TOGE TSM ECO

The economical concrete screw

Economical

The innovative and optimized production process enables price savings without compromising on quality. The TOGE TSM ECO is a high-quality product that is still easy on your budget.

Good load values for versatile applications

Whether tensile or shear loads - the TOGE TSM ECO offers outstanding load values that meet your requirements. You can rely on its robustness and stability to securely fasten and reliably hold shelving systems or other attachments.

Easy to install

Thanks to its intelligent design and optimized geometry, the TOGE TSM ECO can be screwed into concrete effortlessly. This saves valuable working time and effort.

ETA Approval

With ETA-23/0693, the TOGE TSM ECO concrete screw has a high-quality approval that officially confirms its performance and reliability. It therefore meets the highest quality and safety standards.

Sustainability in focus

By using optimized production processes, we not only reduce manufacturing costs, but also CO_2 emissions. Your decision to use the TOGE TSM ECO concrete screw therefore contributes to a sustainable future without compromising on quality.

Developed and manufactured in Germany

The TOGE TSM ECO concrete screw was developed by an experienced team in Germany and is also manufactured there. This guarantees not only the highest quality standards, but also close cooperation with experts who understand your needs as a user.

Approval

Approvals

European technical assessment ETA-23/0693, single fastening.

Base Materials

Aproved for concrete strenght classes from C20/25 to C50/60.

Cracked and non-crakced concrete.

Technical Characteristics

Single fastening without fire exposure, Steel

Anchor size TSM E			TSM 8			TSM 10		
Nominal embedment depth	h_{nom}	[mm]	h_{nom1}	h_{nom2}	h_{nom3}	h_{nom1}	h_{nom2}	h_{nom3}
			45	**55**	**65**	**55**	**75**	**85**
Nominal diameter of drill bit	d_0	[mm]	8			10		
Depth of drill hole	h_0 min	[mm]	55	65	75	65	85	95
Effective anchorage depth	h_{ef}	[mm]	35	44	52	43	60	69
Diameter of clearance hole in the fixture	d_f max	[mm]	12			14		
Approved tension load in cracked concrete [1) 2)]	N_{zul}	[kN]	1,4	2,6	3,8	2,9	6,2	8,1
Approved shear load in cracked concrete [1) 2)]	V_{zul}	[kN]	7,1	7,7	9,7	11,6	19,1	19,4
Approved tension load in non-cracked concrete [1) 2)]	N_{zul}	[kN]	4,2	5,7	8,1	5,2	9,0	11,9
Approved shear load in non-cracked concrete [1) 2)]	V_{zul}	[kN]	7,7	7,7	9,7	12,9	19,4	19,4
Approved bending resistance	M_{zul}	[kN]	14,9			32,0		
Minimum edge distance	c_{min}	[mm]	35			40		
Minimum spacing	s_{min}	[mm]	35			40		
Minimum base material thickness	h_{min}	[mm]	80	100	120	100	130	
Maximum torque (with impact screw driver)		[Nm]	300			450		
ETA Seismic C1			No	No	No	No	No	No

[1)] For the determination of the approved loads, the partial safety factor from the approval γM=1,5 was taken into account for material resistance and a partial safety factor γF=1,4 for load actions.

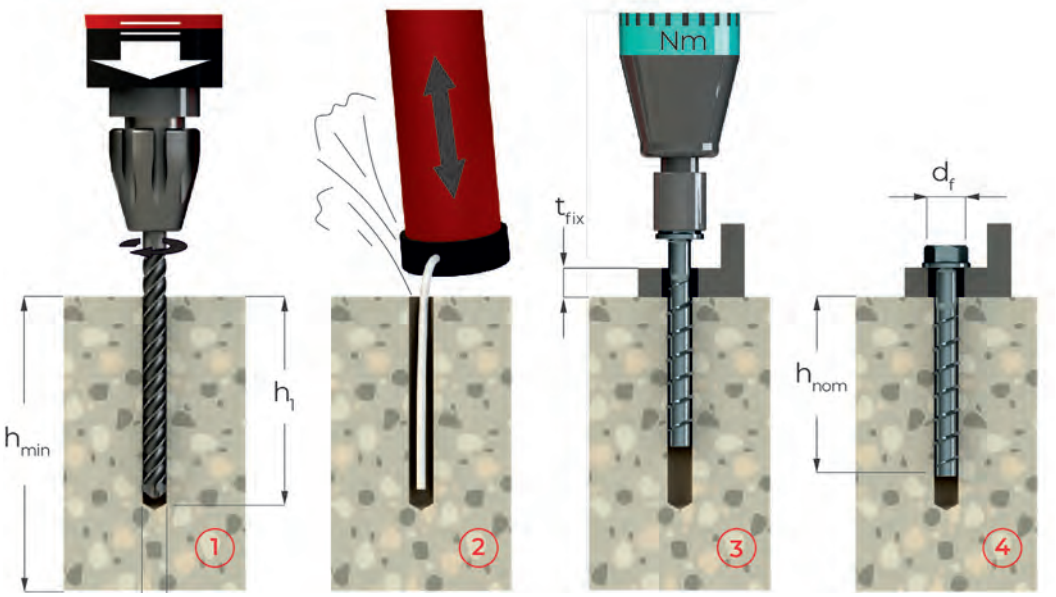
[2)] These values apply without influence of the spacing and edge distances.

Single fastening under fire exposure, Steel

Anchor size TSM E				TSM 8			TSM 10		
Nominal embedment depth		h_{nom}	[mm]	h_{nom1}	h_{nom2}	h_{nom3}	h_{nom1}	h_{nom2}	h_{nom3}
				45	**55**	**65**	**55**	**75**	**85**
Approved load under tensile and shear use ($F_{zul,fi}$ = $N_{zul,fi}$ = $V_{zul,fi}$)									
Fire resistance class									
R 30	Approved load	$F_{zul,fi\ 30}$	[kN]	0,8	1,4	2,0	1,5	3,3	4,3
R 60		$F_{zul,fi\ 60}$	[kN]	0,8	1,4	1,7	1,5	3,3	3,3
R 90		$F_{zul,fi\ 90}$	[kN]	0,8	1,1	1,1	1,5	2,3	2,3
R 120		$F_{zul,fi\ 120}$	[kN]	0,6	0,7	0,7	1,2	1,7	1,7
R 30		$M_{zul,fi\ 30}$	[Nm]	2,4			5,9		
R 60		$M_{zul,fi\ 60}$	[Nm]	1,8			4,5		
R 90		$M_{zul,fi\ 90}$	[Nm]	1,2			3,0		
R 120		$M_{zul,fi\ 120}$	[Nm]	0,9			2,3		
Edge distance									
R 30 bis R 120		$c_{cr,fi}$	[mm]	$2 \times h_{ef}$					
The edge distance must be at least 300 mm if the fire load attacks from more than on side.									
Spacing									
R 30 bis R 120		$s_{cr,fi}$	[mm]	$4 \times h_{ef}$					
Concrete pry-out failure									
R 30 bis R 120		k	[-]	2,1	2,8		2,5		
In wet concrete, the embedment depth must be increased by at least 30 mm.									

Installation Instructions

Installation instructions for concrete



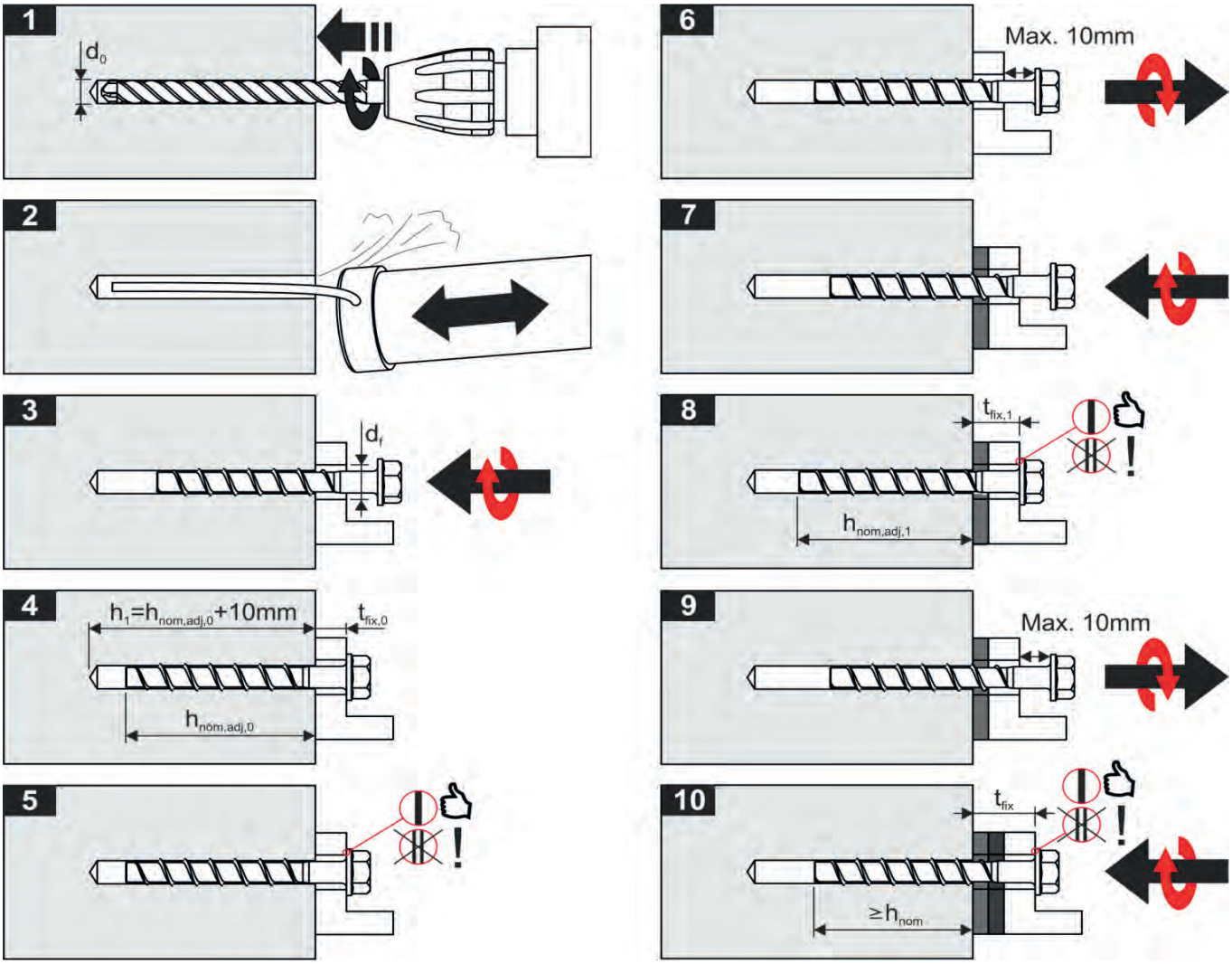
1) Create borehole.

2) Thoroughly clean borehole.

3) Screw in concrete screw.

4) The screw head must rest completely on the attachment.

Installation instructions with adjustment for sizes 8 to 10



Important - please note during adjustment:

- The anchor may be adjusted maximum two times, while the anchor may turn back at most 10 mm.
- The total allowed thickness of shims added during the adjustment process is 10 mm.
- The final embedment depth after adjustment process must be equal or longer than h_{nom}.