



**Technical and Test Institute
for Construction Prague**
Prosecká 811/76a
190 00 Prague
Czech Republic
eota@tzus.cz



Member of



www.eota.eu

European Technical Assessment

**ETA 25/0163
of 21/07/2025**

Technical Assessment Body issuing the ETA: Technical and Test Institute
for Construction Prague

Trade name of the construction product

TT SS M6, M8, M10, M12, M16

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

Product area code: 33
Torque controlled expansion anchor
for use in uncracked concrete

Manufacturer

Trutek Fasteners Polska Sp. z o.o.
ul. Wojska Polskiego 3
39-300 Mielec, Poland

Manufacturing plant

Production plant no.1

**This European Technical Assessment
contains**

8 pages including 6 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

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1. Technical description of the product

The TT SS A2 and TT SS A4 in sizes of M6, M8, M10, M12 and M16 is torque-controlled expansion fastener for use only in uncracked concrete. Each type comprises a nut, bolt, washer and expansion sleeve. The anchors are made of stainless steel.

The anchor is installed in a drilled hole; tightening the nut draws the cone into the sleeve. The expansion of this sleeve applies the anchorage.

The installed anchor is shown in Annex 1.

2. Specification of the intended use in accordance with the applicable 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 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 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 (static and quasi-static loading)	See Annex C 1 and C 2
Displacement	See Annex C 1 and C 2

3.2 Safety in case of fire (BWR 2)

Essential characteristic	Performance
Reaction to fire	Class A1 according to EN 13501-1
Resistance to fire	No performance assessed

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

According to the Decision 96/582/EC of the European Commission¹, the system 1 of assessment verification of constancy of performance (see Annex V to the Regulation (EU) No 305/2011) apply.

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

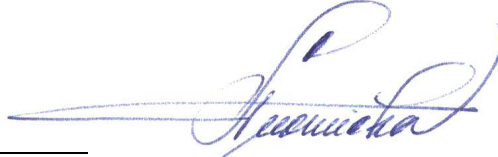
Technical details necessary for the implementation of the AVCP system are laid down in the control plan deposited at Technical and Test Institute for Construction Prague.

Issued in Prague on 21.07.2025

By

Ing. Jiří Studnička, Ph.D.

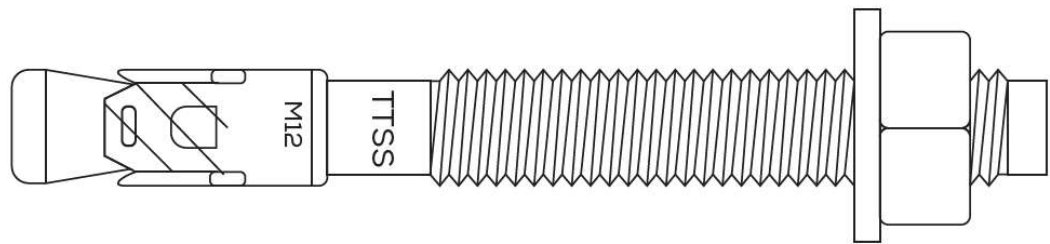
Head of the Technical Assessment Body



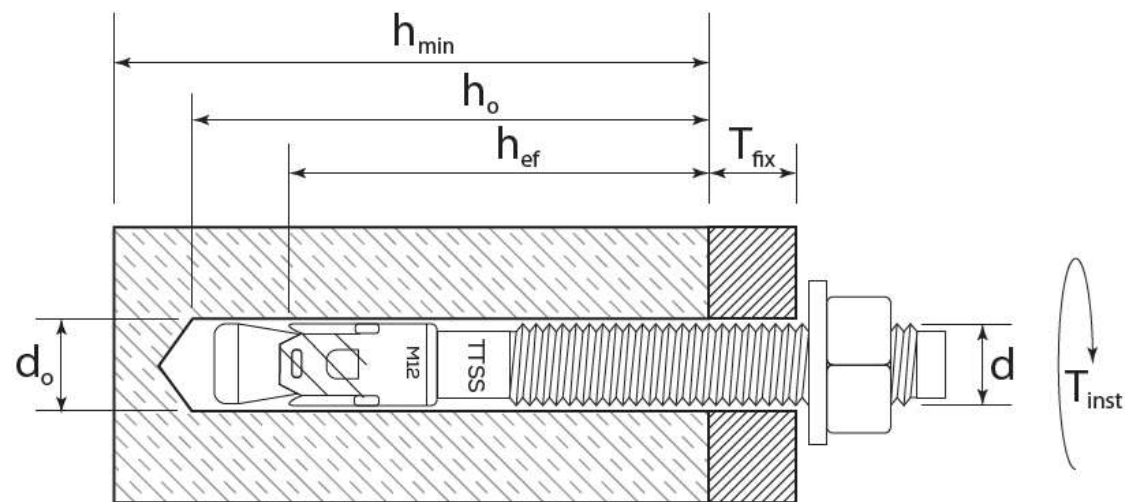
¹ Official Journal of the European Communities L 254 of 08.10.1996



TT SS M6, M8, M10, M12, M16



TT SS M6, M8, M10, M12, M16 - Installed anchor



- d_o = nominal drill hole diameter
- h_o = minimum drill hole depth
- h_{ef} = effective embedment depth
- h_{min} = minimum concrete thickness
- T_{fix} = thickness of the fixture

TT SS M6, M8, M10, M12, M16	Annex A 1
Product description Installed conditions	

TT SS M6, M8, M10, M12, M16 – components

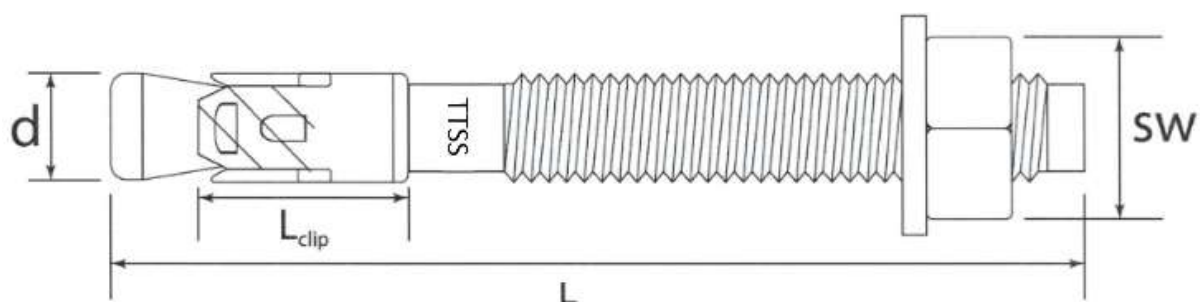


Table A1 Dimensions

Type of anchor		D [mm]	L [mm]	L _{clip} [mm]	SW [mm]
Size	Marking				
M6	TTSS M6	6	50 ÷ 200	13	10
M8	TTSS M8	8	60 ÷ 250	15	13
M10	TTSS M10	10	70 ÷ 300	8	17
M12	TTSS M12	12	90 ÷ 400	20	19
M16	TTSS M16	16	120 ÷ 400	23	24

Table A2 Materials

Type		TT SS A4	TT SS A2
Part	Designation	Material	Material
1	Bolt	Stainless steel A4	Stainless steel A2
2	Clip	Stainless steel A4	Stainless steel A2
3	Hexagonal nut	Stainless steel A4	Stainless steel A2
4	Washer	Stainless steel A4	Stainless steel A2

TT SS M6, M8, M10, M12, M16

Product description
Materials

Annex A 2

Specifications of intended use

Anchorage subject to:

- Static and quasi-static load.

Base materials

- Uncracked concrete.
- Reinforced or unreinforced normal weight concrete of strength class C20/25 at minimum and C50/60 at maximum according EN 206:2013+A2:2021

Use conditions (Environmental conditions)

- Structures subject to dry internal conditions.
- Structures subject to external atmospheric exposure and to permanently damp internal condition, use according EN 1993-1-4:2006 + A1:2015, corresponding to corrosion resistance class CRC III

Design:

- The anchorages are designed in accordance with the EN 1992-4 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.

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 components of the anchor.
- Anchor installation in accordance with the manufacturer's specifications and drawings using the appropriate tools.
- Effective anchoring depth, edge distance and spacing not less than the specified values without minus tolerance.
- In case of aborted drill 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.

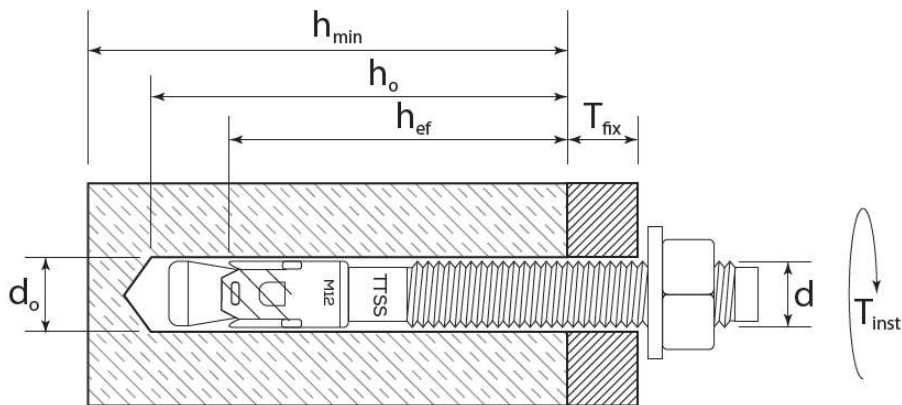
TT SS M6, M8, M10, M12, M16

Intended use
Specifications

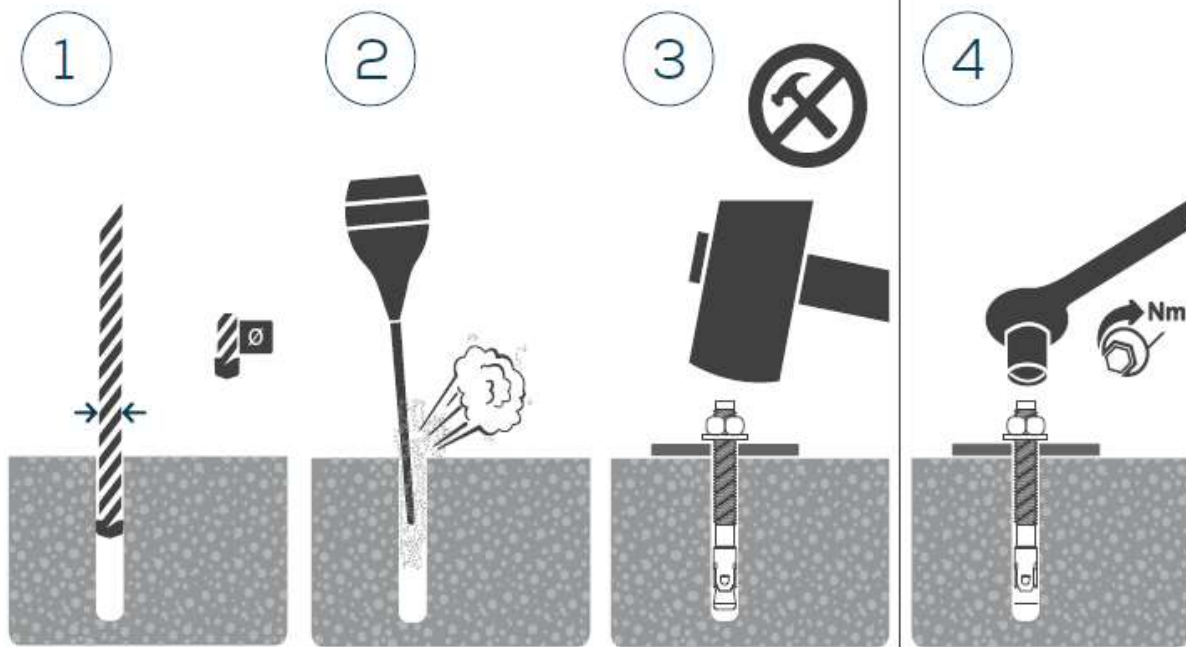
Annex B 1

Table B1 Installation parameters

Size		M6	M8	M10	M12	M16
Nominal drill hole diameter	d_o [mm]	6	8	10	12	16
Drill hole depth	h_o [mm]	55	65	70	90	120
Overall embedment depth	h_{nom} [mm]	47	55	60	80	100
Effective embedment depth	h_{ef} [mm]	40	41	45	62	88
Minimum concrete thickness	h_{min} [mm]	100	100	100	130	180
Minimum spacing	s_{min} [mm]	40	45	60	70	70
Minimum edge distance	c_{min} [mm]	40	45	70	85	85
Required setting torque	T_{inst} [Nm]	10	15	25	65	110



Installation instructions



TT SS M6, M8, M10, M12, M16

Intended use
Installation parameters
Installation instructions

Annex B 2

Table C1 Characteristic resistance under tension load

Size			M6	M8	M10	M12	M16
Steel failure							
Characteristic resistance	$N_{Rk,s}$	[kN]	8,8	17,9	29,3	47,6	84,6
Partial safety factor	$\gamma_{Ms}^{1)}$	[-]	1,68				
Pull-out failure							
Characteristic resistance in uncracked concrete C20/25	$N_{Rk,p}$	[kN]	7,0	12,0	14,0	24,0	40,0
Robustness	γ_{inst}	[-]	1,0	1,2			
Increasing factor for uncracked concrete	C30/37	ψ_c	1,0	1,08	1,06	1,06	1,04
	C40/50		1,0	1,32	1,23	1,23	1,15
	C50/60		1,0	1,42	1,30	1,30	1,19
Concrete cone and splitting failure							
Factor for concrete cone failure for uncracked concrete	$k_{ucr,N}$	[-]	11,0				
Robustness	γ_{inst}	[-]	1,0	1,2			
Effective embedment depth	h_{ef}	[mm]	40	41	45	62	88
Concrete cone failure	Edge distance	$C_{cr,N}$	$1,5 \cdot h_{ef}$				
	Spacing	$s_{cr,N}$	$3 \cdot h_{ef}$				
Splitting failure	Edge distance	$C_{cr,sp}$	100	120	135	185	265
	Spacing	$s_{cr,sp}$	200	240	270	370	530

¹⁾ in absence of other national regulations

Table C2 Displacement under tension load

Size			M6	M8	M10	M12	M16
Tension load in uncracked concrete	N	[kN]	3,3	4,8	5,6	9,5	15,9
Displacement	δ_{N0}	[mm]	0,7	1,0	1,9	2,4	3,0
	$\delta_{N\infty}$	[mm]	0,3	1,1			

TT SS M6, M8, M10, M12, M16

Performances

Characteristic resistance under tension load

Displacement under tension load

Annex C 1

Table C3 Characteristic resistance under shear load

Size			M6	M8	M10	M12	M16
Steel failure without lever arm							
Characteristic resistance	$V_{Rk,s}^0$	[kN]	7,0	12,0	20,0	29,2	50,7
Ductility factor	k_7	[-]	0,8				
Partial safety factor	$\gamma_{Ms}^{1)}$	[-]	1,40				

Steel failure with lever arm

Characteristic resistance	$M_{Rk,s}^0$	[Nm]	11	26	52	92	233
Partial safety factor	$\gamma_{Ms}^{1)}$	[-]	1,40				

Concrete pry-out failure

Factor	k_8	[-]	1,0	1,0	1,0	2,0	2,0
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Concrete edge failure

Effective length of anchor	l_f	[mm]	40	41	45	62	88
Anchor diameter	d_{nom}	[mm]	6	8	10	12	16

¹⁾ in absence of other national regulations

Table C4 – Displacement under shear load

Size			M6	M8	M10	M12	M16
Shear load in uncracked concrete	V	[kN]	3,6	6,1	10,2	14,9	25,9
Displacement	δ_{V0}	[mm]	1,2	1,5	1,6	1,6	1,7
	$\delta_{V\infty}$	[mm]	1,8	2,3	2,4	2,4	2,6

TT SS M6, M8, M10, M12, M16

Performances

Characteristic resistance under shear load

Displacement under shear load

Annex C 2