



CPC BELGELENDİRME MUAYENE
VE DENEY HİZMETLERİ TİC. LTD.
ŞTİ.

Mutlukent Mah. 1991. Sok. No:8/1
Çankaya / ANKARA
www.cpcert.org



European Technical Assessment

ETA-25/1029
of 25.02.2026

Technical Assessment Body issuing the European Technical Assessment

CPC Belgelendirme Muayene ve Deney Hizmetleri Tic. Ltd.
Şti.

Trade name of the construction product

TAB +
TAB SS+
TAB HCR+

Product family to which the construction product belongs

Product Area Code: 33

Manufacturer

Trutek Fasteners Polska S.z o.o.

ul. Wojska Polskiego 3, 39-300 Mielec, Poland

Manufacturing plant

Plant 1

This European Technical Assessment contains

24 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

EAD 330232-01-0601 Mechanical fasteners for use in
concrete

Translations of this European Technical Assessment in other languages shall fully correspond to the original issued document and should be identified as such.

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1. Technical description of the product

The TAB+ is an anchor of sizes 6, 8, 10, 12 and 14 mm made of hardened carbon steel and stainless steel. The anchor is screwed into a predrilled cylindrical drill hole. The special thread of the anchor cuts an internal thread into the concrete member while setting. The anchorage is characterised by mechanical interlock in the special thread.

The product description 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.

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 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. Mechanical resistance and stability (BWR 1)

Essential characteristic	Performance
Characteristic resistance to tension load (static and quasi-static loading)	See Annex C1-C2
Characteristic resistance to shear load (static and quasi-static loading)	See Annex C3-C4
Displacements (static and quasi-static loading)	See Annex C5
Characteristic resistance and displacements for seismic performance categories C1 and C2	See Annex C6-C10

3.2. Safety in case of fire (BWR 2)

Essential characteristic	
Reaction to fire	Class A1
Resistance to fire	See Annex C11-C14



3.3. Methods of assessment

The assessment of the products has been made in accordance with EAD 330232-01-0601; Mechanical fasteners for use in concrete.

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

In accordance with the European Assessment Document EAD 330232-01-0601-v05 the applicable European legal act is: 1996/582/EC. The system to be applied is: 1

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 control plan deposited with CPC - Certification, Inspection and Test Services

Issued in Ankara

on 25/02/2025

by

UĞUR GEDİK

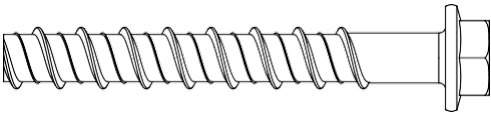
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Uğur GEDİK

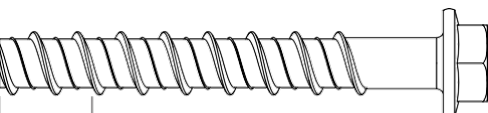
GENEL MÜDÜR/GENERAL MANAGER

Product in installed condition

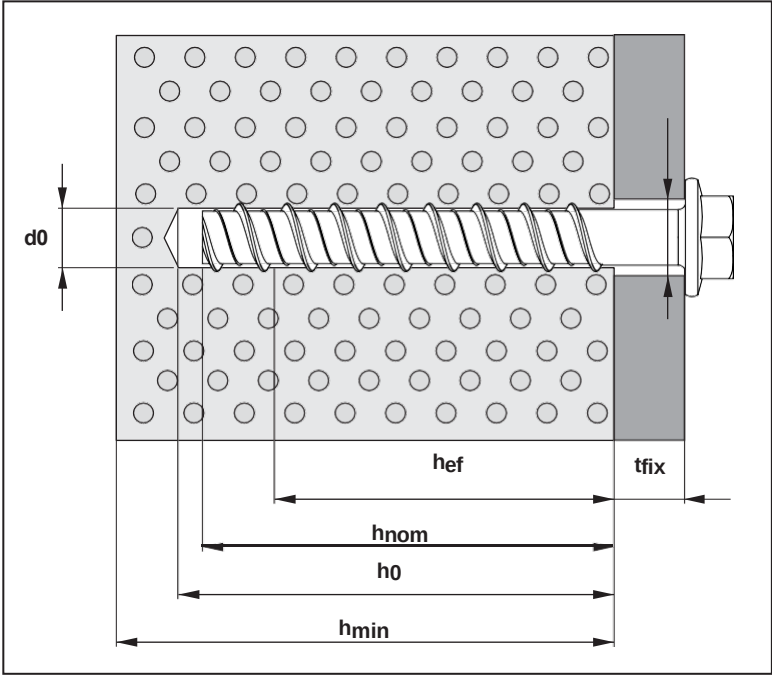
TAB + concrete screw



TAB SS+ concrete screw
TAB HCR+ concrete screw



Carbon Steel



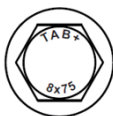
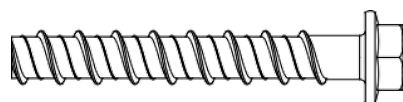
- | | | | |
|------|--|------|---|
| hef | effective embedment depth | tfix | thickness of fixture |
| hnom | overall fastener embedment depth in the concrete | d0 | drill hole diameter |
| h0 | depth of cylindrical drill hole at shoulder | df | diameter of clearance hole in the fixture |
| hmin | minimum thickness of concrete member | | |

TAB + concrete screw

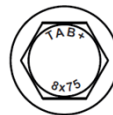
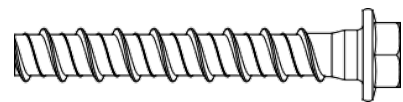
Product description
Product in installed condition

Annex A1

Product types



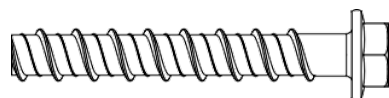
Hexagon head with flange



Hexagon head with flange with thickened shaft



Hexagon head with or without thickened shaft



Hexagon head with flange with or without thickened shaft,
with hexagon or star drive

TAB + concrete screw

Product description
Product types

Annex A2

Table A1: Materials

Product type	Product Name	Material and coating details
All types	TAB +	Steel, galvanised $\geq 5\mu\text{m}$ Steel, zinc flake coating $\geq 6\mu\text{m}$
	TAB SS+	1.4401, 1.4404, 1.4571, 1.4578
	TAB HCR+	1.4529 , 1.4565

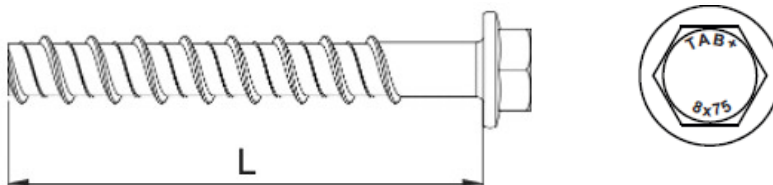
Product type	Product Name	Material mechanical properties
All types	TAB +	$f_{uk} \geq 700 \text{ N/mm}^2$ $f_{yk} \geq 560 \text{ N/mm}^2$ Rupture elongation (A_5) $\geq \%8$
	TAB SS+	
	TAB HCR+	

Table A2: Markings

Product Name	Marking details
TAB +	Identifying mark of brand and / or model, $d_0 \times L$ e.g. TAB + 8x75 or TRUTEK TAB+ 8x75 or TTAB+ 8x75
TAB SS+	Identifying mark of brand and / or model, $d_0 \times L$ e.g. TAB SS+ 8x75 or TRUTEK TAB SS+ 8x75 or TTAB SS+ 8x75
TAB HCR+	Identifying mark of brand and / or model, $d_0 \times L$ e.g. TAB HCR+ 8x75 or TRUTEK TAB HCR+ 8x75 or TTAB HCR+ 8x75

Markings may be on the head and / or shaft of the screw

Tip of the screw might be painted or not.



TAB + concrete screw

Product description
Materials and markings

Annex A3

Specification of intended use

Table B1: Anchorages subject to

Screw size	6		8			10			12			14		
Nominal embedment depth (mm)	h_{nom1}	h_{nom2}	h_{nom1}	h_{nom2}	h_{nom3}	h_{nom1}	h_{nom2}	h_{nom3}	h_{nom1}	h_{nom2}	h_{nom3}	h_{nom1}	h_{nom2}	h_{nom3}
	35 ⁽¹⁾	55	40	55	70	55	70	85	60	80	100	65	85	115
Static and qua-static loads	✓ All sizes, all embedment depths													
Fire exposure	✓ All sizes, all embedment depths													
C1 category seismic	(2)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
C2 category seismic	(2)	(2)	(2)	(2)	✓	(2)	(2)	✓	(2)	(2)	✓	(2)	(2)	✓

⁽¹⁾ only for non-structural applications

⁽²⁾ no performance assessed

✓ performance assessed

Base materials:

- Compacted reinforced or non-reinforced normal weight concrete without according to EN 206:2013 + A1:2016.
- Strength classes C20/25 to C50/60 according to EN 206:2013 + A1:2016. Cracked and uncracked concrete

Conditions of use (Environmental conditions):

- Structures subject to dry internal conditions
- For the other environmental conditions according to EN 1993-1-2:2006+A1 2015 corresponding corrosion resistance classes :

Stainless steel A4 according to Annex A 4, Table A1: CRC III

High corrosion resistance steel HCR according to Annex A 4, Table A1: CRC V

TAB + concrete screw

Intended use
Specifications

Annex B1

Specification of intended use - continuation

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 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 are designed according to EN 1992-4:2018 and EOTA Technical Report TR 055. The design for shear load according to EN 1992-4:2018, Section 6.2.2 applies for all specified diameters d_f of clearance hole in the fixture in Annex B3, Table 4.

Installation:

- Rotary hammer drilling only.
- Anchor installation carried out by appropriately qualified personnel 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 the 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.
- After installation further turning of the anchor is not possible.
- Annular gap may be filled with injection mortar which compressive strength is minimum 30MPa.

TAB + concrete screw	Annex B2
Intended use Specifications	

Table B2: Installation parameters

Screw size			6		8			10		
Nominal embedment depth	h_{nom}	mm	h_{nom1}	h_{nom2}	h_{nom1}	h_{nom2}	h_{nom3}	h_{nom1}	h_{nom2}	h_{nom3}
			35	55	40	55	70	55	70	85
Nominal drill hole diameter	d_0	mm	6		8			10		
Cutting diameter of drill bit	$d_{cut} \leq$	mm	6,40		8,45			10,45		
Clearance hole diameter	$d_f \leq$	mm	8		12			14		
Torque impact screw driver	$T_{imp,max}$	Nm	160		300			400		

Screw size			12			14		
Nominal embedment depth	h_{nom}	mm	h_{nom1}	h_{nom2}	h_{nom3}	h_{nom1}	h_{nom2}	h_{nom3}
			60	80	100	65	85	115
Nominal drill hole diameter	d_0	mm	12			14		
Cutting diameter of drill bit	$d_{cut} \leq$	mm	12,50			14,50		
Clearance hole diameter	$d_f \leq$	mm	16			18		
Torque impact screw driver	$T_{imp,max}$	Nm	600			650		

TAB + concrete screw

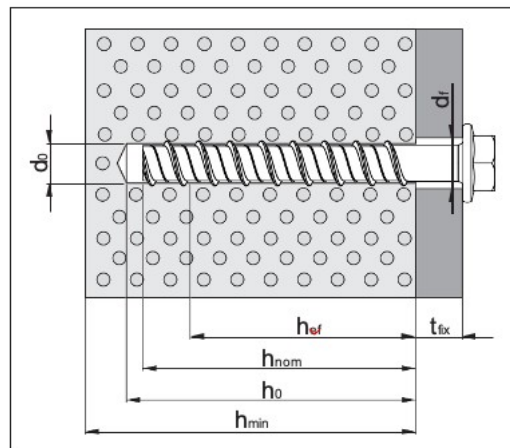
Intended use
Installation parameters

Annex B3

Table B3: Installation parameters

Screw size			6		8			10		
Nominal embedment depth	h_{nom}	mm	h_{nom1}	h_{nom2}	h_{nom1}	h_{nom2}	h_{nom3}	h_{nom1}	h_{nom2}	h_{nom3}
			35	55	40	55	70	55	70	85
Minimum edge distance	c_{min}	mm	35		35			40		
Minimum spacing	s_{min}	mm	35		35			40		
Minimum thickness of member	h_{min}	mm	100	100	100	100	120	100	125	130

Screw size			12			14		
Nominal embedment depth	h_{nom}	mm	h_{nom1}	h_{nom2}	h_{nom3}	h_{nom1}	h_{nom2}	h_{nom3}
			60	80	100	65	85	115
Minimum edge distance	c_{min}	mm	50			60		
Minimum spacing	s_{min}	mm	50			60		
Minimum thickness of member	h_{min}	mm	120	130	150	120	140	170

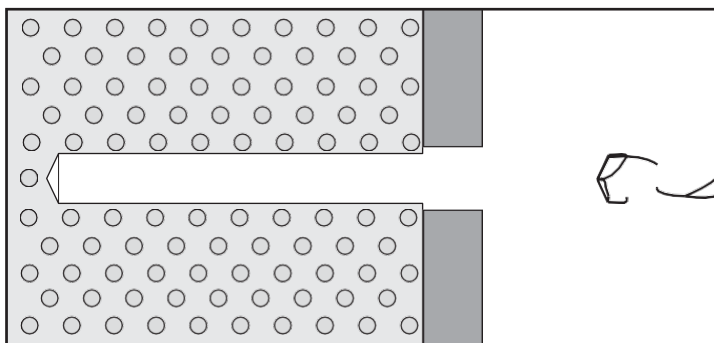


TAB + concrete screw

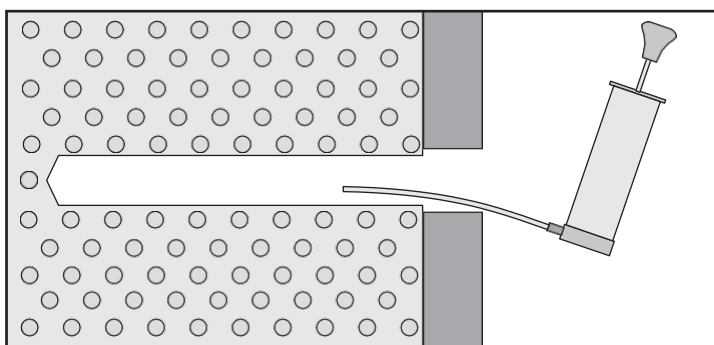
Intended use
Installation parameters

Annex B4

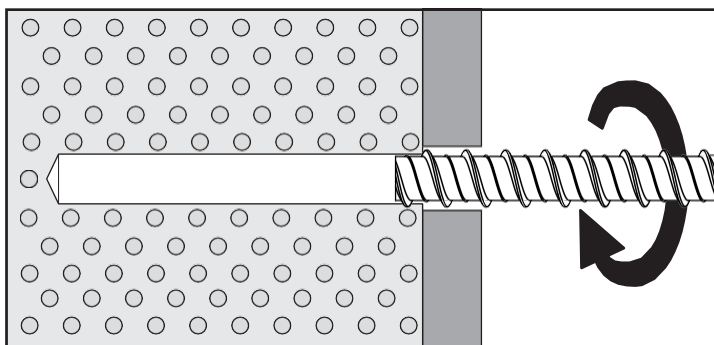
Installation instructions with hole cleaning



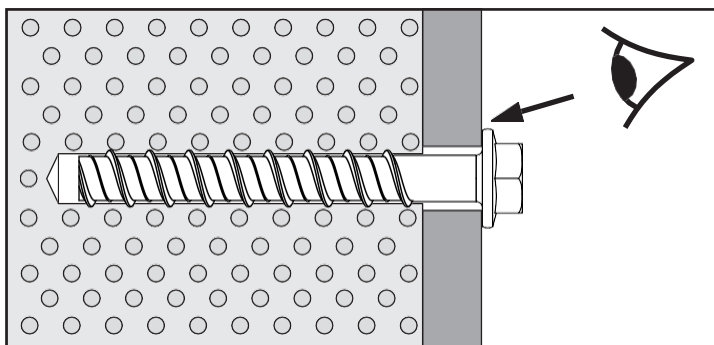
Create borehole



Clean hole,
e.g. with blowing air



Install the screw with only impact
screw driver



! Check the anchor is not damaged
and head is in contact with the
fixture

TAB + concrete screw

Intended use
Installation instructions

Annex B5

Table C1: Characteristic values of resistance under tension load in case of static and quasi-static loading in cracked and uncracked concrete

Size	Parameter	Unit	6	6	8	8	8	10	10	10
Effective embed ment depth	h_{ef}	[mm]	27	44	31	43	56	43	55	68
Steel failure										
Partial safety factor	$\gamma_{MS}^{2)}$	[-]	1.5							
Characteristic resistance	$N_{Rk,s}$	[kN]	16.3		25.4			40.7		
Pullout failure										
Characteristic resistance in concrete C20/25										
Installation safety factor	γ_{inst}	[-]	1.2							
Uncracked concrete	$N_{Rk,p,uncr}$	[kN]	6.5	7	7	10	18	11	19	24
Increasing factor concrete strength ψ_c	C25/30	[-]	1.12							
	C30/37	[-]	1.22							
	C35/45	[-]	1.32							
	C40/50	[-]	1.41							
	C45/55	[-]	1.5							
	C50/60	[-]	1.58							
Cracked concrete	$N_{Rk,p,cr}$	[kN]	3.5	4.5	5	7.5	11	9	15	20
Increasing factor concrete strength ψ_c	C25/30	[-]	1.12							
	C30/37	[-]	1.22							
	C35/45	[-]	1.32							
	C40/50	[-]	1.41							
	C45/55	[-]	1.5							
	C50/60	[-]	1.58							
Concrete cone and splitting failure										
Installation safety factor	γ_{inst}	[-]	1.2							
Factor for uncracked concrete	$k_{ucr,N}$	[-]	11							
Factor for cracked concrete	$k_{cr,N}$	[-]	7.7							
Spacing	$S_{cr,N}$	[mm]	$3xh_{ef}$							
Edge distance	$C_{cr,N}$	[mm]	$1.5xh_{ef}$							
Spacing (splitting)	$S_{cr,sp}$	[mm]	160	160	160	160	160	180	180	180
Edge distance(splitting)	$C_{cr,sp}$	[mm]	80	80	80	80	80	90	90	90
Characteristic resistance in splitting	$N_{Rk,sp}^0$	[kN]	$\min [N_{Rk,c}^0; N_{Rk,p}]$							

¹⁾ $N_{Rk,c}^0$ According to EN 1992-4:2018.

²⁾ In absence of national regulations.

TAB + concrete screw

Performances

Characteristic resistance under tension load (Size 6,8 and 10)

Annex C1

Table C2: Characteristic values of resistance under tension load in case of static and quasi-static loading in cracked and uncracked concrete

Size	Parameter	Unit	12	12	12	14	14	14
Effective embed ment depth	h_{ef}	[mm]	47	64	81	51	68	94
Steel failure								
Partial safety factor	$\gamma_{MS}^{2)}$	[-]	1.5					
Characteristic resistance	$N_{Rk,s}$	[kN]	61.2			85.9		
Pullout failure								
Characteristic resistance in concrete C20/25								
Installation safety factor	γ_{inst}	[-]	1.2					
Uncracked concrete	$N_{Rk,p,uncr}$	[kN]	16	22	30	18	24	36
Increasing factor concrete strength ψ_c	C25/30	[-]	1.12					
	C30/37	[-]	1.22					
	C35/45	[-]	1.32					
	C40/50	[-]	1.41					
	C45/55	[-]	1.5					
	C50/60	[-]	1.58					
Cracked concrete	$N_{Rk,p,cr}$	[kN]	13	16	24	17	19	26
Increasing factor concrete strength ψ_c	C25/30	[-]	1.12					
	C30/37	[-]	1.22					
	C35/45	[-]	1.32					
	C40/50	[-]	1.41					
	C45/55	[-]	1.5					
	C50/60	[-]	1.58					
Concrete cone and splitting failure								
Installation safety factor	γ_{inst}	[-]	1.2					
Factor for uncracked concrete	$k_{ucr,N}$	[-]	11					
Factor for cracked concrete	$k_{cr,N}$	[-]	7.7					
Spacing	$S_{cr,N}$	[mm]	$3xh_{ef}$					
Edge distance	$C_{cr,N}$	[mm]	$1.5xh_{ef}$					
Spacing (splitting)	$S_{cr,sp}$	[mm]	230	230	230	360	360	360
Edge distance(splitting)	$C_{cr,sp}$	[mm]	115	115	115	180	180	180
Characteristic resistance in splitting	$N^0_{Rk,sp}$	[kN]	$\min [N^0_{RK,C}^{1)}; N_{RK,p}]$					

¹⁾ $N^0_{Rk,c}$ According to EN 1992-4:2018.

²⁾ In absanse of national regulations.

TAB + concrete screw

Performances

Characteristic resistance under tension load (Size 12 and 14)

Annex C2

Table C3: Characteristic resistance under shear load in case of static and quasi- static loading

Size	Parameter	Unit	6	6	8	8	8	10	10	10	
Effective embed ment depth	h_{ef}	[mm]	27	44	31	43	56	43	55	68	
Steel failure without lever arm											
Partial safety factor	$\gamma_{Ms} V^{1)}$	[-]	1.25								
Ductility factor	k_7	[-]	1.0								
Characteristic resistance	$V_{RK,s}^0$	[kN]	8.2		12.7			20.3			
Steel failure with lever arm											
Partial safety factor	$\gamma_{Ms,V}^{1)}$	[-]	1.25								
Ductility factor	k_7	[-]	1.0								
Characteristic resistance	$M_{RK,s}^0$	[kN]	13.4		25.9			52.5			
Concrete pryout failure											
Pry-out factor	k_8	[-]	1.0							2.0	
Installation safety factor	γ_{inst}	[-]	1.2								
Concrete edge failure											
Outside diameter of anchor	d_{nom}	[mm]	6		8			10			
Installation safety factor	γ_{inst}	[-]	1.2								

¹⁾ In absanse of national regulations.

TAB + concrete screw

Performances

Characteristic resistance under shear load (Size 6,8 and 10)

Annex C3

Table C4: Characteristic resistance under shear load in case of static and quasi- static loading

Size	Parameter	Unit	12	12	12	14	14	14
Effective embed ment depth	h_{ef}	[mm]	47	64	81	51	68	94
Steel failure without lever arm								
Partial safety factor	$\gamma_{Ms} V^{1)}$	[-]	1.25					
Ductility factor	k_7	[-]	1.0					
Characteristic resistance	$V^0_{Rk,s}$	[kN]	30.6	35.1	43.0	48.6		
Steel failure with lever arm								
Partial safety factor	$\gamma_{Ms,V}^{1)}$	[-]	1.25					
Ductility factor	k_7	[-]	1.0					
Characteristic resistance	$M^0_{Rk,s}$	[kN]	96.8	119.0	161.1	194.0		
Concrete pryout failure								
Pry-out factor	k_8	[-]	1.0	2.0	1.0	2.0		
Installation safety factor	γ_{inst}	[-]	1.2					
Concrete edge failure								
Outside diameter of anchor	d_{nom}	[mm]	12			14		
Installation safety factor	γ_{inst}	[-]	1.2					

¹⁾ In absanse of national regulations.

TAB + concrete screw

Performances

Characteristic resistance under shear load (Size 12 and 10)

Annex C4

Table C5: Displacements under tension load in case of static and quasi-static loading

Size	Parameter	Unit	6	6	8	8	8	10	10	10
Effective embedment depth	h_{ef}	[mm]	27	44	31	43	56	43	55	68
Tension load in uncracked concrete C20/25	N	[kN]	3.1	3.3	3.6	5.2	8.6	5.7	9.0	11.4
Displacement	δ_{N_0}	[mm]	0.1	0.1	0.1	0.1	0.2	0.1	0.1	0.3
	δ_{N_∞}	[mm]	0.2	0.3	0.2	0.4	0.6	0.2	0.3	0.8
Tension load in cracked concrete C20/25	N	[kN]	1.7	2.1	2.6	3.8	6.20	4.5	7.1	9.5
Displacement	δ_{N_0}	[mm]	0.1	0.2	0.2	0.3	0.5	0.1	0.2	0.3
	δ_{N_∞}	[mm]	0.5	0.8	0.8	1.2	1.6	0.6	0.9	1.6

Table C6: Displacements under tension load in case of static and quasi-static loading

Size	Parameter	Unit	12	12	12	14	14	14
Effective embedment depth	h_{ef}	[mm]	47	64	81	51	68	94
Tension load in uncracked concrete C20/25	N	[kN]	7.6	10.5	14.3	9	12.4	18.1
Displacement	δ_{N_0}	[mm]	0.2	0.2	0.3	0.2	0.3	0.4
	δ_{N_∞}	[mm]	0.4	0.6	0.9	0.7	0.8	0.9
Tension load in cracked concrete C20/25	N	[kN]	6.2	7.6	11.4	8.1	9.5	12.4
Displacement	δ_{N_0}	[mm]	0.2	0.5	0.4	0.3	0.6	0.5
	δ_{N_∞}	[mm]	0.8	1.3	1.6	1.2	1.5	1.7

Table C7: Displacements under shear load in case of static and quasi-static loading

Size	Parameter	Unit	6	6	8	8	8	10	10	10
Effective embedment depth	h_{ef}	[mm]	27	44	31	43	56	43	55	68
Shear load	V	[kN]	4.7		7.3			11.6		
Displacement	δ_{V_0}	[mm]	1.3		1.5			1.4		
	δ_{V_∞}	[mm]	2.0		2.3			2.1		

¹⁾ Additional displacement due to annular gap between fastener and fixture is to be taken into account.

Table C8: Displacements under shear load in case of static and quasi-static loading

Size	Parameter	Unit	12	12	12	14	14	14
Effective embedment depth	h_{ef}	[mm]	47	64	81	51	68	94
Shear load	V	[kN]	17.5		20	24.5		27.8
Displacement	δ_{V_0}	[mm]	1.7		1.6	2.2		2.9
	δ_{V_∞}	[mm]	2.5		2.4	3.3		4.4

¹⁾ Additional displacement due to annular gap between fastener and fixture is to be taken into account.

TAB + concrete screw

Performances

Displacements under static or quasi static loading

Annex C5

Table C9:Characteristic resistance under tension load in case of seismic category C1³⁾

Size	Parameter	Unit	6	6	8	8	8	10	10	10
Effective embed ment depth	h_{ef}	[mm]	-	44	31	43	56	43	55	68
Steel failure										
Partial safety factor	$\gamma_{Ms,C1}^{1)}$	[-]	1.50							
Characteristic resistance	$N_{RK,s,C1}$	[kN]	16.3		25.4			40.7		
With filling of the annular gap	α_{gap}	[-]	1.00							
Without filling of the annular gap	α_{gap}	[-]	0.50							
Pullout failure										
Installation safety factor	γ_{inst}	[-]	1.2							
Characteristic resistance	$N_{RK,p,C1}$	[kN]	-	4.1	4.5	6.8	9.9	8.1	$\geq N_{RK,c}^0$	
Concrete cone failure ²⁾										
Installation safety factor	γ_{inst}	[-]	1.2							
Concrete splitting failure ²⁾										
Installation safety factor	γ_{inst}	[-]	1.2							

¹⁾In absence of other national regulations

²⁾For concrete cone failure and splitting failure see EN 1992-4:2018

³⁾It is not valid for anchors TAB SS+ and TAB HCR+.

Table C10:Characteristic resistance under tension load in case of seismic category C1³⁾

Size	Parameter	Unit	12	12	12	14	14	14
Effective embed ment depth	h_{ef}	[mm]	47	64	81	51	68	94
Steel failure								
Partial safety factor	$\gamma_{Ms,C1}^{1)}$	[-]	1.50					
Characteristic resistance	$N_{RK,s,C1}$	[kN]	61.2				85.9	
With filling of the annular gap	α_{gap}	[-]	1.00					
Without filling of the annular gap	α_{gap}	[-]	0.50					
Pullout failure								
Installation safety factor	γ_{inst}	[-]	1.2					
Characteristic resistance	$N_{RK,p,C1}$	[kN]	$\geq N^0_{RK,c}$	14.4	21.6	$\geq N^0_{RK,c}$	17.1	23.4
Concrete cone failure ²⁾								
Installation safety factor	γ_{inst}	[-]	1.2					
Concrete splitting failure ²⁾								
Installation safety factor	γ_{inst}	[-]	1.2					

¹⁾In absence of other national regulations

²⁾For concrete cone failure and splitting failure see EN 1992-4:2018

³⁾It is not valid for anchors TAB SS+ and TAB HCR+.

TAB + concrete screw

Performances

Characteristic resistance under seismic action category C1 (Tension)

Annex C6

Table C11: Characteristic resistance under shear load in case of seismic category C1²⁾

Size	Parameter	Unit	6	6	8	8	8	10	10	10
Effective embed ment depth	h_{ef}	[mm]	-	44	31	43	56	43	55	68
Steel failure with lever arm										
Partial safety factor	$\gamma_{Ms,C1}^{1)}$	[-]	1.25							
Characteristic resistance	$V_{Rk,s,C1}$	[kN]	-	8.2	12.7			20.3		
With filling of the annular gap	α_{gap}	[-]	1.00							
Without filling of the annular gap	α_{gap}	[-]	0.50							
Concrete pryout failure										
Installation safety factor	γ_{inst}	[-]	1.2							
Concrete edge failure										
Installation safety factor	γ_{inst}	[-]	1.2							

¹⁾In absence of other national regulations

²⁾It is not valid for anchors TAB SS+ and TAB HCR+.

Table C12: Characteristic resistance under shear load in case of seismic category C1²⁾

Size	Parameter	Unit	12	12	12	14	14	14
Effective embed ment depth	h_{ef}	[mm]	47	64	81	51	68	94
Steel failure with lever arm								
Partial safety factor	$\gamma_{Ms,C1}^{1)}$	[-]	1.25					
Characteristic resistance	$V_{Rk,s,C1}$	[kN]	30.6	35.1	43.0		48.6	
With filling of the annular gap	α_{gap}	[-]	1.00					
Without filling of the annular gap	α_{gap}	[-]	0.50					
Concrete pryout failure								
Installation safety factor	γ_{inst}	[-]	1.2					
Concrete edge failure								
Installation safety factor	γ_{inst}	[-]	1.2					

¹⁾In absence of other national regulations

²⁾It is not valid for anchors TAB SS+ and TAB HCR+.

TAB + concrete screw

Performances

Characteristic resistance under seismic action category C1 (Shear)

Annex C7

Table C13: Characteristic resistance under tension load in case of seismic category C2 ²⁾

Size	Parameter	Unit	8	10	12	14
Effective embedment depth	h_{ef}	[mm]	56	68	81	94
Steel failure						
Partial safety factor	$\gamma_{Ms,C2}^{1)}$	[-]	1.50			
Characteristic resistance	$N_{RK,s,C2}$	[kN]	25.4	40.7	61.2	85.9
Pullout failure						
Installation safety factor	γ_{inst}	[-]	1.2			
Characteristic resistance	$N_{RK,p,C2}$	[kN]	2.5	5.0	8.1	9.4
Concrete cone failure						
Installation safety factor	γ_{inst}	[-]	1.2			

¹⁾In absence of other national regulations

²⁾It is not valid for anchors TAB SS+ and TAB HCR+.

TAB + concrete screw

Performances

Characteristic resistance under seismic action category C2 (Tension)

Annex C8

Table C15: Characteristic resistance under shear load in case of seismic category C2 ²⁾

Size	Parameter	Unit	8	10	12	14
Effective embed ment depth	h_{ef}	[mm]	56	68	81	94
Steel failure with lever arm						
Partial safety factor	$\gamma_{Ms,C2}^{1)}$	[-]	1.25			
Characteristic resistance	$V_{RK,S,C2}$	[kN]	7.6	12.2	21.1	29.2
Factor for annular gap	α_{gap}	[-]	0.50			
Concrete pryout failure						
Installation safety factor	γ_{inst}	[-]	1.2			
Concrete edge failure						
Installation safety factor	γ_{inst}	[-]	1.2			

¹⁾In absence of other national regulations

²⁾It is not valid for anchors TAB SS+ and TAB HCR+.

TAB + concrete screw

Performances

Characteristic resistance under seismic action category C2 (Shear)

Annex C9

Table C17: Displacements under tension load in case of seismic category C2

Size	Parameter	Unit	8	10	12	14
Displacement DLS	$\delta_{N,C2(DLS)}$	[mm]	0.6	0.9	0.9	1.4
Displacement ULS	$\delta_{N,C2(ULS)}$	[mm]	1.2	1.5	1.9	2.6

Table C18: Displacements under shear load in case of seismic category C2

Size	Parameter	Unit	8	10	12	14
Displacement DLS	$\delta_{V,C2(DLS)}$	[mm]	2.3	2.8	3.5	5.2
Displacement ULS	$\delta_{V,C2(ULS)}$	[mm]	4.0	4.5	5.3	7.7

TAB + concrete screw

Performances
Displacements under seismic action category C2

Annex C10

Table C19: Characteristic resistance under tension load in cracked and uncracked concrete under fire exposure¹⁾²⁾

Size	Parameter	Unit	6	6	8	8	8	10	10	10
Effective embed ment depth	h _{ef}	[mm]	27	44	31	43	56	43	55	68
Reaction to fire	-	Class	Class A1							
Steel failure										
Characteristic resistance (carbon steel)	N _{Rk,s,fi} (30)	[kN]	-	0.23	0.42			0.87		
	N _{Rk,s,fi} (60)	[kN]	-	0.21	0.37			0.76		
	N _{Rk,s,fi} (90)	[kN]	-	0.16	0.29			0.58		
	N _{Rk,s,fi} (120)	[kN]	-	0.12	0.21			0.46		
Characteristic resistance (stainless steel)	N _{Rk,s,fi} (30)	[kN]	-	0.23	0.73			1.45		
	N _{Rk,s,fi} (60)	[kN]	-	0.21	0.58			1.16		
	N _{Rk,s,fi} (90)	[kN]	-	0.16	0.44			0.93		
	N _{Rk,s,fi} (120)	[kN]	-	0.12	0.36			0.81		
Pullout failure										
Characteristic resistance ≥C20/25	N _{Rk,p,fi} (30-90)	[kN]	0.93	1.67	1.49	2.16	2.76	2.97	5.17	5.29
	N _{Rk,p,fi} (120)	[kN]	0.75	1.34	1.19	1.73	2.20	2.38	4.14	4.23
Concrete cone failure and splitting failure ³⁾										
Characteristic resistance ≥C20/25	N ^o _{Rk,c,fi} (30-90)	[kN]	0.51	1.47	0.92	1.86	3.09	2.56	5.69	7.20
	N ^o _{Rk,c,fi} (120)	[kN]	0.41	1.18	0.74	1.49	2.47	2.05	4.55	5.76
Characteristic Spacing	S _{cr,N,fi}	[mm]	4*h _{ef}							
Characteristic Edge Distance	C _{cr,N,fi}	[mm]	2*h _{ef}							

1) Design under fire exposure is performed according to the design method given in EN 1992-4. Under fire exposure usually cracked concrete is assumed. The design equations are given in EN 1992-4, Annex D.

2) EN 1992-4 covers design for fire exposure from one side. For fire attack from more than one side the edge distance must be increased to $C_{min} \geq 300 \text{ mm}$ and $\geq 2 \cdot h_{ef}$.

3) As a rule, splitting failure can be neglected when cracked concrete and reinforcement is assumed.

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

TAB + concrete screw

Performances

Characteristic resistance of tension load resistance under fire resistance (Size 6, 8 and 10)

Annex C11

Table C20: Characteristic resistance under tension load in cracked and uncracked concrete under fire exposure¹⁾²⁾

Size	Parameter	Unit	12	12	12	14	14	14
Effective embed ment depth	h _{ef}	[mm]	47	64	81	51	68	94
Reaction to fire	-	Class	Class A1					
Steel failure								
Characteristic resistance (carbon steel)	N _{Rk,s,fi} (30)	[kN]	1.75			2.45		
	N _{Rk,s,fi} (60)	[kN]	1.31			1.84		
	N _{Rk,s,fi} (90)	[kN]	1.14			1.60		
	N _{Rk,s,fi} (120)	[kN]	0.87			1.23		
Characteristic resistance (stainless steel)	N _{Rk,s,fi} (30)	[kN]	2.62			3.68		
	N _{Rk,s,fi} (60)	[kN]	2.19			3.07		
	N _{Rk,s,fi} (90)	[kN]	1.75			2.45		
	N _{Rk,s,fi} (120)	[kN]	1.4			1.96		
Pullout failure								
Characteristic resistance ≥C20/25	N _{Rk,p,fi} (30-90)	[kN]	3.69	3.67	6.39	4.50	5.45	7.36
	N _{Rk,p,fi} (120)	[kN]	2.95	2.93	5.11	3.60	4.36	5.89
Concrete cone failure and splitting failure ³⁾								
Characteristic resistance ≥C20/25	N ^o _{Rk,c,fi} (30-90)	[kN]	3.47	4.69	10.4	4.59	7.41	13.84
	N ^o _{Rk,c,fi} (120)	[kN]	2.77	3.75	8.28	3.67	5.93	11.08
Characteristic Spacing	S _{cr,N,fi}	[mm]	4*h _{ef}					
Characteristic Edge Distance	C _{cr,N,fi}	[mm]	2*h _{ef}					

1) Design under fire exposure is performed according to the design method given in EN 1992-4. Under fire exposure usually cracked concrete is assumed. The design equations are given in EN 1992-4, Annex D.

2) EN 1992-4 covers design for fire exposure from one side. For fire attack from more than one side the edge distance must be increased to $C_{min} \geq 300 \text{ mm}$ and $\geq 2 \cdot h_{ef}$.

3) As a rule, splitting failure can be neglected when cracked concrete and reinforcement is assumed.

4) In absence of other national regulations the partial safety factor for resistance under fire exposure $\gamma_{M,fi} = 1,0$ is recommended.

TAB + concrete screw

Performances

Characteristic resistance of tension load resistance under fire resistance (Size 12 and 14)

Annex C12

Table C21: Characteristic resistance under shear load in cracked and uncracked concrete under fire exposure¹⁾²⁾

Size	Parameter	Unit	6	6	8	8	8	10	10	10
Effective embed ment depth	h_{ef}	[mm]	27	44	31	43	56	43	55	68
Steel failure without lever arm										
Characteristic resistance(carbon steel)	$V_{Rk,s,fi(30)}$	[kN]	-	0.23	0.36			0.87		
	$V_{Rk,s,fi(60)}$	[kN]	-	0.21	0.33			0.76		
	$V_{Rk,s,fi(90)}$	[kN]	-	0.16	0.25			0.58		
	$V_{Rk,s,fi(120)}$	[kN]	-	0.12	0.18			0.46		
Characteristic resistance(stainless steel)	$V_{Rk,s,fi(30)}$	[kN]	-	0.23	0.73			1.45		
	$V_{Rk,s,fi(60)}$	[kN]	-	0.21	0.58			1.16		
	$V_{Rk,s,fi(90)}$	[kN]	-	0.16	0.44			0.93		
	$V_{Rk,s,fi(120)}$	[kN]	-	0.12	0.36			0.81		
Steel failure with lever arm										
Characteristic resistance(carbon steel)	$M^0_{Rk,s,fi(30)}$	[kN]	-	0.19	0.37			1.12		
	$M^0_{Rk,s,fi(60)}$	[kN]	-	0.17	0.33			0.97		
	$M^0_{Rk,s,fi(90)}$	[kN]	-	0.13	0.26			0.75		
	$M^0_{Rk,s,fi(120)}$	[kN]	-	0.1	0.19			0.60		
Characteristic resistance(stainless steel)	$M^0_{Rk,s,fi(30)}$	[kN]	-	0.19	0.74			1.87		
	$M^0_{Rk,s,fi(60)}$	[kN]	-	0.17	0.59			1.50		
	$M^0_{Rk,s,fi(90)}$	[kN]	-	0.13	0.44			1.20		
	$M^0_{Rk,s,fi(120)}$	[kN]	-	0.1	0.37			1.05		
Concrete pryout failure										
Pryout factor	k_8	[-]	1.00							2.00
Characteristic resistance $\geq C20/25$	$V_{Rk,cp,fi(30)}$	[kN]	0.51	1.47	0.92	1.86	3.09	2.56	5.69	14.39
	$V_{Rk,cp,fi(60)}$	[kN]	0.51	1.47	0.92	1.86	3.09	2.56	5.69	14.39
	$V_{Rk,cp,fi(90)}$	[kN]	0.51	1.47	0.92	1.86	3.09	2.56	5.69	14.39
	$V_{Rk,cp,fi(120)}$	[kN]	0.41	1.18	0.74	1.49	2.47	2.05	4.55	11.51
Concrete edge failure										
Spacing	$S_{min,fi}$	[mm]	$4.h_{ef}$							
Edge distance	$C_{min,fi}$	[mm]	$C_{min,fi} \geq 300, 2.h_{ef}$							

1) Design under fire exposure is performed according to the design method given in EN 1992-4. Under fire exposure usually cracked concrete is assumed. The design equations are given in EN 1992-4, Annex D.

2) EN 1992-4 covers design for fire exposure from one side. For fire attack from more than one side the edge distance must be increased to $C_{min} \geq 300$ mm and $\geq 2 \cdot h_{ef}$.

TAB + concrete screw

Performances

Characteristic resistance of shear load resistance under fire resistance

Annex C13

Table C22: Characteristic resistance under shear load in cracked and uncracked concrete under fire exposure¹⁾²⁾

Size	Parameter	Unit	12	12	12	14	14	14
Effective embedment depth	h_{ef}	[mm]	47	64	81	51	68	94
Steel failure without lever arm								
Characteristic resistance(carbon steel)	$V_{Rk,s,fi(30)}$	[kN]	1.75	2.01	2.45	2.78		
	$V_{Rk,s,fi(60)}$	[kN]	1.31	1.50	1.84	2.08		
	$V_{Rk,s,fi(90)}$	[kN]	1.14	1.30	1.60	1.81		
	$V_{Rk,s,fi(120)}$	[kN]	0.87	1.00	1.23	1.39		
Characteristic resistance(stainless steel)	$V_{Rk,s,fi(30)}$	[kN]	2.62	3.01	3.68	4.17		
	$V_{Rk,s,fi(60)}$	[kN]	2.19	2.51	3.07	3.47		
	$V_{Rk,s,fi(90)}$	[kN]	1.75	2.01	2.45	2.78		
	$V_{Rk,s,fi(120)}$	[kN]	1.40	1.60	1.96	2.22		
Steel failure with lever arm								
Characteristic resistance(carbon steel)	$M^0_{Rk,s,fi(30)}$	[kN]	2.77	3.40	4.60	5.54		
	$M^0_{Rk,s,fi(60)}$	[kN]	2.08	2.55	3.45	4.16		
	$M^0_{Rk,s,fi(90)}$	[kN]	1.80	2.21	2.99	3.60		
	$M^0_{Rk,s,fi(120)}$	[kN]	1.38	1.70	2.30	2.77		
Characteristic resistance(stainless steel)	$M^0_{Rk,s,fi(30)}$	[kN]	4.15	5.10	6.90	8.31		
	$M^0_{Rk,s,fi(60)}$	[kN]	3.46	4.25	5.75	6.93		
	$M^0_{Rk,s,fi(90)}$	[kN]	2.77	3.40	4.60	5.54		
	$M^0_{Rk,s,fi(120)}$	[kN]	2.21	2.72	3.68	4.43		
Concrete pryout failure								
Pryout factor	k_8	[-]	1.00	2.00	1.00	2.00		
Characteristic resistance $\geq C20/25$	$V_{Rk,cp,fi(30)}$	[kN]	3.47	9.38	20.70	4.59	14.82	27.69
	$V_{Rk,cp,fi(60)}$	[kN]	3.47	9.38	20.70	4.59	14.82	27.69
	$V_{Rk,cp,fi(90)}$	[kN]	3.47	9.38	20.70	4.59	14.82	27.69
	$V_{Rk,cp,fi(120)}$	[kN]	2.77	7.51	16.56	3.67	11.86	22.15
Concrete edge failure								
Spacing	$S_{min,fi}$	[mm]	$4 \cdot h_{ef}$					
Edge distance	$C_{min,fi}$	[mm]	$C_{min,fi} \geq 300, 2 \cdot h_{ef}$					

1) Design under fire exposure is performed according to the design method given in EN 1992-4. Under fire exposure usually cracked concrete is assumed. The design equations are given in EN 1992-4, Annex D.

2) EN 1992-4 covers design for fire exposure from one side. For fire attack from more than one side the edge distance must be increased to $C_{min} \geq 300$ mm and $\geq 2 \cdot h_{ef}$.

TAB + concrete screw

Performances

Characteristic resistance of shear load resistance under fire resistance

Annex C14