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Designated according to Article 29 of Regulation (EU) No 305/2011 and member of EOTA (European Organisation for Technical Assessment)

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European Technical Assessment

ETA-20/0883 of 29/12/2020

General Part

Technical Assessment Body issuing the European Technical Assessment	Instytut Techniki Budowlanej
Trade name of the construction product	G&B Fissaggi BETA Acciaio CE
Product family to which the construction product belongs	Deformation-controlled expansion anchors for multiple use for non-structural applications in concrete
Manufacturer	G&B FISSAGGI S.r.l. Corso Savona, 22 10029 Villastellone (TO) Italy
Manufacturing plant(s)	G&B Fissaggi Plant B
This European Technical Assessment contains	10 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 (EAD) 330747-00-0601 “Fasteners for use in concrete for redundant non-structural systems”

Specific Part

1 Technical description of the product

The G&B Fissaggi BETA Acciaio CE are deformation-controlled expansion anchors. The anchors are made of zinc plated steel.

The anchor is installed in a drilled hole and anchored by deformation-controlled expansion.

The description of the product 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 anchors are used in compliance with the specifications and conditions given in Annex B.

The performances given in this European Technical Assessment are based on an assumed working life of the anchor of 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 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 Performance of the product

3.1.1 Safety in case of fire (BWR 2)

Essential characteristic	Performance
Reaction to fire	Anchors satisfy requirements for Class A1
Resistance to fire	See Annex C2

3.1.2 Safety and accessibility in use (BWR 4)

Essential characteristic	Performance
Characteristic resistance for all load directions	See Annex C1
Edge distances and spacing	See Annex C1

3.2 Methods used for the assessment

The assessment of the products has been made in accordance with EAD 330747-00-0601 “Fasteners for use in concrete for redundant non-structural systems”.

4 Assessment and verification of constancy of performance (AVCP) system applied, with reference to its legal base

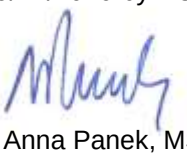
According to Decision 97/161/EC of the European Commission the system 2+ of assessment and verification of constancy of performance (see Annex V to Regulation (EU) No 305/2011).

5 Technical details necessary for the implementation of the AVCP system, as provided for in the applicable European Assessment Document (EAD)

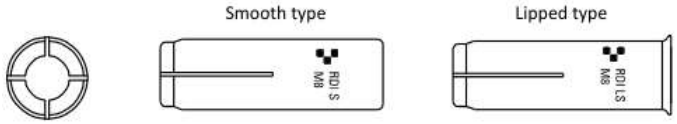
Technical details necessary for the implementation of the AVCP system are laid down in the control plan deposited at Instytut Techniki Budowlanej.

For type testing the results of the tests performed as part of the assessment for the European Technical Assessment shall be used unless there are changes in the production line or plant. In such cases the necessary type testing has to be agreed between Instytut Techniki Budowlanej and the notified body.

Issued in Warsaw on 29/12/2020 by Instytut Techniki Budowlanej

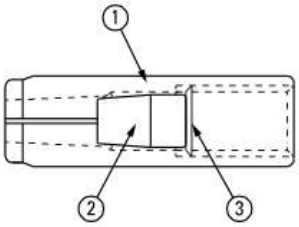


Anna Panek, MSc
Deputy Director of ITB

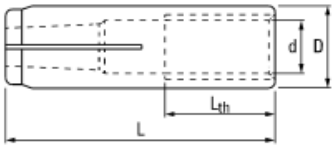


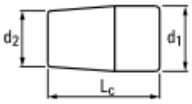
Marking on the body

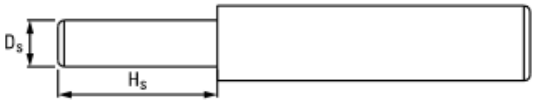
1. **RDI S** anchor identification and type
   S – Steel smooth type **LS** – Steel lipped type
2. **M8** anchor size
3. producer identification



① Expansion Sleeve
② Expansion Plug
③ Retainer Disk







Dimensions								
Anchor size			**M6**	**M8**	**M10H**	**M10**	**M12**	**M12D**
Expansion sleeve								
Sleeve diameter	D	[mm]	8	10	12	12	15	16
Sleeve length	L	[mm]	25	30	30	40	50	50
Thread	d	[-]	M6	M8	M10	M10	M12	M12
Thread length	L_{th}	[mm]	11	13	12	17	21	21
Expansion plug								
Plug diameter	d_1	[mm]	5,0	6,5	8,0	8,0	10,1	10,1
Plug diameter	d_2	[mm]	4,0	5,5	6,9	6,5	8,5	8,5
Plug length	L_c	[mm]	10	12	11	15	20	20
Installation pin								
Setting pin diameter	D_s	[mm]	4,8	6,6	7,8	7,8	9,6	9,6
Setting pin length	H_s	[mm]	15	18	18	25	30	30

Materials		
Element	**Material**	**Protection**
Expansion sleeve	Q195 acc. to GB/T 700	zinc coating (≥ 5 µm); electroplated acc. to EN ISO 4042
Expansion plug	Q195 acc. to GB/T 700	

G&B Fissaggi BETA Acciaio CE

Product description
Characteristic of the product

Annex A1

of European Technical Assessment ETA-20/0883

Specification of intended use

Anchorages subject to:

- Multiple use for non-structural application.
- Static and quasi-static loads.
- Anchorages with requirements related to resistance to fire.

Base material:

- Reinforced or unreinforced normal weight concrete of strength class C20/25 to C50/60 to EN 206:2013+A1:2016.
- Non-cracked and cracked concrete.

Use conditions (environmental conditions):

- Structures subject to dry internal conditions.

Design:

- Anchorages are designed under the responsibility of an engineer experienced in anchorages and concrete work.
- Verifiable calculation notes and drawings are prepared taking account of the loads to be transmitted. 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 and quasi-static loads and under fire exposure are designed in accordance with EN 1992-4:2018.
- Fasteners are only to be used for multiple use for non-structural applications acc. to EAD 330747-00-0601.

Installation:

- Anchor installation carried out by appropriately qualified personnel and under the supervision of the person responsible for technical matters of the site.
- Use of the anchor only as supplied by the manufacturer without exchanging any component of the anchor.
- Anchor installation in accordance with the manufacturer's specifications and drawings and using the appropriate tools.
- Check of concrete being well compacted, e.g. without significant voids.
- Positioning of the drill holes without damaging the reinforcement.
- In case of aborted hole: new drilling at a minimum distance away of twice the depth of the aborted hole or smaller distance if the aborted drill hole is filled with high strength mortar and if under shear or oblique tension load it is not in the direction of load application.
- Anchor installation such that the effective anchorage depth is complied with.

G&B Fissaggi BETA Acciaio CE	**Annex B1** of European Technical Assessment ETA-20/0883
Intended use Specifications	

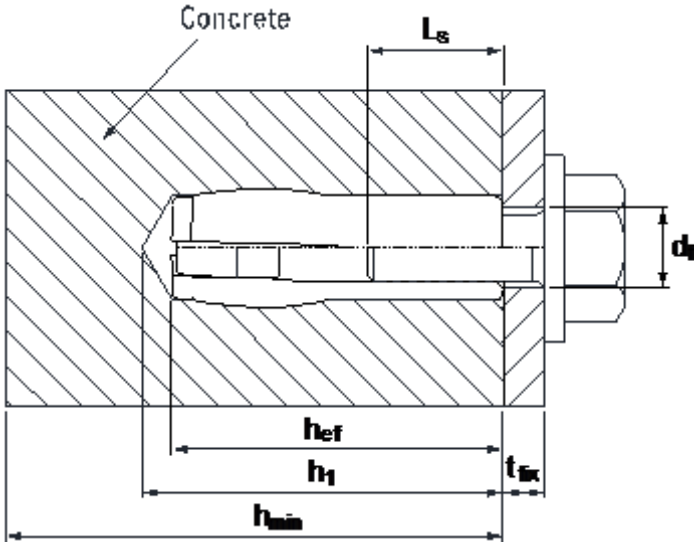
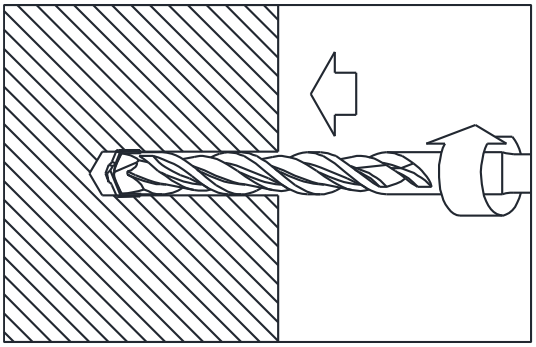


Table B1: Installation parameters

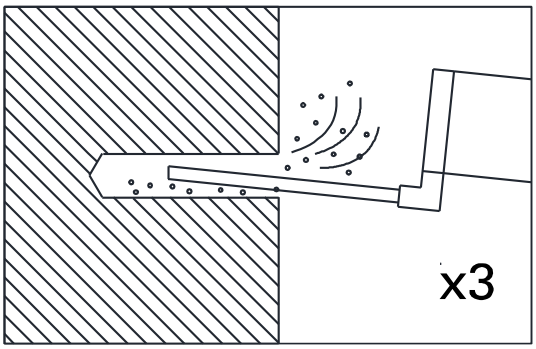
Anchor			**G&B Fissaggi BETA Acciaio CE**					
Size			**M6**	**M8**	**M10H**	**M10**	**M12**	**M12D**
Effective anchorage depth	h_{ef}	[mm]	25	30	30	40	50	50
Drill hole depth	h_1	[mm]	28	33	33	43	54	54
Drill hole diameter	d_0	[mm]	8	10	12	12	15	16
Installation torque (max)	T_{inst}	[mm]	4	8	15	15	35	35
Thickness of concrete member (min)	h_{min}	[mm]	80	80	80	80	100	100
Screwing depth (min)	$L_{s, min}$	[mm]	6	8	8	10	12	12
Screwing depth (max)	$L_{s, max}$	[mm]	11	13	12	17	21	21
Diameter of clearance hole in the fixture	d_f	[mm]	7	9	12	12	14	14
Spacing (min)	s_{min}	[mm]	200	200	200	200	200	200
Edge distance (min)	c_{min}	[mm]	150	150	150	150	150	150

Fastening screws or anchor threaded rods:

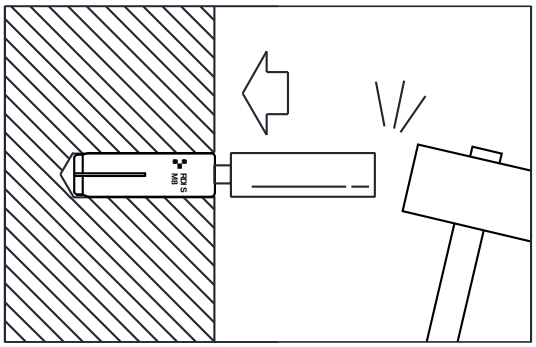
Steel, property class 4.6 / 4.8 / 5.8 / 6.8 / 8.8 according to EN-ISO 898-1; thickness of galvanizing ≥ 5 μm



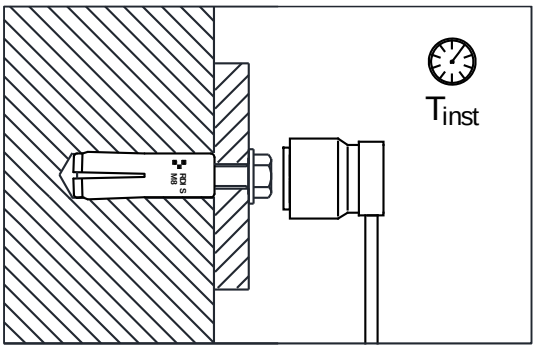
Drill hole with rotary percussive machine. Drill to a required depth.



Blow out dust at least 3 times with a hand pump.



Put the anchor into the drill hole, hammering with the installation tool, until the setting pin fully insert into the anchor.



Fix the fixture by screw or threaded rod with max. T_{inst}

G&B Fissaggi BETA Acciaio CE	**Annex B3** of European Technical Assessment ETA-20/0883
Intended use Installation instruction and tools	

Table C1: Characteristic resistance in concrete C20/25 to C50/60 (design method B)

Anchor			**G&B Fissaggi BETA Acciaio CE**					
Size			**M6**	**M8**	**M10H**	**M10**	**M12**	**M12D**
All load directions (fastening screw or threaded rod property class ≥ 4.6)								
Characteristic resistance in concrete C20/25 to C50/60	F_{Rk}	[kN]	1,5	2,0	3,0	3,0	4,0	5,0
Installation safety factor	γ_{inst}	[-]	1,4	1,4	1,4	1,4	1,4	1,4
Spacing	s_{cr}	[mm]	200	200	200	200	200	200
Edge distance	c_{cr}	[mm]	150	150	150	150	150	150
Minimum member thickness	h_{min}	[mm]	80	80	80	80	100	100
Shear load: steel failure with lever arm								
Characteristic bending moment: screw class 4.6	$M^0_{Rk,S}$	[Nm]	6,1	15,0	29,9	29,9	52,4	52,4
Characteristic bending moment: screw class 4.8	$M^0_{Rk,S}$	[Nm]	6,1	15,0	29,9	29,9	52,4	52,4
Characteristic bending moment: screw class 5.8	$M^0_{Rk,S}$	[Nm]	7,6	18,8	37,4	37,4	65,6	65,6
Characteristic bending moment: screw class 6.8	$M^0_{Rk,S}$	[Nm]	9,2	22,5	44,9	44,9	78,7	78,7
Characteristic bending moment: screw class 8.8	$M^0_{Rk,S}$	[Nm]	12,2	30,0	59,9	59,9	104,9	104,9

Table C2: Characteristic resistance under fire exposure in concrete C20/25 to C50/60 (design method B)

Anchor			**G&B Fissaggi BETA Acciaio CE**					
Size			**M6**	**M8**	**M10H**	**M10**	**M12**	**M12D**
Fire resistance class (fastening screw or threaded rod property class ≥ 4.6)								
R30	Characteristic resistance $F_{Rk,fi}$[1)]	[kN]	0,2	0,5	0,8	0,8	1,0	1,3
R60		[kN]	0,2	0,5	0,8	0,8	1,0	1,3
R90		[kN]	0,1	0,4	0,8	0,8	1,0	1,1
R120		[kN]	0,1	0,3	0,6	0,6	0,8	0,8
Spacing	$s_{cr,fi}$	[mm]	4 x h_{ef}					
Edge distance	$c_{cr,fi}$	[mm]	2 x h_{ef}					

The design method covers anchors with a fire attack from one side only. In case of fire attack from more than one side, the edge distance shall be ≥ 300 mm.

[1)] in the absence of other national regulations a partial safety factor $\gamma_{m,fi}$ = 1,0 is recommended