 40 \text{ N/mm}^2$.
- Use of impact screwdriver is not allowed. For installation with an electrical screwdriver please note the installation torque. The anchor is correct installed if the head of the anchor is supported on the fixture and further turning of the anchor is not possible.

B-SFT screw anchor

Intended use

Specifications

Annex B1



Table C1: Installation parameters in concrete

Installation parameters in concrete			Performances
			6
d_0	Drill bit nominal diameter	[mm]	6
d_f	Fixture clearance hole diameter $\leq$	[mm]	7
h_1	Depth of drilled hole	[mm]	30
h_{nom}	Overall anchor embedment depth	[mm]	25
T_{ins}	Installation torque $\leq$	[Nm]	10
h_{ef}	Effective anchorage depth	[mm]	18,7
h_{min}	Minimum thickness of concrete member	[mm]	80
C_{cr}	Edge distance	[mm]	40
S_{cr}	Spacing	[mm]	45

B-SFT screw anchor

Performances

Installation parameters

Annex C1



Installation procedure



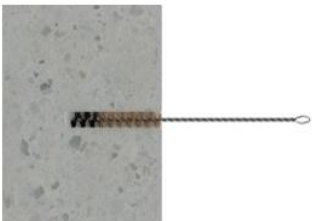
1. DRILL

Drill a hole into the base material of the correct diameter and depth using a carbide drill bit in rotary plus hammer mode.



2. BLOW AND CLEAN

Remove dust and debris from hole using a hand pump, compressed air or a vacuum to remove loose particles left from drilling.



3. INSTALL

Select a torque wrench that does not exceed the installation torque T_{inst} . Attach an appropriate sized hex socket or six lob bit to the wrench. Mount the screw anchor head in the socket / bit. Drive the anchor with a torque wrench through the fixture and into the hole until the anchor head comes in contact with the fixture.



The anchor must be snug after installation.



Use of impact screwdriver is not allowed. For installation with an electrical screwdriver please note the installation torque. The anchor is correct installed if the head of the anchor is supported on the fixture and further turning of the anchor is not possible.



B-SFT screw anchor

Performances

Installation procedure

Annex C2



Table C2: Characteristic values in concrete of design method C according with EN 1992-4

Characteristic values for all load directions and failure modes			Performances
			6
All load directions			
F_{Rk}^0	Characteristic resistance in concrete C20/25 to C50/60	[kN]	2.0
γ_{inst}	Robustness:	[-]	1.2
s_{cr}	Spacing:	[mm]	45
c_{cr}	Edge distance:	[mm]	40
Shear loads: steel failure with lever arm			
$M_{Rk,s}^0$	Characteristic bending moment	[Nm]	15.76
γ_{Ms}	Partial safety factor ¹⁾ :	[-]	1.25
Fire exposure resistance			
$F_{Rk,fi30}^0$	Characteristic fire resistance, 30 minutes	[kN]	0.24
$F_{Rk,fi60}^0$	Characteristic fire resistance, 60 minutes	[kN]	0.21
$F_{Rk,fi90}^0$	Characteristic fire resistance, 90 minutes	[kN]	0.17
$F_{Rk,fi120}^0$	Characteristic fire resistance, 120 minutes	[kN]	0.12
$M_{Rk,fi30}^0$	Characteristic fire bending moment, 30 minutes	[Nm]	0.16
$M_{Rk,fi60}^0$	Characteristic fire bending moment, 60 minutes	[Nm]	0.15
$M_{Rk,fi90}^0$	Characteristic fire bending moment, 90 minutes	[Nm]	0.11
$M_{Rk,fi120}^0$	Characteristic fire bending moment, 120 minutes	[Nm]	0.08

¹⁾ In absence of other national regulations

B-SFT screw anchor

Performances

Characteristic values for loads in concrete

Annex C3

