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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-21/0150 of 2021/02/10

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:	TAB H and TAB F Concrete screws
Product family to which the above construction product belongs:	Mechanical fasteners for use in non-cracked concrete
Manufacturer:	Trutek Fasteners Polska Sp z o.o. Al. Krakowska 38 Janki PL-05-090 Raszyn Tel. +48 22 701 93 24 Fax +48 22 100 58 82 Internet www.trutek.com.pl
Manufacturing plant:	Trutek Fasteners Polska Sp z o.o. Factory Plant no 8
This European Technical Assessment contains:	12 pages including 7 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 330232-00-0601; Mechanical fasteners for use in concrete
This version replaces:	

II SPECIFIC PART OF THE EUROPEAN TECHNICAL ASSESSMENT

1 Technical description of product and intended use

Technical description of the product
TAB H and TAB F Concrete screws are concrete screws made of galvanized steel. The anchor is installed in a drilled hole and anchored by deformation-controlled expansion.

An illustration of the product is given in Annex A.

The characteristic material values, dimensions and tolerances of the anchors not indicated in Annexes shall correspond to the respective values laid down in the technical documentation of this European Technical Assessment.

The anchors are intended to be used with embedment depth given in Annex B, Table B1. The intended use specifications of the product are detailed in the Annex B1.

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

The provisions made in this European Technical Assessment are based on an assumed intended 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 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 are detailed in the Annex from C1 to C2.

Safety in case of fire (BWR 2):
The essential characteristics are detailed in the Annex from C3.

Hygiene, health and the environment (BWR3):
No performance assessed

Safety in use (BWR4):
For basic requirement Safety in use the same criteria are valid for Basic Requirement Mechanical resistance and stability (BWR1).

Other Basic Requirements are not relevant.

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 1 and 4 has been made in accordance with EAD 330232-00-0601; Mechanical fasteners for use in concrete.

4 Assessment and verification of constancy of performance (AVCP)

4.1 AVCP system

According to the decision 96/582/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 1.

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

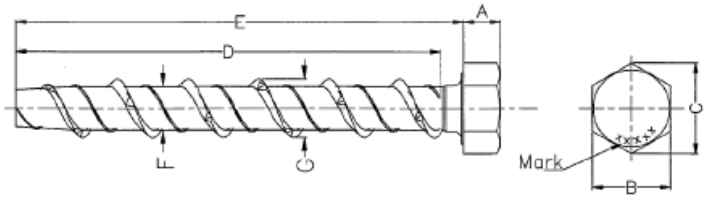
Technical details necessary for the implementation of the AVCP system are laid down in the control plan deposited at ETA-Danmark prior to CE marking

Issued in Copenhagen on 2021-02-10 by

Thomas Bruun
Managing Director, ETA-Danmark

Figure A1 TAB H and TAB F Concrete screws concrete screw and head types

TAB H - Anchor type with hexagon head



TAB F - Anchor type with washer and hexagon head

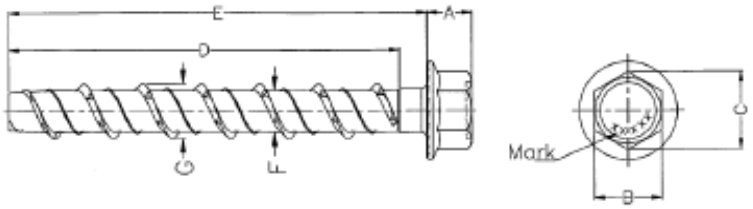


Table A1. Dimensions of the anchor TAB H

Diameter [mm]	A h [mm]	B l_1 [mm]	C l_2 [mm]	D L_{cut} [mm]		E L_s [mm]	F d_k [mm]	G d_{cut} / d_s [mm]
Ø 6	4,46 ± 0,24	9,88 ± 0,125	11,20 ± 0,20	< 100	N / A	≤ 120,00 ± 2,00	5,45 ± 0,20	7,50 ± 0,15
				≥ 100	95,00 ± 2,00			
Ø 8	5,30 ± 0,24	14,90 ± 0,15	16,90 ± 0,20	< 100	N / A	≤ 310,00 ± 2,00	7,45 ± 0,25	9,70 ± 0,15
				≥ 100	95,00 ± 2,00			
Ø 10	6,00 ± 0,29	16,90 ± 0,15	19,30 ± 0,20	< 100	N / A	≤ 320,00 ± 2,00	9,50 ± 0,20	11,80 ± 0,15
				≥ 100	95,00 ± 2,00			
Ø 12	7,50 ± 0,18	18,90 ± 0,15	21,60 ± 0,20	< 100	N / A	≤ 310,00 ± 2,00	11,50 ± 0,20	14,25 ± 0,15
				≥ 100	95,00 ± 2,00			

Table A2. Dimensions of the anchor TAB F

Diameter [mm]	A h [mm]	B l_1 [mm]	C l_2 [mm]	D L_{cut} [mm]		E L_s [mm]	F d_k [mm]	G d_{cut} / d_s [mm]
Ø 6	6,00 Max	9,80 + 0,20 - 0,00	11,05 Min	< 100	N / A	≤ 120,00 ± 2,00	5,45 ± 0,20	7,50 ± 0,15
				≥ 100	95,00 ± 2,00			
Ø 8	8,00 Max	11,75 + 0,25 - 0,00	13,25 Min	< 100	N / A	≤ 310,00 ± 2,00	7,45 ± 0,25	9,70 ± 0,15
				≥ 100	95,00 ± 2,00			
Ø 10	10,00 Max	13,75 + 0,25 - 0,00	15,50 Min	< 100	N / A	≤ 320,00 ± 2,00	9,50 ± 0,20	11,80 ± 0,15
				≥ 100	95,00 ± 2,00			
Ø 12	11,50 Max	16,75 + 0,25 - 0,00	18,90 Min	< 100	N / A	≤ 310,00 ± 2,00	11,50 ± 0,20	14,25 ± 0,15
				≥ 100	95,00 ± 2,00			

Figure A2 TAB H and TAB F Concrete screws Installed anchor

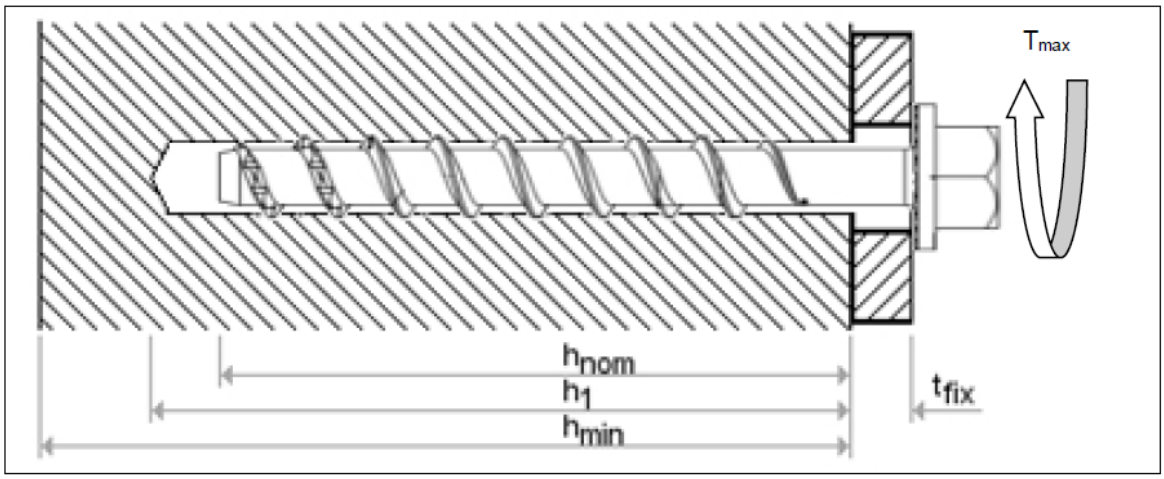


Table A3. Materials

Member	Material
All sizes	Coldformed steel grade 20MnB4 in accordance with table 3 in EN 10263-4 or coldformed steel grade 1022 in accordance with table 3 in ASTM A510. Galvanized

Use:
The anchors are intended to be used for anchorages for which requirements for mechanical resistance and stability and safety in use in the sense of the Basic Requirements 1 and 4 of Regulation 305/2011 (EU) shall be fulfilled and failure of anchorages made with these products would compromise the stability of the works, cause risk to human life and/or lead to considerable economic consequences.

Anchors subject to:
- Static and quasi-static loads: sizes M6, M8, M10, M12.

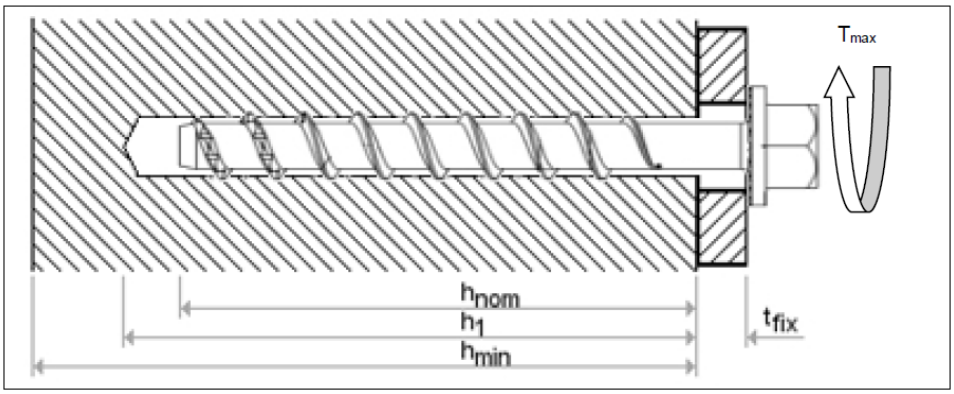
Base materials:
- Reinforced or unreinforced normal weight concrete of strength class C20/25 at minimum to C50/60 at maximum according to EN 206-1.
- Non-cracked concrete: sizes M6, M8, M10, M12.

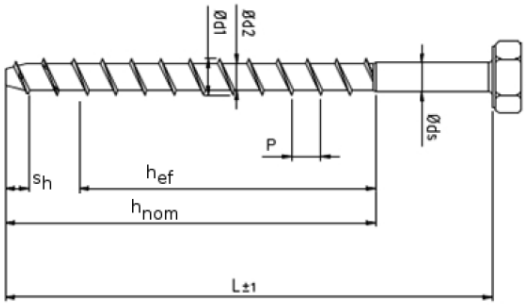
Temperature range:
The anchors may be used in the following temperature range:
- Normal internal temperature ranges

Use conditions (Environmental conditions):
- The anchors may be used in structures subject to dry internal conditions only.

Installation:
- The anchors may be installed in:
- Dry concrete: sizes M6, M8, M10, M12.
- Anchor installation carried out by appropriately qualified personnel and under the supervision of the person responsible for technical matters of the site.
- Anchor installation in accordance with the manufacturer's specifications and drawings and using the
- appropriate tools.
- Check before placing the anchor to ensure that the strength class of the concrete, in which the anchor is to be placed, is identical with the values which the characteristic loads apply.
- Check of concrete being well compacted, e.g. without significant voids.
- Edge distances and spacings not less than the specified values without minus tolerances.
- Positioning of the drill holes without damaging the reinforcement.
- The sequence of the installation is according to the following setting-through installation:
    - Placing the fixture on the surface of the concrete member.
    - Make a drill hole by means of hammer drill through the prepared holes of the fixture. The position of drill hole has to be coordinated with reinforcement in order to avoid damaging it. The drill hole must be drilled perpendicular to the surface of the concrete.
    - The drilled hole must be cleaned from dust.
    - The installation of the concrete screw has to be carried out automatically.

Proposed design methods:
- 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 are designed in accordance with EOTA Technical Report 055, design method A.





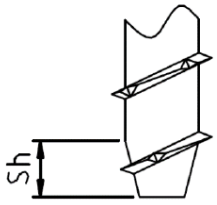


Table B1. Installation parameters

Installation parameters				**Ø 6**	**Ø 8**	**Ø 10**	**Ø 12**
Nom. drill hole diameter	$Ø\ d_0$	[mm]	=	6	8	10	12
Max. Cutting diameter of drill bit	$Ø\ d_{cut}$	[mm]	≤	6,40	8,45	10,45	12,50
Depth of drill hole	h_1	[mm]	≥	40	50	60	70
Nominal anchorage depth	h_{nom}	[mm]	≥	30	40	50	55
Diameter of clearance hole in the fixture	d_f	[mm]	≤	9	12	14	16
Thickness of fixture	t_{fix}	[mm]	≤	90	270	270	255
Installation moment	T_{inst}	[Nm]	=	SIW 22-A (1/2 with 200 Nm)[1)]			

[1)] *Installation with other impact screw driver of equivalent power is possible*

		Ø 6	**Ø 8**	**Ø 10**	**Ø 12**
Minimum thickness of member	h_{min} [mm] =	120	120	130	140
Minimum edge distance	c_{min} [mm] =	50	50	100	100
Minimum spacing	s_{min} [mm] =	45	50	60	70

Table C1: Design method A, characteristic tension load values

			Ø 6	Ø 8	Ø 10	Ø 12
Steel failure						
Resistance to steel failure	$N_{Rk,s}$	[kN]	24,26	45,33	73,72	108,02
Partial safety factor under tension load	γ_{Ms}	[-]	1.40	1.40	1.40	1.40
Pull-out failure						
Resistance to pull-out failure in non-cracked concrete C20/25	$N_{Rk,ucr}$	[kN]	3.5	5.0	6.5	12.0
Increase factors for cracked and non-cracked concrete	Ψ_c		1.48	1.17	1.37	1.52
Concrete cone failure						
Partial safety factor in non-cracked concrete	$k_{ucr,N}$	[-]	11.0			
Effective embedment depth	h_{ef}	[mm]	18	25	31	32
Edge distance	$c_{cr,N}$	[mm]	1.5xhef			
Spacing	$s_{cr,N}$	[mm]	3xhef			
Partial safety factor	$\gamma_{Mp} = \gamma_{Mc}$	[-]	1.8			
Robustness						
Installation safety factor	γ_{inst}	[-]	1.2			
Minimum edge distance and spacing						
Minimum edge distance	c_{min}	[mm]	50	50	100	100
Minimum spacing distance	s_{min}	[mm]	45	50	60	70
Min. thickness of the concrete member	h_{min}	[mm]	120	120	130	140
Edge distance to prevent splitting under load						
	$N^0_{Rk,sp}$	[kN]	3.5	5.0	6.5	12.0
Appropriate edge distance	$c_{cr,sp}$	[mm]	50	50	100	100
Displacements under static and quasi-static loading						
Short time tension displacement	δ_{N0}	**[mm]**	0.26	0.21	0.26	0.43
Long-time tension displacement	$\delta_{N\infty}$	**[mm]**	0.43	0.29	0.19	0.20

Table C2: Design method A, Characteristic shear load values

			Ø 6	Ø 8	Ø 10	Ø 12
Resistance to steel failure under shear load						
Resistance to shear load without lever arm	$V^0_{Rk,s}$	[kN]	7.5	10.0	17.0	30.0
Resistance to shear load with lever arm	$M^0_{Rk,s}$	[Nm]	19.0	50.0	100.0	185.0
Factor for group fasteners	k_7	[-]	1.0	1.0	1.0	1.0
Resistance to pry-out failure						
Factor for pry-out failure	k_8	[-]	1.0	1.0	1.0	1.0
Resistance to concrete edge failure						
Outside diameter of the fastener relevant for shear loading	d_{nom}	[mm]	6	8	10	12
Effective length of the fastener for transfer of shear load	ℓ_f	[mm]	18	25	31	32
Displacements under static and quasi-static loading						
Short time shear displacement	δ_{V0}	**[mm]**	2.20	3.65	4.17	5.26
Long-time shear displacement	$\delta_{V\infty}$	**[mm]**	3.30	5.48	6.26	7.89

Table C3: Resistance to fire

No performance assessed

Table C4: Reaction to fire

The screws are made from steel classified as class A1 in accordance with EN 13501-1 and Commission Delegated Regulation 2016/364