

TOGE TSM L

Concrete screw for interior and drywall construction

Fast Installation

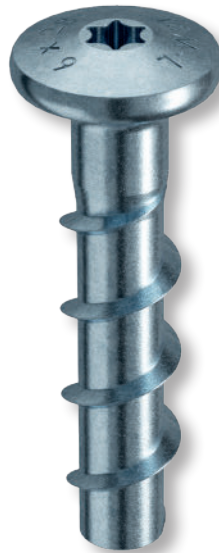
A small drilling diameter of just 6 mm ensures fast and easy drilling progress – even in high-strength concrete.

No more reinforcement hits

The low embedment depths of 25 mm and 35 mm allow particularly user-friendly processing completely WITHOUT reinforcement hits.

Particularly near the edge

Small edge distances and spacing allow very closed-edge and closely spaced installation.



Easily demountable

If required, the TOGE TSM L can be quickly and easily demounted again. This means that drywalls can be removed and reinstalled afterwards.

Easy Installation

The patented special thread of the TOGE TSM L allows installation with a standard cordless screwdriver without the need for additional special tools.

Variable load absorption

Two different embedment depths of 25 mm or 35 mm allow variable load absorption – tailored to your individual application requirements.

Approval

Approval

European technical assesment ETA-15/0055.

Basements

Approved for concrete strength classes from C20/25 bis C50/60.

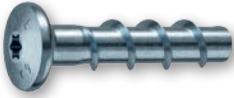
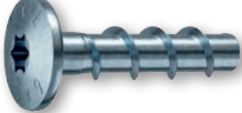


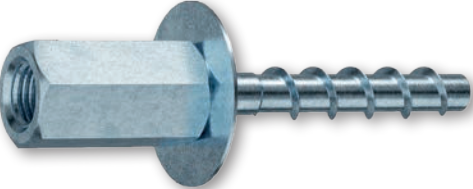
Cracked and non-cracked concrete.



R 30 - R 120



Headshapes & Materials

		Steel zinc-plated	Steel, zinc flake-coated	Stainless steel A4
	Panhead and multipoint drive	✓		
	Large panhead and multipoint drive	✓		
	Metric connection thread M8	✓		
	Metric connection thread M6	✓		
	Metric female thread M8/M10	✓		

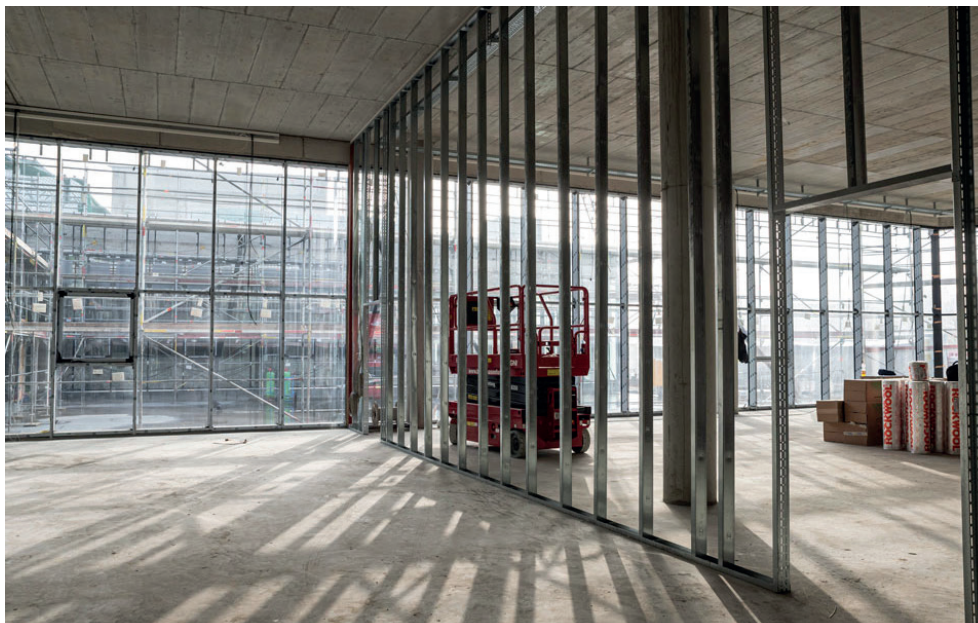
Application Examples



Fastening cable ducts



Fastening piping

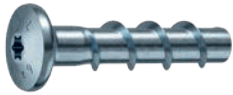


Fastening drywalls

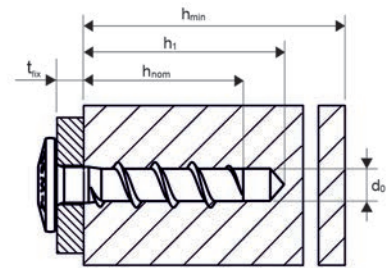
Product Overview

Steel - zinc plated

Version with panhead and multipoint drive

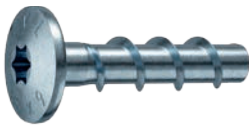


Size 6 Head-Ø 14,0 mm

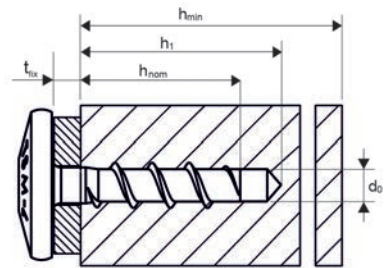


Item nr.	Designation	Depth of drill hole $h_{1,1}$	Embedment depth of anchor $h_{nom,1}$	Max. thickness of fixture $t_{fix,1}$	Packing Unit
205 060 280	TSM L 6x28 LiKo VZ30	28mm	25mm	3mm	100

Version with large panhead and multipoint drive

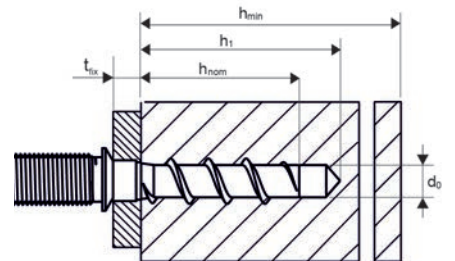


Size 6 Head-Ø 17,5 mm



Item nr.	Designation	Depth of drill hole $h_{1,1} / h_{1,2}$	Embedment depth of anchor $h_{nom,1} / h_{nom,2}$	Max. thickness of fixture $t_{fix,1} / t_{fix,2}$	Packing Unit
205 060 281	TSM L 6x28 LP VZ30	28mm	25mm	3mm	100
205 060 401	TSM L 6x40 LP VZ30	28mm 38mm	25mm 35mm	15mm 5mm	100

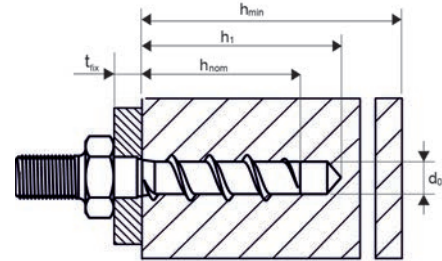
Version with metric connection thread M8



Item nr.	Designation	Depth of drill hole $h_{1,1}$	Embedment depth of anchor $h_{nom,1}$	Max. thickness of fixture $t_{fix,1}$	Packing Unit
205 060 283	TSM L 6x28 M8 VZ25	28mm	25mm	3mm	100

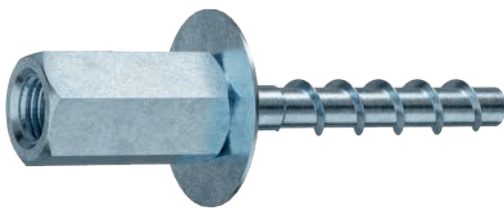


Version with metric connection thread M6

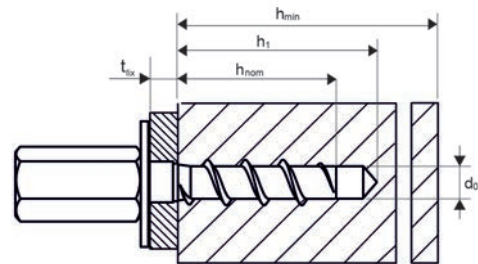


Item nr.	Designation	Depth of drill hole $h_{1,1}$	Embedment depth of anchor $h_{nom,1}$	Max. thickness of fixture $t_{fix,1}$	Packing Unit
205 060 282	TSM L 6x28 M6 SW10	28mm	25mm	3mm	100

Version with metric female thread M8/M10



Size 6
Washer-Ø 25,0 mm



Item nr.	Designation	Depth of drill hole $h_{1,1} / h_{1,2}$		Embedment depth of anchor $h_{nom,1} / h_{nom,2}$		Max. thickness of fixture $t_{fix,1} / t_{fix,2}$		Packing Unit
205 060 404	TSM L 6x40 M8/10 SW13	28mm	38mm	25mm	35mm	15mm	5mm	50

Multiple fastening without fire exposure, Steel

Screw size TSM L			6	
Nominal embedment depth	h _{nom}	[mm]	h _{nom,1}	h _{nom,2}
			25	35
Nominal diameter of drill bit	d ₀	[mm]	6	
Depth of drill hole	h _{1 min}	[mm]	28	38
Effective anchorage depth	h _{ef}	[mm]	19	27
Diameter of clearance hole in the fixture	d _{f max}	[mm]	8	
Approved tension load in cracked concrete ^{1) 2)}	N _{zul}	[kN]	0,4	1,0
Approved shear load in cracked concrete ^{1) 2)}	V _{zul}	[kN]	1,4	2,3
Approved tension load in non-cracked concrete ^{1) 2)}	N _{zul}	[kN]	1,0	1,9
Approved shear load in non-cracked concrete ^{1) 2)}	V _{zul}	[kN]	1,9	3,3
Approved bending resistance	M _{zul}	[kN]	6,3	
Minimum edge distance	C _{min}	[mm]	30	
Minimum spacing	S _{min}	[mm]	30	
Minimum base material thickness	h _{min}	[mm]	80	
Installation torque (with metric connection thread)	T _{inst}	[Nm]	10	

¹⁾ For the determination of the approved loads, the partial safety factor from the approval $\gamma_M=1,5$ was taken into account for material resistance and a partial safety factor $\gamma_F=1,4$ for load actions.

²⁾ These values apply without influence of the space and edge distancing.

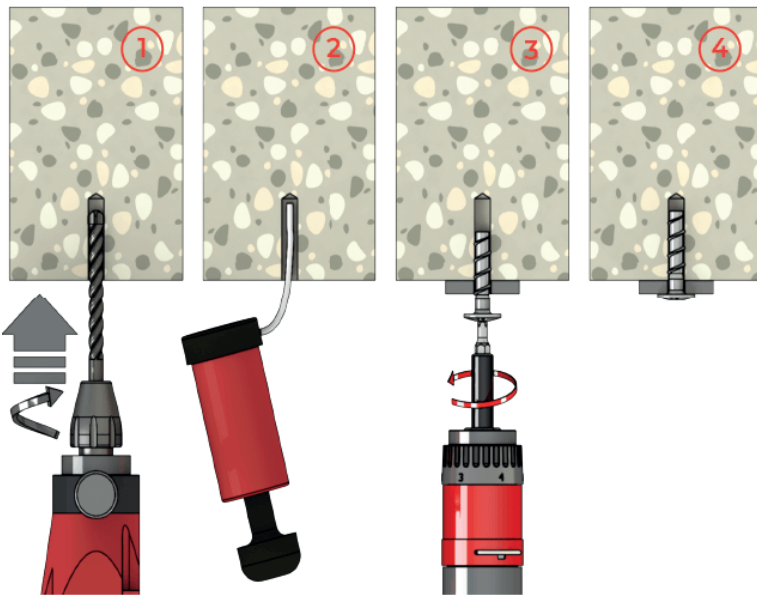
Multiple fastening under fire exposure, Steel

Screw size TSM L			6		
Nominal embedment depth	h _{nom}	[mm]	h _{nom,1}	h _{nom,2}	
			25	35	
Approved load under tensile and shear use ($F_{zul,fi} = N_{zul,fi} = V_{zul,fi}$) ^{1) 2)}					
Fire resistance class					
R 30	Approved load	F _{zul,fi 30}	[kN]	0,23	0,27
R 60		F _{zul,fi 60}	[kN]	0,23	0,27
R 90		F _{zul,fi 90}	[kN]	0,22	
R 120		F _{zul,fi 120}	[kN]	0,17	
R 30		M _{zul,fi 30}	[Nm]	0,22	
R 60		M _{zul,fi 60}	[Nm]	0,22	
R 90		M _{zul,fi 90}	[Nm]	0,18	
R 120		M _{zul,fi 120}	[Nm]	0,14	
Fire resistance class					
R 30 to R 120	C _{cr,fi}	[mm]	2 x h _{ef}		
The edge distance must be at least 300 mm if the fire load attacks from more than one side.					
Spacing					
R 30 to R 120	S _{cr,fi}	[mm]	4 x h _{ef}		
Concrete pry-out failure					
R 30 to R 120	k	[-]	1,0		
In wet concrete, the embedment depth must be increased by at least 30 mm.					

¹⁾ For the determination of the approved loads, the partial safety factor from the approval $\gamma_M=1,0$ was taken into account for material resistance and a partial safety factor $\gamma_F=1,0$ for load actions.

²⁾ These values apply without influence of the space and edge distancing.

Installation Instructions



- 1) Create borehole.
- 2) Thoroughly clean borehole.
- 3) Screw in the TOGE TSM L with a standrd cordless screwdriver - without special tools.
- 4) The screwhead must rest completely on the attachment.