

**20
23**

**PRODUCT-
CATALOGUE**



TOGE Product Catalogue 2023

PRODUCT OVERVIEW

Find the right product
for your needs



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**Concrete screw –
even for heavy loads**

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02 | TOGE TSM BC ST

**Concrete screw for
temporary fixation**

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**Short concrete
screw for drywall
constructions**

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**Aerated
concrete screw**

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**Insulating screw
for cold-, heat- and
fire-protection**

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06 | TOGE TID

**Insulating anchor
for cold-, heat- and
fire-protection**

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Asphalt screw

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08 | TOGE TSM High Performance

**Adhesive screw
anchor**

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09 | TOGE TSM B

**Crash barrier
anchor**

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- ✓ approved
- suitable



Application examples	Concrete screw TSM High Performance	Concrete screw TSM L	Aerated concrete screw TSM PB	Insulating screw TIS	Insulating anchor TID	Asphalt screw TSM A	Adhesive screw anchor TSM HP with mortar	Crash barrier anchor TSM B
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Concrete

Facade substructures	✓						✓	
Steel girders / Steel structures	✓						✓	
Railing	✓						✓	
Handrails	✓						✓	
Shelving systems	✓						✓	
Cable ducts / cable clamps	✓	✓					✓	
Piping / Pipe clamps	✓	✓					✓	
Ventilation ducts	✓	✓					✓	
Ceiling suspensions	✓	✓					✓	
Lightweight and drywall	✓	✓						
Insulations				✓	✓			
Temporary construction site safety	✓							
Crash barriers								✓

Solid brick masonry

Facade substructures	✓							
Cable ducts / cable clamps	✓							
Piping / Pipe clamps	✓							
Ventilation ducts	✓							
Insulations				○	○			

Asphalt

Traffic signs						○		
Protective devices						○		
Crash protection systems						○		
Speed bumpers						○		
Shopping cart canopies						○		
E-Charge Stations						○		
Crash barriers						○		



Concrete screw TSM High Performance
 Concrete screw TSM L
 Aerated concrete screw TSM PB
 Insulating screw TIS
 Insulating anchor TID
 Asphalt screw TSM A
 Adhesive screw anchor TSM HP with mortar
 Crash barrier anchor TSM B

Application examples

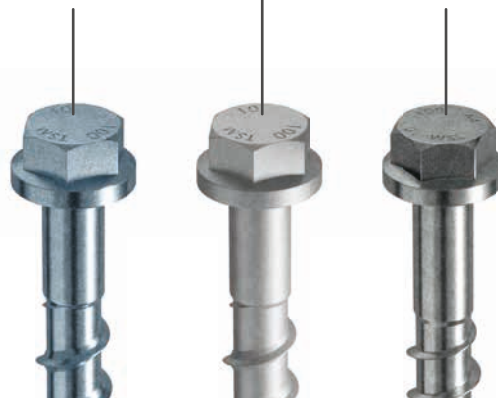
Aerated concrete

Light cabinets	<input type="radio"/>
Light shelves	<input type="radio"/>
Substructures made of wood or metal	<input type="radio"/>
Metal rails	<input type="radio"/>

Steel – zinc flake coated

Steel

Stainless steel – LT A4



We are proud of our unique product range

As a specialist in concrete screws, we produce more than 600 different product types in this category in different materials and a variety of designs.

SIDE NOTE



Technical data	Concrete screw TSM High Performance	Concrete screw TSM L	Aerated concrete screw TSM PB	Insulating screw TIS	Insulating anchor TID	Asphalt screw TSM A	Adhesive screw anchor TSM HP with mortar	Crash barrier anchor TSM B
Substrate								
Cracked concrete	✓	✓		✓	✓		✓	✓
Uncracked concrete	✓	✓		✓	✓		✓	✓
Single fastening in concrete	✓						✓	✓
Multiple fastening in concrete	✓	✓		✓	✓			
Prestressed concrete hollow core slabs	✓	✓						
Solid brick masonry	✓			○	○			
Lightweight concrete	✓							
Aerated concrete			○					
Asphalt						○		
Natural stone with dense structure	○							
Approvals								
ETA-Assessment	✓	✓		✓				
General design type approval	✓	✓		✓	✓		✓	✓
Fire resistance	✓	✓		✓	✓		✓	✓
Tunnel fire test	✓							
Earthquake approval	✓							
VdS recognition	✓							
Temporary, reusable fastening	✓							
WHG requirements (Water Resources Act)	✓							
Materials								
Steel, zinc plated	✓	✓	○	✓	✓		✓	
Steel, zinc flake coated	✓			✓		○	✓	✓
Steel, hot-dip galvanised								
Stainless steel A2					✓			
Stainless steel A4	✓						✓	
Installation								
Suction drill	✓	✓		✓	✓	○	✓	✓
Adjustable	✓	○	○	○		○		

TOGE Product Catalogue 2023

EDITORIAL

Concrete screw technology matures into a multifunctional fastening product



Concrete screw technology is growing out of its infancy: While concrete screw technology was still designed purely for fastening in concrete at the end of the 20th century, this screw is increasingly transforming into a multifunctional screw and is also conquering a range of other substrates.

For more than 30 years we have been intensively involved in the development of concrete screws – TOGE is thus one of the pioneers of concrete screw technology. With over 600 product types, our range is one of the broadest and deepest in the industry.

All TOGE products are in-house developments – research and development is carried out in-house and, since September 2022, also in the company's own test rooms in the Reinhold Würth curio! innovation center. Here, 75 million euro have been invested in the last two years and ideal test and development areas have been created for the further development of fastening technology.

We produce almost exclusively at our site in Nuremberg. More than 90% of our suppliers are located within a radius of max. 500 km from our company headquarters – so we deliberately keep our supply chains short to ensure better delivery capability and save CO₂ in the process.

Screw technology for approved use in masonry:

In addition to special screws for asphalt and aerated concrete, our product range includes the concrete screw TOGE TSM High Performance, an absolute premium product with the highest load values.

Previously only approved for concrete – this now also has approval for use in masonry (solid brick, sand-lime brick, perforated brick, lightweight concrete). But also for other substrates we rely on the development of the screw technology as a convenient solution for different substrates.

Screw technology in drywall constructions:

Laborious overhead hammering in was yesterday: The time and effort saving alternative is our small concrete screw (TOGE TSM L), which can be used with a simple rotary screwdriver.

Save valuable working time and costs with this screw, which can be processed more than twice as fast.



Watch this video to see the installation of the short TOGE concrete screw compared to a conventional ceiling anchor.

Screw technology as a substitute for adhesive anchors for use in areas where the highest loads or reliable borehole sealing is required:

The steel and stainless steel concrete screws from TOGE have already had a system approval with significant load increases since 2002, which allows the use of the screw technology with composite adhesive with immediate load capacity (no curing times required).

Screw technology in aerated concrete:

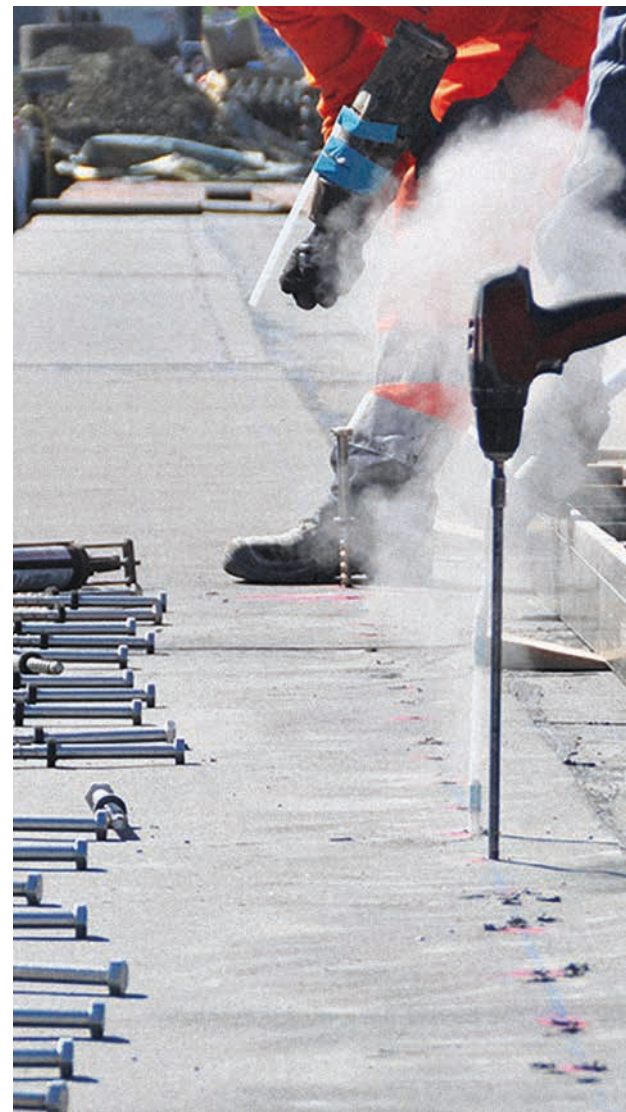
Wedge anchors, plastic dowels or more or less complex metal anchors are replaced by aerated concrete screws. Here, too, TOGE offers a simple and fast alternative with the aerated concrete screw TOGE TSM PB.

Screw technology for the permanent or temporary fastening of protective devices in asphalt:

In the past, adhesive or bolt anchors were often used, which were inserted into an elaborately produced concrete foundation in the asphalt. With the TOGE TSM A asphalt screw, a secure and permanent anchoring is achieved in combination with composite adhesive – and without any concrete foundation at all.

Screw technology for the installation of insulation materials:

Here, too, TOGE offers a screw with approval and fire protection (TOGE TIS) that replaces large-area drive-in solutions or plastic dowels. Adjustability, easy installation and low hole depths to avoid reinforcement impacts during drilling offer the user considerable time and cost advantages.



TOGE Product Catalogue 2023

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08 | TOGE TSM HP – Adhesive screw anchor

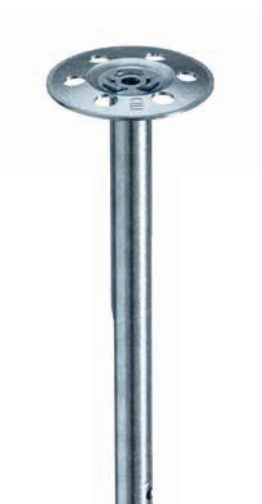
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09 | TOGE TSM B – Crash barrier anchor

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01 | TOGE TSM HIGH PERFORMANCE

TSM HIGH PERFORMANCE

Our all-rounder concrete screw – even for heavy loads



Large variety

Seven different head shapes and up to three different embedment depths for variable load absorption: always perfectly matched to your individual requirements.



Easy and fast installation

The optimized thread enables a fast and easy installation process.



Adjustable & Demountable

If required, the TOGE TSM High Performance can be adjusted up to twice during assembly. After assembly, it can be disassembled again at any time.



High load level

The special thread geometry ensures extreme hold and high loads in concrete – whether tensile or shear loads.



Combinable system

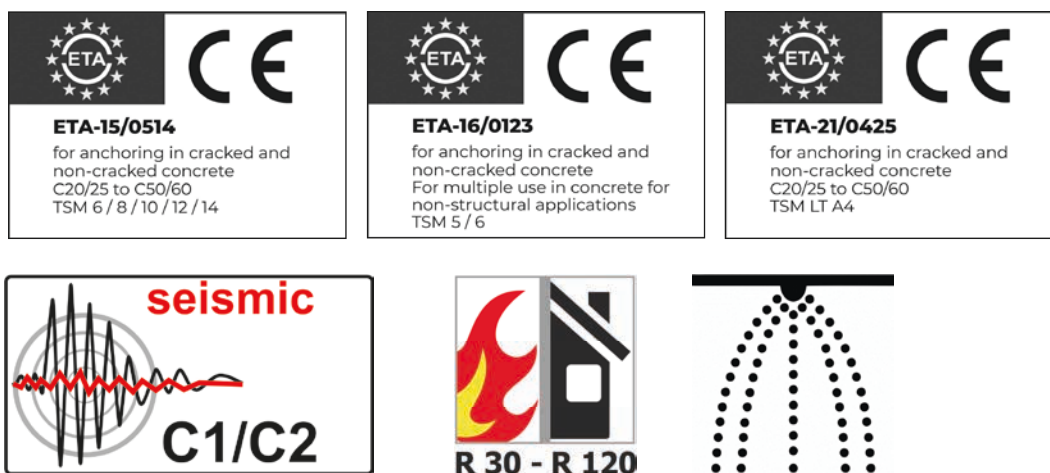
In combination with our composite mortar, the TSM HP has an even higher load level – and can be loaded immediately. Tested impermeability, even to critical substances, enables use even under WHG requirements (only for TSM LT A4).



Particularly near the edge

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

Approval



- ✓ European technical assessment ETA-15/0514, single fastening.
- ✓ European technical assessment ETA-16/0123, multiple fastening.
- ✓ European technical assessment ETA-21/0425, TSM LT A4.
- ✓ General design approval Z-21.8-2115 for temporary fastening.
- ✓ General design approval Z-21.1-2074 adhesive concrete screw.

Base Material

- ✓ Approved for concrete strength classes from C20/25 to C50/60.
- ✓ Cracked and non-cracked concrete.
- ✓ Prestressed hollow core slabs (size 6).
- ✓ Solid masonry brick, solid sand-lime brick, perforated sand-lime brick, lightweight concrete.
- ✓ Suitable for natural stone with dense structure.










Scan the QR code and go directly to the product page

For example, to view the approvals in detail you only need one click. Feel free to try it out!

01 | TOGE TSM HIGH PERFORMANCE

HEADSHAPES AND MATERIALS

		Steel, zinc plated	Steel, zinc flake-coated	Stainless steel A4
	Hexagon head and pressed-on washer	✓	✓	✓
	Countersunk head with multipoint drive	✓		✓
	Panhead with multipoint drive	✓		✓
	Large panhead with multipoint drive	✓		
	Hexagonal drive and metric external thread M8 and M10	✓		
	Metric female thread M8 / M10	✓		✓
	Metric external thread	✓		✓

Application examples



01 | TOGE TSM HIGH PERFORMANCE

STEEL – ZINC PLATED

Version with hexagon head
and pressed-on washer

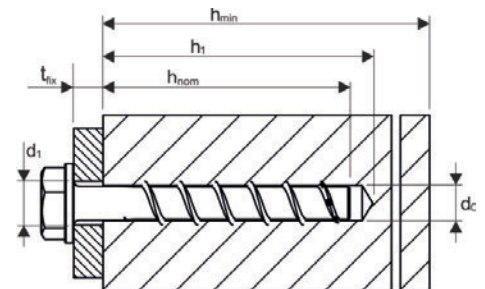


Size

5
6
8
10
12
14

Washer-Ø

12,5 mm
15,0 mm
16,0 mm
20,0 mm
23,5 mm
28,5 mm



Item nr.	Designation	Depth of drill hole $h_{01} / h_{02} / h_{03}$	Embedment depth of anchor $h_{nom1} / h_{nom2} / h_{nom3}$	Max. thickness of fixture $t_{fix1} / t_{fix2} / t_{fix3}$	Packing Unit
300 005 040	TSM 5x40 SW10	40 mm / - / -	35 mm / - / -	5 mm / - / -	100
300 005 050	TSM 5x50 SW10	40 mm / - / -	35 mm / - / -	15 mm / - / -	100
300 005 060	TSM 5x60 SW10	40 mm / - / -	35 mm / - / -	25 mm / - / -	100
300 006 040	TSM 6x40 SW13	40 mm / - / -	35 mm / - / -	5 mm / - / -	100
300 006 050	TSM 6x50 SW13	40 mm / 45 mm / -	35 mm / 40 mm / -	15 mm / 10 mm / -	100
300 006 060	TSM 6x60 SW13	40 mm / 45 mm / 60 mm	35 mm / 40 mm / 55 mm	25 mm / 20 mm / 5 mm	100
300 006 080	TSM 6x80 SW13	40 mm / 45 mm / 60 mm	35 mm / 40 mm / 55 mm	45 mm / 40 mm / 25 mm	100
300 006 100	TSM 6x100 SW13	40 mm / 45 mm / 60 mm	35 mm / 40 mm / 55 mm	65 mm / 60 mm / 45 mm	100
300 008 050	TSM 8x50 SW13	55 mm / - / -	45 mm / - / -	5 mm / - / -	50
300 008 060	TSM 8x60 SW13	55 mm / 65 mm / -	45 mm / 55 mm / -	15 mm / 5 mm / -	50
300 008 070	TSM 8x70 SW13	55 mm / 65 mm / 75 mm	45 mm / 55 mm / 65 mm	25 mm / 15 mm / 5 mm	50
300 008 080	TSM 8x80 SW13	55 mm / 65 mm / 75 mm	45 mm / 55 mm / 65 mm	35 mm / 25 mm / 15 mm	50
300 008 090	TSM 8x90 SW13	55 mm / 65 mm / 75 mm	45 mm / 55 mm / 65 mm	45 mm / 35 mm / 25 mm	50
300 008 100	TSM 8x100 SW13	55 mm / 65 mm / 75 mm	45 mm / 55 mm / 65 mm	55 mm / 45 mm / 35 mm	50
300 008 120	TSM 8x120 SW13	55 mm / 65 mm / 75 mm	45 mm / 55 mm / 65 mm	75 mm / 65 mm / 55 mm	50
300 008 140	TSM 8x140 SW13	55 mm / 65 mm / 75 mm	45 mm / 55 mm / 65 mm	95 mm / 85 mm / 75 mm	50
300 010 060	TSM 10x60 SW 15	65 mm / - / -	55 mm / - / -	5 mm / - / -	50
300 010 070	TSM 10x70 SW15	65 mm / - / -	55 mm / - / -	15 mm / - / -	50
300 010 080	TSM 10x80 SW15	65 mm / 85 mm / -	55 mm / 75 mm / -	25 mm / 5 mm / -	50
300 010 090	TSM 10x90 SW15	65 mm / 85 mm / 95 mm	55 mm / 75 mm / 85 mm	35 mm / 15 mm / 5 mm	50
300 010 100	TSM 10x100 SW15	65 mm / 85 mm / 95 mm	55 mm / 75 mm / 85 mm	45 mm / 25 mm / 15 mm	50

↪ Type list – continued on page 11

01 | TOGE TSM HIGH PERFORMANCE

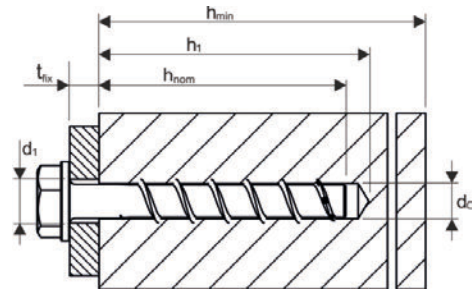
STEEL – ZINC PLATED

Version with hexagon head and pressed-on washer

↪ Continued



Size	Washer-Ø
5	12,5 mm
6	15,0 mm
8	16,0 mm
10	20,0 mm
12	23,5 mm
14	28,5 mm



Item nr.	Designation	Depth of drill hole $h_{o1} / h_{o2} / h_{o3}$	Embedment depth of anchor $h_{nom1} / h_{nom2} / h_{nom3}$	Max. thickness of fixture $t_{fix1} / t_{fix2} / t_{fix3}$	Packing Unit
300 010 120	TSM 10x120 SW15	65 mm / 85 mm / 95 mm	55 mm / 75 mm / 85 mm	65 mm / 45 mm / 35 mm	50
300 010 140	TSM 10x140 SW15	65 mm / 85 mm / 95 mm	55 mm / 75 mm / 85 mm	85 mm / 65 mm / 55 mm	50
300 010 150	TSM 10x150 SW15	65 mm / 85 mm / 95 mm	55 mm / 75 mm / 85 mm	95 mm / 75 mm / 65 mm	50
300 010 160	TSM 10x160 SW15	65 mm / 85 mm / 95 mm	55 mm / 75 mm / 85 mm	105 mm / 85 mm / 75 mm	50
300 010 180	TSM 10x180 SW15	65 mm / 85 mm / 95 mm	55 mm / 75 mm / 85 mm	125 mm / 105 mm / 95 mm	25
300 010 200	TSM 10x200 SW15	65 mm / 85 mm / 95 mm	55 mm / 75 mm / 85 mm	145 mm / 125 mm / 115 mm	25
300 010 240	TSM 10x240 SW15	65 mm / 85 mm / 95 mm	55 mm / 75 mm / 85 mm	185 mm / 165 mm / 155 mm	25
300 010 280	TSM 10x280 SW15	65 mm / 85 mm / 95 mm	55 mm / 75 mm / 85 mm	225 mm / 205 mm / 195 mm	25
300 010 320	TSM 10x320 SW15	65 mm / 85 mm / 95 mm	55 mm / 75 mm / 85 mm	265 mm / 245 mm / 235 mm	25
300 010 360	TSM 10x360 SW15	65 mm / 85 mm / 95 mm	55 mm / 75 mm / 85 mm	305 mm / 285 mm / 275 mm	25
300 010 400	TSM 10x400 SW15	65 mm / 85 mm / 95 mm	55 mm / 75 mm / 85 mm	345 mm / 325 mm / 315 mm	25
300 012 080	TSM 12x80 SW17	75 mm / - / -	65 mm / - / -	15 mm / - / -	25
300 012 110	TSM 12x110 SW17	75 mm / 95 mm / 110 mm	65 mm / 85 mm / 100 mm	45 mm / 25 mm / 10 mm	25
300 012 130	TSM 12x130 SW17	75 mm / 95 mm / 110 mm	65 mm / 85 mm / 100 mm	65 mm / 45 mm / 30 mm	25
300 012 150	TSM 12x150 SW17	75 mm / 95 mm / 110 mm	65 mm / 85 mm / 100 mm	85 mm / 65 mm / 50 mm	25
300 014 080	TSM 14x80 SW21	85 mm / - / -	75 mm / - / -	5 mm / - / -	25
300 014 110	TSM 14x110 SW21	85 mm / 110 mm / -	75 mm / 100 mm / -	35 mm / 10 mm / -	25
300 014 130	TSM 14x130 SW21	85 mm / 110 mm / 125 mm	75 mm / 100 mm / 115 mm	55 mm / 30 mm / 15 mm	25
300 014 150	TSM 14x150 SW21	85 mm / 110 mm / 125 mm	75 mm / 100 mm / 115 mm	75 mm / 50 mm / 35 mm	25

01 | TOGE TSM HIGH PERFORMANCE

STEEL – ZINC PLATED

Version with countersunk head
with multipoint drive

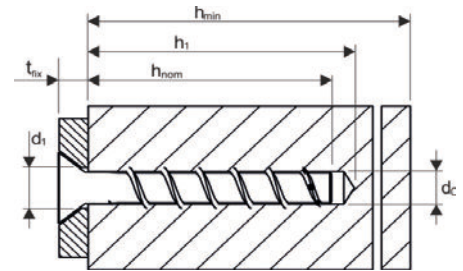


Size

5
6
8
10

Head-Ø

12,0 mm
13,0 mm
19,5 mm
21,5 mm



Item nr.	Designation	Depth of drill hole $h_{01} / h_{02} / h_{03}$	Embedment depth of anchor $h_{nom1} / h_{nom2} / h_{nom3}$	Max. thickness of fixture $t_{fix1} / t_{fix2} / t_{fix3}$	Packing Unit
311 005 040	TSM 5x40 C VZ25	40 mm / - / -	35 mm / - / -	5 mm / - / -	100
311 005 050	TSM 5x50 C VZ25	40 mm / - / -	35 mm / - / -	15 mm / - / -	100
311 005 060	TSM 5x60 C VZ25	40 mm / - / -	35 mm / - / -	25 mm / - / -	100
311 006 040	TSM 6x40 C VZ30	40 mm / - / -	35 mm / - / -	5 mm / - / -	100
311 006 050	TSM 6x50 C VZ30	40 mm / 45 mm / -	35 mm / 40 mm / -	15 mm / 10 mm / -	100
311 006 060	TSM 6x60 C VZ30	40 mm / 45 mm / 60 mm	35 mm / 40 mm / 55 mm	25 mm / 20 mm / 5 mm	100
311 006 080	TSM 6x80 C VZ30	40 mm / 45 mm / 60 mm	35 mm / 40 mm / 55 mm	45 mm / 40 mm / 25 mm	100
311 006 100	TSM 6x100 C VZ30	40 mm / 45 mm / 60 mm	35 mm / 40 mm / 55 mm	65 mm / 60 mm / 45 mm	100
311 006 120	TSM 6x120 C VZ30	40 mm / 45 mm / 60 mm	35 mm / 40 mm / 55 mm	85 mm / 80 mm / 65 mm	100
311 006 140	TSM 6x140 C VZ30	40 mm / 45 mm / 60 mm	35 mm / 40 mm / 55 mm	105 mm / 100 mm / 85 mm	100
311 008 080	TSM 8x80 C VZ40	55 mm / 65 mm / 75 mm	45 mm / 55 mm / 65 mm	35 mm / 25 mm / 15 mm	50
311 008 100	TSM 8x100 C VZ40	55 mm / 65 mm / 75 mm	45 mm / 55 mm / 65 mm	55 mm / 45 mm / 35 mm	50
311 008 120	TSM 8x120 C VZ40	55 mm / 65 mm / 75 mm	45 mm / 55 mm / 65 mm	75 mm / 65 mm / 55 mm	50
311 010 090	TSM 10x90 C VZ50	65 mm / 85 mm / 95 mm	55 mm / 75 mm / 85 mm	35 mm / 15 mm / 5 mm	50
311 010 100	TSM 10x100 C VZ50	65 mm / 85 mm / 95 mm	55 mm / 75 mm / 85 mm	45 mm / 25 mm / 15 mm	50
311 010 120	TSM 10x120 C VZ50	65 mm / 85 mm / 95 mm	55 mm / 75 mm / 85 mm	65 mm / 45 mm / 35 mm	50

01 | TOGE TSM HIGH PERFORMANCE

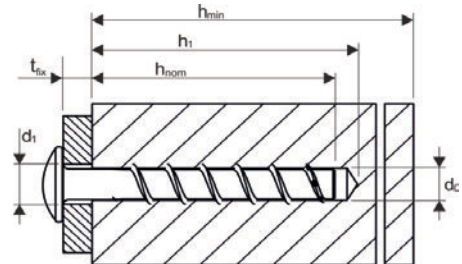
STEEL – ZINC PLATED

Version with panhead and multipoint drive



Size
5
6

Head-Ø
14,0 mm
14,5 mm



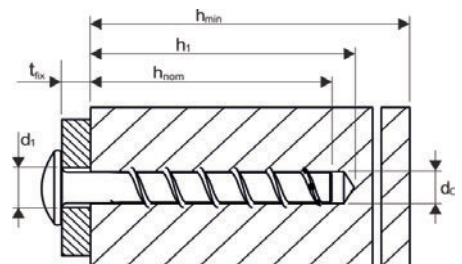
Item nr.	Designation	Depth of drill hole $h_{01} / h_{02} / h_{03}$	Embedment depth of anchor $h_{nom1} / h_{nom2} / h_{nom3}$	Max. thickness of fixture $t_{fix1} / t_{fix2} / t_{fix3}$	Packing Unit
322 005 040	TSM 5x40 P VZ30	40 mm / - / -	35 mm / - / -	5 mm / - / -	100
322 005 050	TSM 5x50 P VZ30	40 mm / - / -	35 mm / - / -	15 mm / - / -	100
322 005 060	TSM 5x60 P VZ30	40 mm / - / -	35 mm / - / -	25 mm / - / -	100
322 006 040	TSM 6x40 P VZ30	40 mm / - / -	35 mm / - / -	5 mm / - / -	100
322 006 050	TSM 6x50 P VZ30	40 mm / 45 mm / -	35 mm / 40 mm / -	15 mm / 10 mm / -	100
322 006 060	TSM 6x60 P VZ30	40 mm / 45 mm / 60 mm	35 mm / 40 mm / 55 mm	25 mm / 20 mm / 5 mm	100
322 006 080	TSM 6x80 P VZ30	40 mm / 45 mm / 60 mm	35 mm / 40 mm / 55 mm	45 mm / 40 mm / 25 mm	100
322 006 100	TSM 6x100 P VZ30	40 mm / 45 mm / 60 mm	35 mm / 40 mm / 55 mm	65 mm / 60 mm / 45 mm	100

Version with large panhead and multipoint drive



Size
6

Head-Ø
18,0 mm

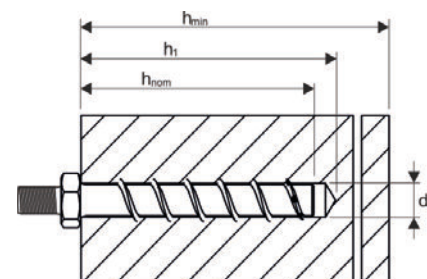


Item nr.	Designation	Depth of drill hole $h_{01} / h_{02} / h_{03}$	Embedment depth of anchor $h_{nom1} / h_{nom2} / h_{nom3}$	Max. thickness of fixture $t_{fix1} / t_{fix2} / t_{fix3}$	Packing Unit
333 006 040	TSM 6x40 LP VZ30	40mm / - / -	35mm / - / -	5mm / - / -	100
333 006 060	TSM 6x60 LP VZ30	40mm / 45mm / 60mm	35mm / 40mm / 55mm	25mm / 20mm / 5mm	100

01 | TOGE TSM HIGH PERFORMANCE

STEEL – ZINC PLATED

Version with hexagonal drive and metric external thread M8



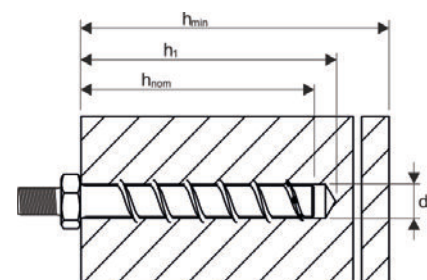
Item nr.	Designation	Depth of drill hole $h_{01} / h_{02} / h_{03}$	Embedment depth of anchor $h_{nom1} / h_{nom2} / h_{nom3}$	Max. thickness of fixture $t_{fix1} / t_{fix2} / t_{fix3}$	Packing Unit
355 006 035	TSM 6x35 K M8-16 SW10	40mm / - / -	35mm / - / -	- / - / -	100
355 006 055	TSM 6x55 M8-16 SW10	40mm / 45mm / 60mm	35mm / 40mm / 55mm	20mm / 15mm / -	100
355 006 075	TSM 6x75 M8-16 SW10	40mm / 45mm / 60mm	35mm / 40mm / 55mm	40mm / 35mm / 20mm	100
355 006 095	TSM 6x95 M8-16 SW10	40mm / 45mm / 60mm	35mm / 40mm / 55mm	60mm / 55mm / 40mm	100
355 006 135	TSM 6x135 M8-16 SW10	40mm / 45mm / 60mm	35mm / 40mm / 55mm	100mm / 95mm / 80mm	100
355 006 155	TSM 6x155 M8-16 SW10	40mm / 45mm / 60mm	35mm / 40mm / 55mm	120mm / 115mm / 100mm	100
355 006 175	TSM 6x175 M8-16 SW10	40mm / 45mm / 60mm	35mm / 40mm / 55mm	140mm / 135mm / 120mm	100
355 006 195	TSM 6x195 M8-16 SW10	40mm / 45mm / 60mm	35mm / 40mm / 55mm	160mm / 155mm / 140mm	100

Version with hexagonal drive and metric external thread M10



Size
6

Washer-Ø
19,0 mm

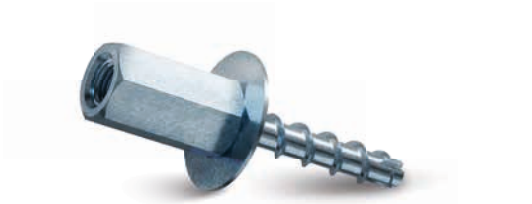


Item nr.	Designation	Depth of drill hole $h_{01} / h_{02} / h_{03}$	Embedment depth of anchor $h_{nom1} / h_{nom2} / h_{nom3}$	Max. thickness of fixture $t_{fix1} / t_{fix2} / t_{fix3}$	Packing Unit
355 206 040	TSM 6x40 M10-20 SW13	40mm / 45mm / -	35mm / 40mm / -	5mm / - / -	100

01 | TOGE TSM HIGH PERFORMANCE

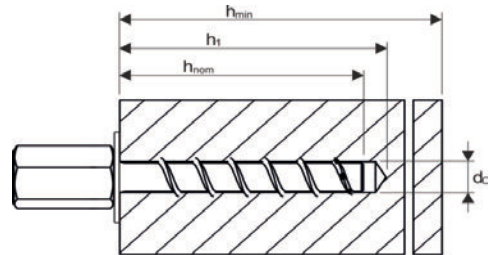
STEEL – ZINC PLATED

Version with metric female thread
M8/M10



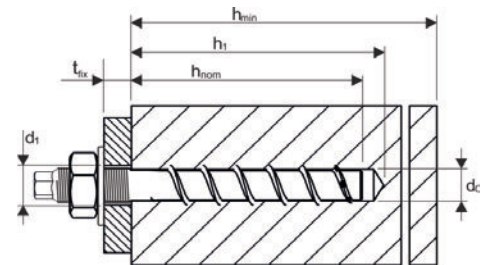
Size
6

Washer-Ø
25,0 mm



Item nr.	Designation	Depth of drill hole $h_{o1} / h_{o2} / h_{o3}$	Embedment depth of anchor $h_{nom1} / h_{nom2} / h_{nom3}$	Max. thickness of fixture $t_{fix1} / t_{fix2} / t_{fix3}$	Packing Unit
344 006 035	TSM 6x35 K IM 8/10	40mm / - / -	35mm / - / -	- / - / -	50
344 006 055	TSM 6x55 IM 8/10	40mm / 45mm / 65mm	35mm / 40mm / 55mm	20mm / 15mm / -	50

Version with metric
external thread



Item nr.	Designation	Depth of drill hole $h_{o1} / h_{o2} / h_{o3}$	Embedment depth of anchor $h_{nom1} / h_{nom2} / h_{nom3}$	Max. thickness of fixture $t_{fix1} / t_{fix2} / t_{fix3}$	Packing Unit
366 008 105	TSM 8x105 M10x30 SW7	55mm / 65mm / 75mm	45mm / 55mm / 65mm	39mm / 29mm / 19mm	50
366 010 120	TSM 10x120 M12x20 SW9	65mm / 85mm / 95mm	55mm / 75mm / 85mm	40mm / 20mm / 10mm	50

01 | TOGE TSM HIGH PERFORMANCE

STEEL – ZINC-FLAKE COATED

Version with hexagon head
and pressed-on washer

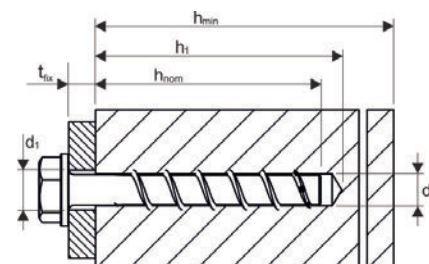


Size

5
6
8
10
12
14

Washer-Ø

12,5 mm
15,0 mm
16,0 mm
20,0 mm
23,5 mm
28,5 mm



Item nr.	Designation	Depth of drill hole $h_{01} / h_{02} / h_{03}$	Embedment depth of anchor $h_{nom1} / h_{nom2} / h_{nom3}$	Max. thickness of fixture $t_{fix1} / t_{fix2} / t_{fix3}$	Packing Unit
400 005 040	TSM 5x40 SW10 ZFC	40mm / - / -	35mm / - / -	5mm / - / -	100
400 005 050	TSM 5x50 SW10 ZFC	40mm / - / -	35mm / - / -	15mm / - / -	100
400 005 060	TSM 5x60 SW10 ZFC	40mm / - / -	35mm / - / -	25mm / - / -	100
400 006 040	TSM 6x40 SW13 ZFC	40mm / - / -	35mm / - / -	5mm / - / -	100
400 006 050	TSM 6x50 SW13 ZFC	40mm / 45mm / -	35mm / 40mm / -	15mm / 10mm / -	100
400 006 060	TSM 6x60 SW13 ZFC	40mm / 45mm / 60mm	35mm / 40mm / 55mm	25mm / 20mm / 5mm	100
400 006 080	TSM 6x80 SW13 ZFC	40mm / 45mm / 60mm	35mm / 40mm / 55mm	45mm / 40mm / 25mm	100
400 006 100	TSM 6x100 SW13 ZFC	40mm / 45mm / 60mm	35mm / 40mm / 55mm	65mm / 60mm / 45mm	100
400 008 050	TSM 8x50 SW13 ZFC	55mm / - / -	45mm / - / -	5mm / - / -	50
400 008 060	TSM 8x60 SW13 ZFC	55mm / 65mm / -	45mm / 55mm / -	15mm / 5mm / -	50
400 008 070	TSM 8x70 SW13 ZFC	55mm / 65mm / 75mm	45mm / 55mm / 65mm	25mm / 15mm / 5mm	50
400 008 080	TSM 8x80 SW13 ZFC	55mm / 65mm / 75mm	45mm / 55mm / 65mm	35mm / 25mm / 15mm	50
400 008 090	TSM 8x90 SW13 ZFC	55mm / 65mm / 75mm	45mm / 55mm / 65mm	45mm / 35mm / 25mm	50
400 008 100	TSM 8x100 SW13 ZFC	55mm / 65mm / 75mm	45mm / 55mm / 65mm	55mm / 45mm / 35mm	50
400 008 120	TSM 8x120 SW13 ZFC	55mm / 65mm / 75mm	45mm / 55mm / 65mm	75mm / 65mm / 55mm	50
400 008 140	TSM 8x140 SW13 ZFC	55mm / 65mm / 75mm	45mm / 55mm / 65mm	95mm / 85mm / 75mm	50
400 010 060	TSM 10x60 SW 15 ZFC	65mm / - / -	55mm / - / -	5mm / - / -	50
400 010 070	TSM 10x70 SW15 ZFC	65mm / - / -	55mm / - / -	15mm / - / -	50
400 010 080	TSM 10x80 SW15 ZFC	65mm / 85mm / -	55mm / 75mm / -	25mm / 5mm / -	50
400 010 090	TSM 10x90 SW15 ZFC	65mm / 85mm / 95mm	55mm / 75mm / 85mm	35mm / 15mm / 5mm	50
400 010 100	TSM 10x100 SW15 ZFC	65mm / 85mm / 95mm	55mm / 75mm / 85mm	45mm / 25mm / 15mm	50

↳ Type list – continued on page 17

01 | TOGE TSM HIGH PERFORMANCE

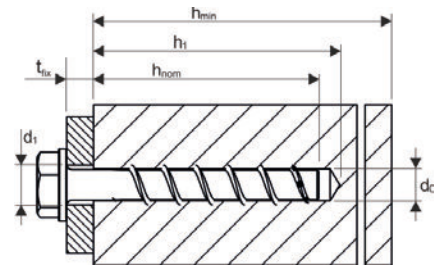
STEEL – ZINC-FLAKE COATED

Version with hexagon head
and pressed-on washer

↳ Continued



Size	Washer-Ø
5	12,5 mm
6	15,0 mm
8	16,0 mm
10	20,0 mm
12	23,5 mm
14	28,5 mm



Item nr.	Designation	Depth of drill hole $h_{01} / h_{02} / h_{03}$	Embedment depth of anchor $h_{nom1} / h_{nom2} / h_{nom3}$	Max. thickness of fixture $t_{fix1} / t_{fix2} / t_{fix3}$	Packing Unit
400 010 120	TSM 10x120 SW15 ZFC	65mm / 85mm / 95mm	55mm / 75mm / 85mm	65mm / 45mm / 35mm	50
400 010 140	TSM 10x140 SW15 ZFC	65mm / 85mm / 95mm	55mm / 75mm / 85mm	85mm / 65mm / 55mm	50
400 010 150	TSM 10x150 SW15 ZFC	65mm / 85mm / 95mm	55mm / 75mm / 85mm	95mm / 75mm / 65mm	50
400 010 160	TSM 10x160 SW15 ZFC	65mm / 85mm / 95mm	55mm / 75mm / 85mm	105mm / 85mm / 75mm	50
400 010 180	TSM 10x180 SW15 ZFC	65mm / 85mm / 95mm	55mm / 75mm / 85mm	125mm / 105mm / 95mm	25
400 010 200	TSM 10x200 SW15 ZFC	65mm / 85mm / 95mm	55mm / 75mm / 85mm	145mm / 125mm / 115mm	25
400 010 240	TSM 10x240 SW15 ZFC	65mm / 85mm / 95mm	55mm / 75mm / 85mm	185mm / 165mm / 155mm	25
400 010 280	TSM 10x280 SW15 ZFC	65mm / 85mm / 95mm	55mm / 75mm / 85mm	225mm / 205mm / 195mm	25
400 010 320	TSM 10x320 SW15 ZFC	65mm / 85mm / 95mm	55mm / 75mm / 85mm	265mm / 245mm / 235mm	25
400 010 360	TSM 10x360 SW15 ZFC	65mm / 85mm / 95mm	55mm / 75mm / 85mm	305mm / 285mm / 275mm	25
400 010 400	TSM 10x400 SW15 ZFC	65mm / 85mm / 95mm	55mm / 75mm / 85mm	345mm / 325mm / 315mm	25
400 012 080	TSM 12x80 SW17 ZFC	75mm / - / -	65mm / - / -	15mm / - / -	25
400 012 110	TSM 12x110 SW17 ZFC	75mm / 95mm / 110mm	65mm / 85mm / 100mm	45mm / 25mm / 10mm	25
400 012 130	TSM 12x130 SW17 ZFC	75mm / 95mm / 110mm	65mm / 85mm / 100mm	65mm / 45mm / 30mm	25
400 012 150	TSM 12x150 SW17 ZFC	75mm / 95mm / 110mm	65mm / 85mm / 100mm	85mm / 65mm / 50mm	25
400 014 080	TSM 14x80 SW21 ZFC	85mm / - / -	75mm / - / -	5mm / - / -	25
400 014 110	TSM 14x110 SW21 ZFC	85mm / 110mm / -	75mm / 100mm / -	35mm / 10mm / -	25
400 014 130	TSM 14x130 SW21 ZFC	85mm / 110mm / 125mm	75mm / 100mm / 115mm	55mm / 30mm / 15mm	25
400 014 150	TSM 14x150 SW21 ZFC	85mm / 110mm / 125mm	75mm / 100mm / 115mm	75mm / 50mm / 35mm	25

01 | TOGE TSM HIGH PERFORMANCE

STAINLESS STEEL – LT A4

Version with hexagon head and pressed-on washer

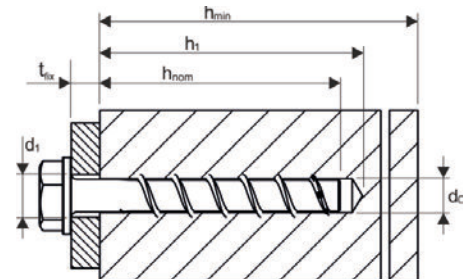


Size

6
8
10

Washer-Ø

17,0 mm
16,0 mm
20,0 mm



Item nr.	Designation	Depth of drill hole $h_{01} / h_{02} / h_{03}$	Embedment depth of anchor $h_{nom1} / h_{nom2} / h_{nom3}$	Max. thickness of fixture $t_{fix1} / t_{fix2} / t_{fix3}$	Packing Unit
700 006 050	TSM 6x50 SW13 LT A4	40mm / 50mm / -	35mm / 45mm / -	15mm / 5mm / -	100
700 006 060	TSM 6x60 SW13 LT A4	40mm / 50mm / 60mm	35mm / 45mm / 55mm	25mm / 15mm / 5mm	100
700 008 070	TSM 8x70 SW13 LT A4	55mm / 65mm / 75mm	45mm / 55mm / 65mm	25mm / 15mm / 5mm	50
700 008 080	TSM 8x80 SW13 LT A4	55mm / 65mm / 75mm	45mm / 55mm / 65mm	35mm / 25mm / 15mm	50
700 010 090	TSM 10x90 SW15 LT A4	65mm / 85mm / 95mm	55mm / 75mm / 85mm	35mm / 15mm / 5mm	50
700 010 100	TSM 10x100 SW15 LT A4	65mm / 85mm / 95mm	55mm / 75mm / 85mm	45mm / 25mm / 15mm	50
700 010 120	TSM 10x120 SW15 LT A4	65mm / 85mm / 95mm	55mm / 75mm / 85mm	65mm / 45mm / 35mm	50



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01 | TOGE TSM HIGH PERFORMANCE

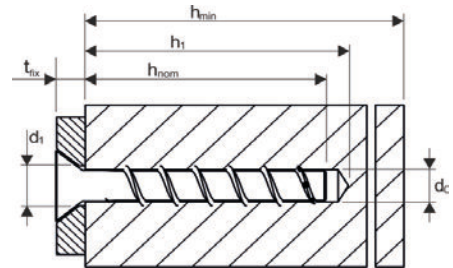
STAINLESS STEEL – LT A4

Version with countersunk head with multipoint drive



Size
6
8
10

Head-Ø
13,0 mm
19,5 mm
21,5 mm



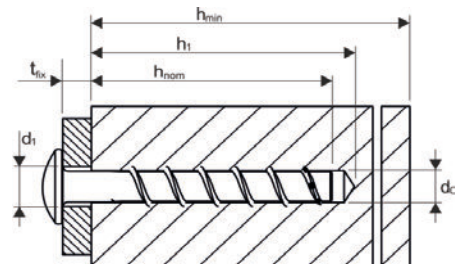
Item nr.	Designation	Depth of drill hole $h_{01} / h_{02} / h_{03}$	Embedment depth of anchor $h_{nom1} / h_{nom2} / h_{nom3}$	Max. thickness of fixture $t_{fix1} / t_{fix2} / t_{fix3}$	Packing Unit
711 006 050	TSM 6x50 C VZ30 LT A4	40mm / 50mm / -	35mm / 45mm / -	15mm / 5mm / -	100
711 006 065	TSM 6x65 C VZ30 LT A4	40mm / 50mm / 60mm	35mm / 45mm / 55mm	30mm / 20mm / 10mm	100
711 006 085	TSM 6x85 C VZ30 LT A4	40mm / 50mm / 60mm	35mm / 45mm / 55mm	50mm / 40mm / 30mm	100
711 006 105	TSM 6x105 C VZ30 LT A4	40mm / 50mm / 60mm	35mm / 45mm / 55mm	70mm / 60mm / 50mm	100
711 008 080	TSM 8x80 C VZ40 LT A4	55mm / 65mm / 75mm	45mm / 55mm / 65mm	35mm / 25mm / 15mm	50
711 008 100	TSM 8x100 C VZ40 LT A4	55mm / 65mm / 75mm	45mm / 55mm / 65mm	55mm / 45mm / 35mm	50
711 008 120	TSM 8x120 C VZ40 LT A4	55mm / 65mm / 75mm	45mm / 55mm / 65mm	75mm / 65mm / 55mm	50
711 010 090	TSM 10x90 C VZ50 LT A4	65mm / 85mm / 95mm	55mm / 75mm / 85mm	35mm / 15mm / 5mm	50
711 010 100	TSM 10x100 C VZ50 LT A4	65mm / 85mm / 95mm	55mm / 75mm / 85mm	45mm / 25mm / 15mm	50
711 010 120	TSM 10x120 C VZ50 LT A4	65mm / 85mm / 95mm	55mm / 75mm / 85mm	65mm / 45mm / 35mm	50

Version with panhead and multipoint drive



Size
6

Head-Ø
15,0 mm



Item nr.	Designation	Depth of drill hole $h_{01} / h_{02} / h_{03}$	Embedment depth of anchor $h_{nom1} / h_{nom2} / h_{nom3}$	Max. thickness of fixture $t_{fix1} / t_{fix2} / t_{fix3}$	Packing Unit
722 006 050	TSM 6x50 P VZ30 LT A4	40mm / 50mm / -	35mm / 45mm / -	15mm / 5mm / -	100
722 006 060	TSM 6x60 P VZ30 LT A4	40mm / 50mm / 60mm	35mm / 45mm / 55mm	25mm / 15mm / 5mm	100
722 006 080	TSM 6x80 P VZ30 LT A4	40mm / 50mm / 60mm	35mm / 45mm / 55mm	45mm / 35mm / 25mm	100
722 006 100	TSM 6x100 P VZ30 LT A4	40mm / 50mm / 60mm	35mm / 45mm / 55mm	65mm / 55mm / 45mm	100

01 | TOGE TSM HIGH PERFORMANCE

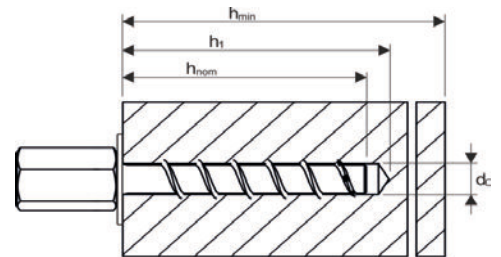
STAINLESS STEEL – LT A4

Version with metric female thread
M8/M10



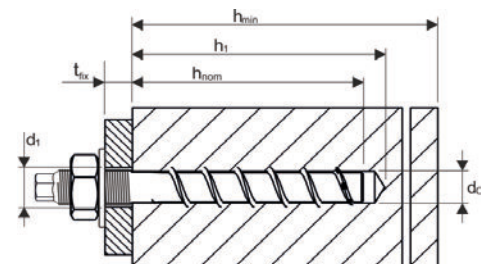
Size
6

Washer-Ø
25,0 mm



Item nr.	Designation	Depth of drill hole $h_{01} / h_{02} / h_{03}$	Embedment depth of anchor $h_{nom1} / h_{nom2} / h_{nom3}$	Max. thickness of fixture $t_{fix1} / t_{fix2} / t_{fix3}$	Packing Unit
744 006 045	TSM 6x45 K IM 8/10 LT A4	50 mm / - / -	45 mm / - / -	- / - / -	50

Version with
metric external thread ¹⁾



Item nr.	Designation	Depth of drill hole $h_{01} / h_{02} / h_{03}$	Embedment depth of anchor $h_{nom1} / h_{nom2} / h_{nom3}$	Max. thickness of fixture $t_{fix1} / t_{fix2} / t_{fix3}$	Packing Unit
866 008 105	TSM 8x105 M10x30 SW7 A4	55mm / 65mm / 75mm	45mm / 55mm / 65mm	39mm / 29mm / 19mm	50
866 010 140	TSM 10x140 M12x35 SW9 A4	65mm / 85mm / 95mm	55mm / 75mm / 85mm	59mm / 39mm / 29mm	50
866 010 160	TSM 10x160 M12x55 SW9 A4	65mm / 85mm / 95mm	55mm / 75mm / 85mm	79mm / 59mm / 49mm	50

¹⁾ Technical data for this design can be found in the tables for steel zinc plated.

01 | TOGE TSM HIGH PERFORMANCE

TECHNICAL CHARACTERISTICS

Single fastening without fire exposure, Steel

Screw size TSM high performance			TSM 6		TSM 8			TSM 10			TSM 12			TSM 14		
Nominal embedment depth	h _{nom}	[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}
			40	55	45	55	65	55	75	85	65	85	100	75	100	115
Nominal diameter of drill bit	d ₀	[mm]	6		8			10			12			14		
Depth of drill hole	h ₀ min	[mm]	45	60	55	65	75	65	85	95	75	95	110	85	110	125
Effective anchorage depth	h _{ef}	[mm]	31	44	35	43	52	43	60	68	50	67	80	58	79	92
Diameter of clearance hole in the fixture	d _i max	[mm]	8		12			14			16			18		
Approved tension load in cracked concrete ^{1),2)}	N _{zul}	[kN]	1,0	1,9	2,4	4,3	5,7	4,3	7,6	9,2	5,7	9,0	11,7	7,2	11,5	14,5
Approved shear load in cracked concrete ^{1),2)}	V _{zul}	[kN]	2,8	4,0	3,4	4,6	6,2	4,6	15,2	18,4	5,8	18,0	23,5	7,2	23,0	28,9
Approved tension load in non-cracked concrete ^{1),2)}	N _{zul}	[kN]	1,9	4,3	3,6	5,7	7,6	5,7	9,5	12,4	7,6	12,9	16,8	10,4	16,5	20,7
Approved shear load in non-cracked concrete ^{1),2)}	V _{zul}	[kN]	4,0	4,0	4,9	6,6	8,8	6,6	19,4	19,4	8,3	24,0	24,0	10,4	32,0	32,0
Approved bending resistance	M _{zul}	[kN]	6,2		14,9			32,0			64,6			105,7		
Minimum edge distance	C _{min}	[mm]	40	40	50		50			50	70	50	70	50	70	
Minimum spacing	S _{min}	[mm]	40	40	50		50			50	70	50	70	50	70	
Minimum base material thickness	h _{min}	[mm]	100		100			100	130		120	130	150	130	150	170
Installation torque (with metric connection thread)	T _{inst}	[Nm]	10		20			40			60			80		
Maximum torque (with impact screw driver)		[Nm]	160		300			400			650			650		
ETA Seismic C1	C1		Yes		x	Yes	Yes	x	Yes		x	Yes		x	Yes	
ETA Seismic C2 ³⁾	C2		x		x	Yes		x	Yes		x	Yes		x	Yes	

¹⁾ For the determination of the approved loads, the partial safety factor from the approval γ_M = 1,0 was taken into account for material resistance and a partial safety factor γ_F = 1,4 for load actions.

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

³⁾ C2 only for version zinc plated.

01 | TOGE TSM HIGH PERFORMANCE

TECHNICAL CHARACTERISTICS

Single fastening under fire exposure, Steel

Screw size TSM high performance				TSM 6		TSM 8			TSM 10			TSM 12			TSM 14		
Nominal embedment depth		h_{nom}	[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}
				40	55	45	55	65	55	75	85	65	85	100	75	100	115
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]	0,5	0,9	1,2	2,1	2,4	2,1	4,0	4,4	3,0	4,7	6,2	3,8	6,0	7,6
R 60		$F_{zul,fi 60}$	[kN]	0,5	0,8	1,2	1,7	1,7	2,1	3,3	3,3	3,0	4,7	5,8	3,8	6,0	7,6
R 90		$F_{zul,fi 90}$	[kN]	0,5	0,6	1,1			2,1	2,3		3,0	4,2		3,8	5,9	
R 120		$F_{zul,fi 120}$	[kN]	0,4		0,7			1,7			2,4	3,4		3,0	4,8	
R 30		$M_{zul,fi 30}$	[Nm]	0,7		2,4			5,9			12,3			20,4		
R 60		$M_{zul,fi 60}$	[Nm]	0,6		1,8			4,5			9,7			15,9		
R 90		$M_{zul,fi 90}$	[Nm]	0,5		1,2			3,0			7,0			11,6		
R 120		$M_{zul,fi 120}$	[Nm]	0,3		0,9			2,3			5,7			9,4		
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 one 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	[-]	1,0	1,0			1,0	2,0	1,0	2,0	1,0	2,0	1,0	2,0		
In wet concrete, the embedment depth must be increased by at least 30 mm.																	

01 | TOGE TSM HIGH PERFORMANCE

TECHNICAL CHARACTERISTICS

Single fastening without fire exposure, stainless steel A4

Screw size TSM high performance LT A4			TSM 6			TSM 8			TSM 10		
Nominal embedment depth	h _{nom}	[mm]	h _{nom1}	h _{nom2}	h _{nom3}	h _{nom1}	h _{nom2}	h _{nom3}	h _{nom1}	h _{nom2}	h _{nom3}
			35 ³⁾	45	55	45	55	65	55	75	85
Nominal diameter of drill bit	d _o	[mm]	6			8			10		
Depth of drill hole	h _o min	[mm]	40	50	60	55	65	75	65	85	95
Effective anchorage depth	h _{ef}	[mm]	25	34	42	32	41	49	40	57	65
Diameter of clearance hole in the fixture	d _i max	[mm]	8			12			14		
Approved tension load in cracked concrete ^{1) 2)}	N _{zul}	[kN]	1,2	0,7	1,4	1,4	2,6	3,8	2,9	6,2	8,1
Approved shear load in cracked concrete ^{1) 2)}	V _{zul}	[kN]	2,1	4,0	4,0	6,2	7,7	9,7	10,4	17,6	19,4
Approved tension load in non-cracked concrete ^{1) 2)}	N _{zul}	[kN]	1,7	1,9	4,1	4,2	5,7	8,0	5,2	9,1	11,9
Approved shear load in non-cracked concrete ^{1) 2)}	V _{zul}	[kN]	2,9	4,0	4,0	7,7	7,7	9,7	12,9	19,4	19,4
Approved bending resistance	M _{zul}	[kN]	6,2			14,9			32,0		
Minimum egde distance	C _{min}	[mm]	35			35			40		
Minimum spacing	S _{min}	[mm]	35			35			40		
Minimum base material thickness	h _{min}	[mm]	80	100		80	100	120	100	130	
Installation torque (with metric connection thread)	T _{inst}	[Nm]	10			20			40		
Maximum torque (with impact screw driver)		[Nm]	160			300			450		
ETA Seismic C1	C1		x	Yes		Yes	x	Yes	Yes	x	Yes

¹⁾ For the determination of the approved loads, the partial safety factor from the approval γ_M = 1,0 was taken into account for material resistance and a partial safety factor γ_F = 1,4 for load actions.

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

³⁾ Only for multiple use under dry conditions.

01 | TOGE TSM HIGH PERFORMANCE

TECHNICAL CHARACTERISTICS

Single fastening under fire exposure, stainless steel A4

Screw size TSM high performance LT A4		TSM 6			TSM 8			TSM 10				
Nominal embedment depth		h_{nom}	[mm]									
		h_{nom1}	h_{nom2}	h_{nom3}	h_{nom1}	h_{nom2}	h_{nom3}	h_{nom1}	h_{nom2}	h_{nom3}		
		35 ³⁾	45	55	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]	0,5	0,4	0,8	0,8	1,4	2,0	1,5	3,3	4,3
R 60		$F_{zul,fi 60}$	[kN]	0,5	0,4	0,8	0,8	1,4	1,7	1,5	3,3	
R 90		$F_{zul,fi 90}$	[kN]	0,5	0,4	0,6	0,8	1,1		1,5	2,3	
R 120		$F_{zul,fi 120}$	[kN]	0,4	0,3	0,4	0,6	0,7		1,2	1,7	
R 30		$M_{zul,fi 30}$	[Nm]	0,7			2,4			5,9		
R 60		$M_{zul,fi 60}$	[Nm]	0,6			1,8			4,5		
R 90		$M_{zul,fi 90}$	[Nm]	0,5			1,2			3,0		
R 120		$M_{zul,fi 120}$	[Nm]	0,3			0,9			2,3		
Edge distance												
R 30 bis 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 bis R 120	$S_{cr,fi}$	[mm]	4 x h_{ef}									
Concrete pry-out failure												
R 30 bis R 120	k	[-]	1,0	1,6	2,1	2,8	2,5					
In wet concrete, the embedment depth must be increased by at least 30 mm.												

³⁾ Only for multiple use under dry conditions.

01 | TOGE TSM HIGH PERFORMANCE

TECHNICAL CHARACTERISTICS

Multiple fastening without fire exposure, Steel

Screw size TSM high performance		TSM 5	TSM 6	
Nominal embedment depth	h_{nom} [mm]	35	35	55
Nominal diameter of drill bit	d_0 [mm]	5	6	
Depth of drill hole	h_0 min [mm]	40	40	60
Effective anchorage depth	h_{ef} [mm]	27	27	44
Diameter of clearance hole in the fixture	d_f max [mm]	7	8	
Approved tension load in cracked concrete ^{1,2)}	N_{zul} [kN]	0,6	1,4	3,6
Approved shear load in cracked concrete ^{1,2)}	V_{zul} [kN]	1,9	2,3	4,8
Approved tension load in non-cracked concrete ^{1,2)}	N_{zul} [kN]	0,6	1,4	3,6
Approved shear load in non-cracked concrete ^{1,2)}	V_{zul} [kN]	2,5	3,3	4,0
Minimum edge distance	c_{min} [mm]	35	35	40
Minimum spacing	s_{min} [mm]	35	35	40
Minimum base material thickness	h_{min} [mm]	80	80	100
Installation torque (with metric connection thread)	T_{inst} [Nm]	8	10	
Maximum torque (with impact screw driver)	[Nm]	110	160	

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 $\gamma_F=1,4$ for load actions.

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

01 | TOGE TSM HIGH PERFORMANCE

TECHNICAL CHARACTERISTICS

Multiple fastening under fire exposure, Steel

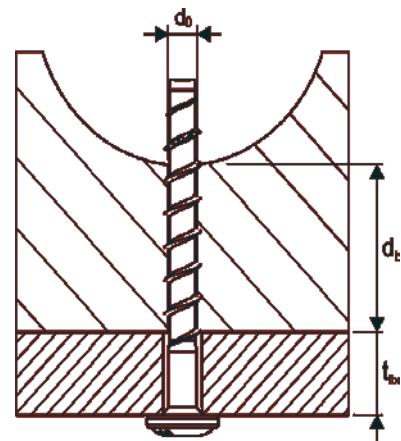
Screw size TSM high performance		TSM 6		
Nominal embedment depth	h_{nom} [mm]	h_{nom1}	h_{nom2}	
		35	55	
Approved load under tensile and shear use ($F_{zul,fi} = N_{zul,fi} = V_{zul,fi}$)				
Fire resistance class				
R 30	Approved load	$F_{zul,fi 30}$ [kN]	0,8	0,9
R 60		$F_{zul,fi 60}$ [kN]	0,8	0,8
R 90		$F_{zul,fi 90}$ [kN]	0,6	
R 120		$F_{zul,fi 120}$ [kN]	0,4	
R 30		$M_{zul,fi 30}$ [Nm]	0,7	
R 60		$M_{zul,fi 60}$ [Nm]	0,6	
R 90		$M_{zul,fi 90}$ [Nm]	0,5	
R 120		$M_{zul,fi 120}$ [Nm]	0,3	
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 one 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	[-]	1,0	
In wet concrete, the embedment depth must be increased by at least 30 mm.				

01 | TOGE TSM HIGH PERFORMANCE

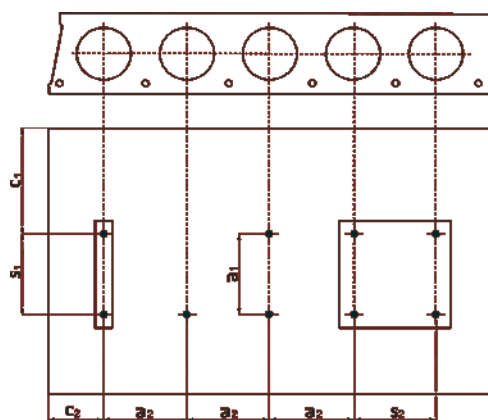
TECHNICAL CHARACTERISTICS

Multiple fastening in prestressed hollow core slabs without fire exposure, steel

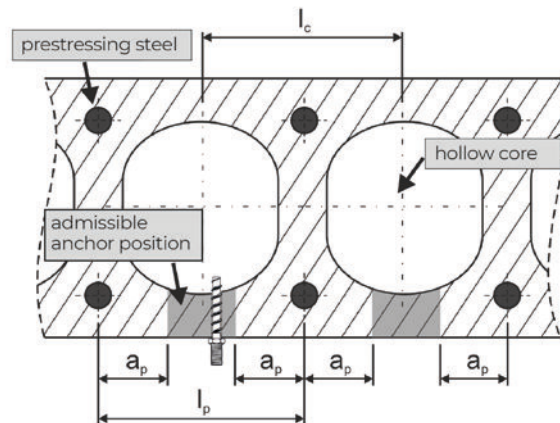
Screw size TSM high performance		TSM 6		
Bottom flange thickness	d_b [mm]	≥ 25	≥ 30	≥ 35
Nominal diameter of drill bit	d_o [mm]	6		
Depth of drill hole	h_o min [mm]	30	35	40
Diameter of clearance hole in the fixture	d_i max [mm]	8		
Approved tension load ¹⁾	F_{zul} [kN]	0,5	1,0	1,4
Minimum edge distance	C_{min} [mm]	100		
Minimum spacing	S_{min} [mm]	100		
Minimum distance between anchor groups	a_{min} [mm]	100		
Core distance	l_c min [mm]	100		
Prestressing steel distance	l_p min [mm]	100		
Distance between anchor position & prestressing steel	a_p min [mm]	50		
Hollow core width (w)	(w/e) max [mm]	4,2		
Bridge width (e)		4,2		
Installation torque (with metric connection thread)	T_{inst} [Nm]	10		
Maximum torque (with impact screw driver)		160		



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 $\gamma_F = 1,4$ for load actions.



C_1, C_2 = Edge distance
 S_1, S_2 = Spacing
 a_1, a_2 = Distance between anchor groups

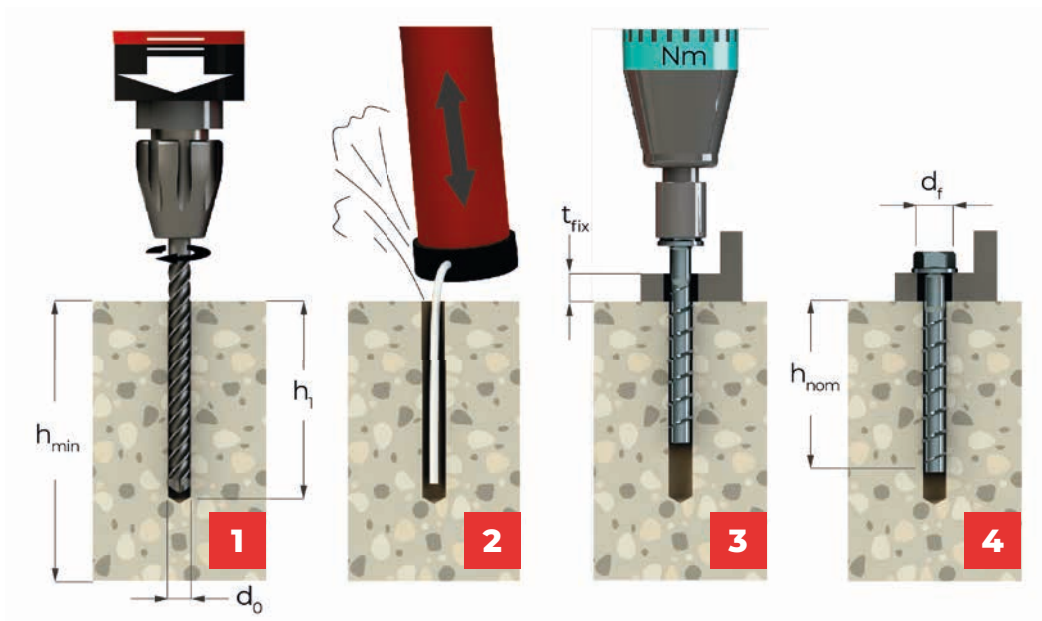


l_c = Core distance
 l_p = Prestressing steel distance
 a_p = Distance between anchor position and prestressing steel

01 | TOGE TSM HIGH PERFORMANCE

INSTALLATION INSTRUCTIONS

Installation instructions for concrete



- 1** Create borehole.
- 2** Clean the borehole thoroughly.
- 3** Screw in concrete screw TOGE TSM High Performance.
- 4** The screw head must rest completely on the attachment.



Leading the way in concrete screw technology

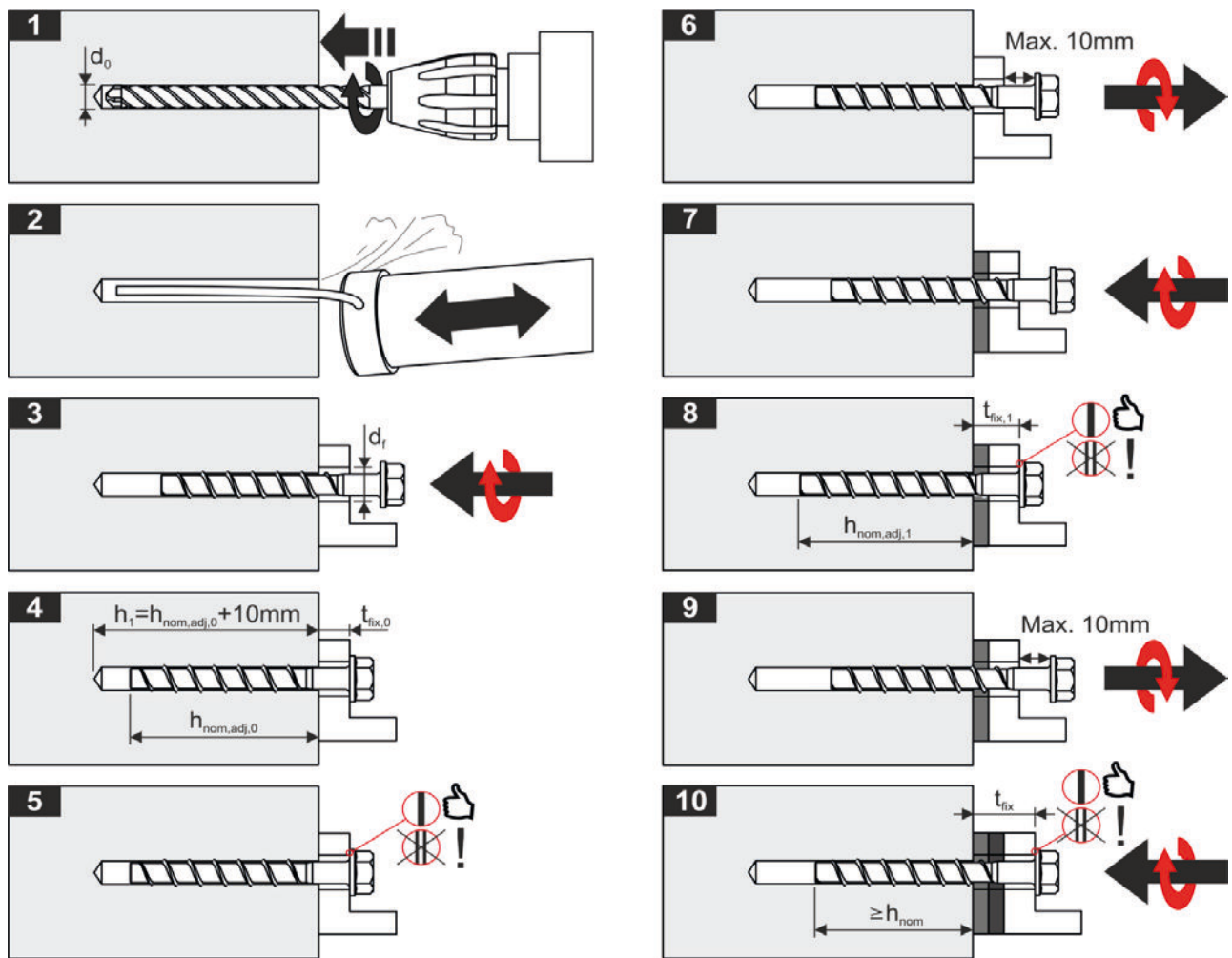
We have been dedicated to the development of concrete screws for over 30 years, making us one of the pioneers in this field.

SIDE NOTE

01 | TOGE TSM HIGH PERFORMANCE

INSTALLATION INSTRUCTIONS

Installation instructions
with adjustment for sizes 6 to 14



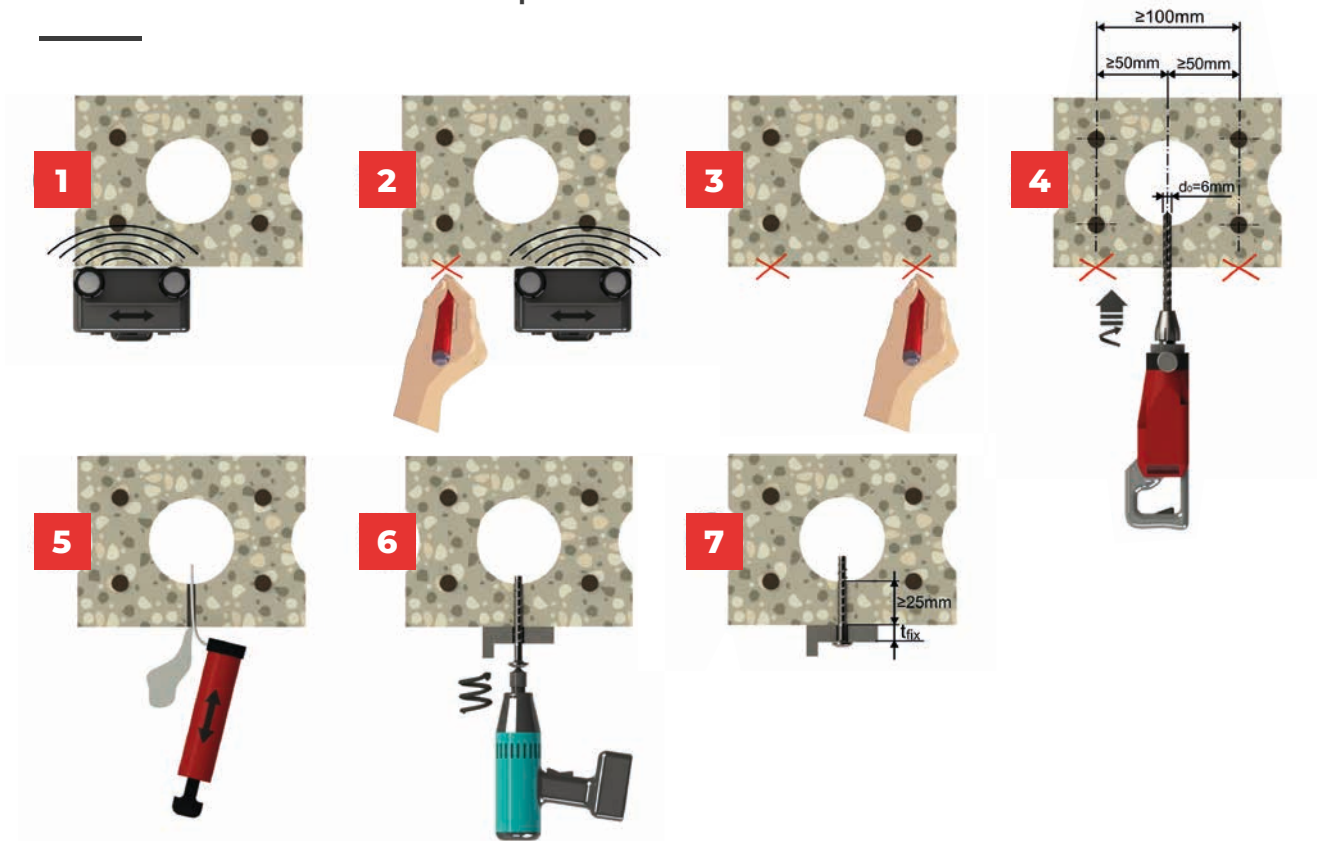
⚠ Important – please note during adjustment:

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

01 | TOGE TSM HIGH PERFORMANCE

INSTALLATION INSTRUCTIONS

Installation instructions for prestressed hollow core slabs



- 1 2 3** Locate prestressing steel with the reinforcement bar detector and mark the location.
- 4** Create hole in the permissible anchoring area.
- 5** Clean hole.
- 6** Screw in concrete screw.
- 7** Screw head must fully contact the fixture.



Unique range of concrete screws

As a specialist in concrete screws, we produce more than 600 different product types in this category.

SIDE NOTE

02 | TOGE TSM BC ST

TOGE TSM BC ST

Concrete screw for construction site safety and temporary fixation



Fast and safe installation

The optimized thread enables a fast and safe installation process.



Temporary fastening

For temporary fastening also in outdoor areas.



High loads

High load bearing capacity in cracked and non-cracked concrete.



Easy demountable

Residual disassembly and therefore reusable.



Special approval

Anchoring of site equipment in fresh concrete.

Approval



- ✓ General design approval Z-21.8.2115 for temporary fastening.

Base Materials

- ✓ Application in concrete with a compressive strength of $\geq 10 \text{ N/mm}^2$.
- ✓ Cracked and non-cracked concrete.






Scan the QR code and go directly to the product page

For example, to view the approvals in detail you only need one click. Feel free to try it out!

02 | TOGE TSM BC ST

HEADSHAPES AND MATERIALS

		Steel, zinc plated	Steel, zinc flake-coated	Steel, stainless A4
	Hexagonal head with collar	<input checked="" type="checkbox"/>		
	Hexagonal head with pressed on washer	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
	Sleeve gauge	<input checked="" type="checkbox"/>		

Application Examples



Fastening of guardrails,
scaffolding or formwork props

02 | TOGE TSM BC ST

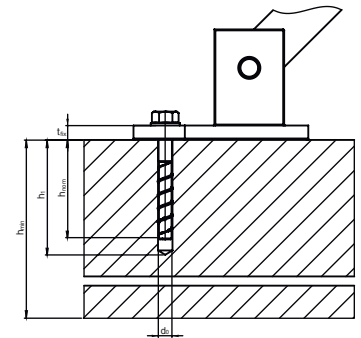
STEEL – ZINC PLATED

Version with hexagonal head and collar



Size
14

Disc-Ø
32,0 mm



Item nr.	Designation	Depth of drill hole $h_{01} / h_{02} / h_{03}$	Embedment depth of anchor $h_{nom1} / h_{nom2} / h_{nom3}$	Max. thickness of fixture $t_{fix1} / t_{fix2} / t_{fix3}$	Packing Unit
377 014 134*	TSM BC ST 14 x 130 SW24	85 mm / 100 mm / 125 mm	75 mm / 90 mm / 115 mm	55 mm / 40 mm / 15 mm	25

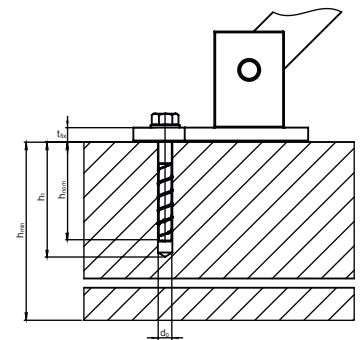
* Sleeve gauge already included

Version with hexagonal head and pressed on washer



Size
10
12
14

Disc-Ø
20,0 mm
23,5 mm
28,5 mm



Item nr.	Designation	Depth of drill hole $h_{01} / h_{02} / h_{03}$	Embedment depth of anchor $h_{nom1} / h_{nom2} / h_{nom3}$	Max. thickness of fixture $t_{fix1} / t_{fix2} / t_{fix3}$	Packing Unit
300 010 090	TSM 10x90 SW15	85mm	75mm	15mm	50
300 010 100	TSM 10x100 SW15	85mm	75mm	25mm	50
300 010 120	TSM 10x120 SW15	85mm	75mm	45mm	50
300 010 140	TSM 10x140 SW15	85mm	75mm	65mm	50
300 010 150	TSM 10x150 SW15	85mm	75mm	75mm	50
300 010 160	TSM 10x160 SW15	85mm	75mm	85mm	50
300 010 180	TSM 10x180 SW15	85mm	75mm	105mm	25
300 010 200	TSM 10x200 SW15	85mm	75mm	125mm	25
300 010 240	TSM 10x240 SW15	85mm	75mm	165mm	25
300 010 280	TSM 10x280 SW15	85mm	75mm	205mm	25
300 012 110	TSM 12x110 SW17	85mm / 100mm / -	75mm / 90mm / -	35mm / 20mm / -	25
300 012 130	TSM 12x130 SW17	85mm / 100mm / -	75mm / 90mm / -	55mm / 40mm / -	25
300 012 150	TSM 12x150 SW17	85mm / 100mm / -	75mm / 90mm / -	75mm / 60mm / -	25
300 014 110	TSM 14x110 SW21	85mm / 100mm / -	75mm / 90mm / -	35mm / 20mm / -	25
300 014 130	TSM 14x130 SW21	85mm / 100mm / 125mm	75mm / 90mm / 115mm	55mm / 40mm / 15mm	25
300 014 150	TSM 14x150 SW21	85mm / 100mm / 125mm	75mm / 90mm / 115mm	75mm / 60mm / 35mm	25

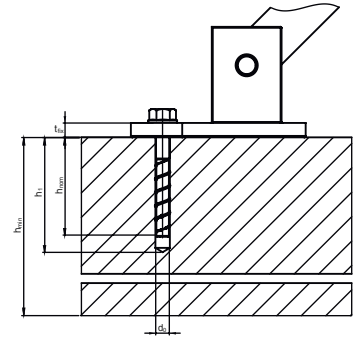
02 | TOGE TSM BC ST

**STEEL – ZINC
FLAKE-COATED**

Version with hexagonal head
and pressed on washer

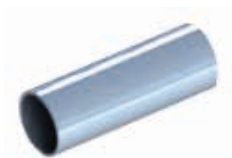


Size	Disc-Ø
10	20,0 mm
12	23,5 mm
14	28,5 mm



Item nr.	Designation	Depth of drill hole h ₀₁ / h ₀₂ / h ₀₃	Embedment depth of anchor h _{nom1} / h _{nom2} / h _{nom3}	Max. thickness of fixture t _{fix1} / t _{fix2} / t _{fix3}	Packing Unit
400 010 090	TSM 10x90 SW15	85mm	75mm	15mm	50
400 010 100	TSM 10x100 SW15	85mm	75mm	25mm	50
400 010 120	TSM 10x120 SW15	85mm	75mm	45mm	50
400 010 140	TSM 10x140 SW15	85mm	75mm	65mm	50
400 010 150	TSM 10x150 SW15	85mm	75mm	75mm	50
400 010 160	TSM 10x160 SW15	85mm	75mm	85mm	50
400 010 180	TSM 10x180 SW15	85mm	75mm	105mm	25
400 010 200	TSM 10x200 SW15	85mm	75mm	125mm	25
400 010 240	TSM 10x240 SW15	85mm	75mm	165mm	25
400 010 280	TSM 10x280 SW15	85mm	75mm	205mm	25
400 012 110	TSM 12x110 SW17	85mm / 100mm / -	75mm / 90mm / -	35mm / 20mm / -	25
400 012 130	TSM 12x130 SW17	85mm / 100mm / -	75mm / 90mm / -	55mm / 40mm / -	25
400 012 150	TSM 12x150 SW17	85mm / 100mm / -	75mm / 90mm / -	75mm / 60mm / -	25
400 014 110	TSM 14x110 SW21	85mm / 100mm / -	75mm / 90mm / -	35mm / 20mm / -	25
400 014 130	TSM 14x130 SW21	85mm / 100mm / 125mm	75mm / 90mm / 115mm	55mm / 40mm / 15mm	25
400 014 150	TSM 14x150 SW21	85mm / 100mm / 125mm	75mm / 90mm / 115mm	75mm / 60mm / 35mm	25
400 014 110	TSM 14x110 SW21 ZFC	85mm / 110mm / -	75mm / 100mm / -	35mm / 10mm / -	25
400 014 130	TSM 14x130 SW21 ZFC	85mm / 110mm / 125mm	75mm / 100mm / 115mm	55mm / 30mm / 15mm	25
400 014 150	TSM 14x150 SW21 ZFC	85mm / 110mm / 125mm	75mm / 100mm / 115mm	75mm / 50mm / 35mm	25

Sleeve gauge
(please order separately)



Item nr.	Designation	Packing Unit
377 010 001	Sleeve gauge for concrete screw size 10	10
377 012 001	Sleeve gauge for concrete screw size 12	10
377 014 001	Sleeve gauge for concrete screw size 14	10

02 | TOGE TSM BC ST

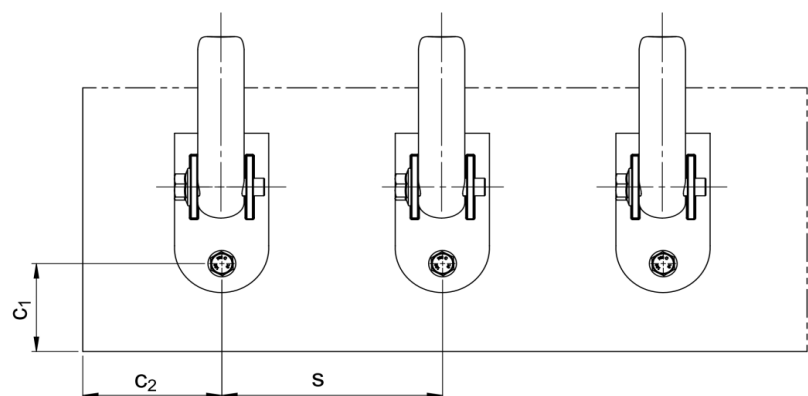
TECHNICAL CHARACTERISTICS

Without fire exposure, Steel

Screw size TSM BC ST & TSM High Performance			TSM 10	TSM 12		TSM 14		
Embedment depth	h _{nom}	[mm]	h _{nom,1}	h _{nom,1}	h _{nom,2}	h _{nom,1}	h _{nom,2}	h _{nom,3}
			75	75	90	75	90	115
Diameter of drill bit	d ₀	[mm]	10	12		14		
Depth of drill hole	h _{1 min}	[mm]	85	85	100	85	100	125
Minimum base material thickness	h _{min}	[mm]	150	150	195	150	195	200 225
Approved load in cracked concrete with compressive strength f _{ck,cube} 10 N/mm ^{1) 2)}	N _{zul}	[kN]	4,3	4,3	8,6	4,3	8,6	10,7 12,1
Approved load in cracked concrete with compressive strength f _{ck,cube} 15 N/mm ^{1) 2)}	N _{zul}	[kN]	5,0	5,0	9,3	5,0	9,3	12,9 15,0
Approved load in cracked concrete with compressive strength f _{ck,cube} 20 N/mm ^{1) 2)}	N _{zul}	[kN]	5,7	5,7	10,0	5,7	10,0	14,3 17,1
Minimum edge distance in load direction ¹⁾	C ₁	[mm]	105	105	130	105	130	165
Minimum edge distance crosswise to load direction ¹⁾	C ₂	[mm]	160	160	195	160	195	250
Minimum centre distance	S _{min}	[mm]	320	320	390	320	390	500
Max. torque with impact screw driver		[Nm]	400	650		650		

¹⁾ See drawing.

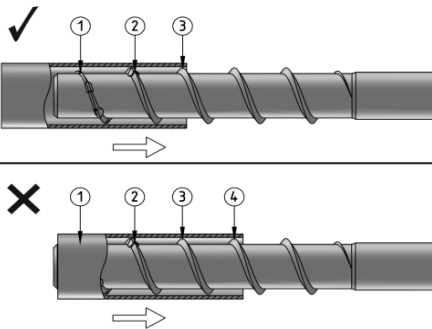
²⁾ The partial safety for load actions γF = 1,4 were considered for determining the load.



02 | TOGE TSM BC ST

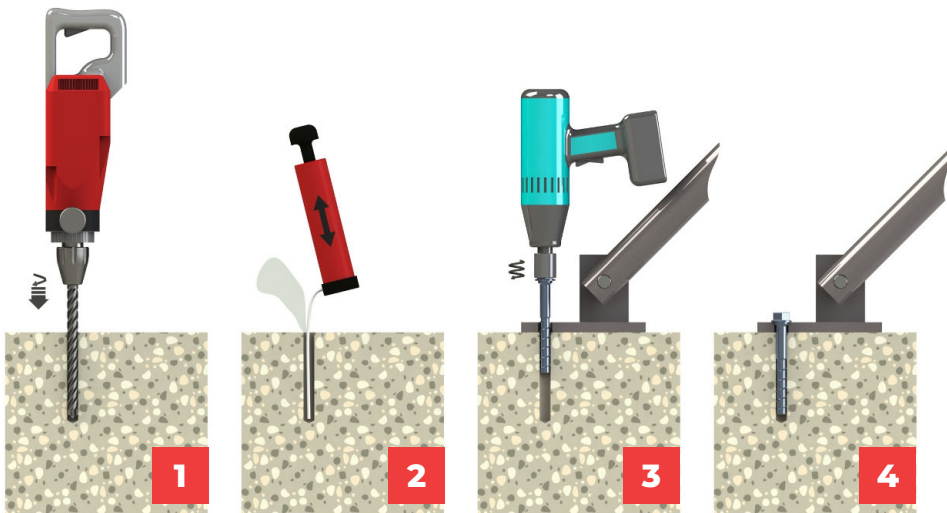
INSTALLATION INSTRUCTIONS

Important notice before installation



1. Before each reuse, the degree of wear on the thread must be checked with an appropriate ring gauge.
2. The concrete screw may only be reused if no more than 3 turns of the thread can enter into the ring gauge.
3. Screws with visible damage, e.g. caused by corrosion wear, must not be reused as a rule.

Installation



- 1 Create borehole.
- 2 Thoroughly clean borehole.
- 3 Screw in concrete screw.
- 4 The screw head must fully contact the fixture.



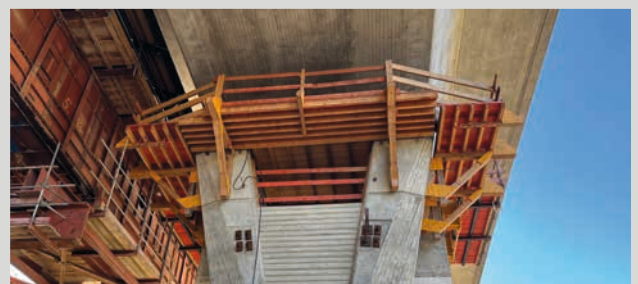
Bridge Cap Anchor



Shear-Connector



DB – Noise Barrier Anchor



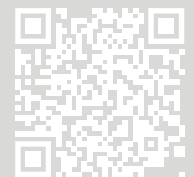
Parapet Anchor

Discover even more!

PRODUCTS FOR STRUCTURAL ENGINEERING

Do you also know our product solutions for structural engineering?

As specialists in concrete fastening technology, we know exactly what is important when carrying out a construction project. Our application engineering team supports you from the very first moment: from the dimensioning of your project to on-site support at the construction site. Our development department is continuously working on optimizing our products in terms of user-friendliness and real added value for our customers. In our in-house laboratory, we oversee all processes from the design of the first prototype to market readiness. In this way, we can also develop customer-specific solutions in the shortest possible time.



03 | TOGE TSM L

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.

**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.

**Particularly
near the edge**

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

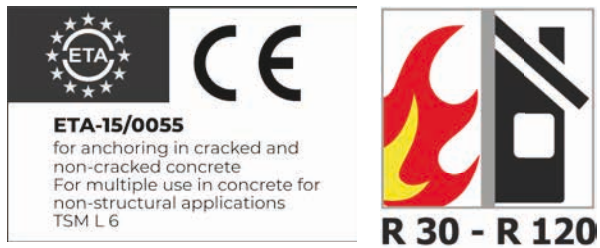
**Variable
load handling**

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

**Easily
demountable**

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

Approval



- ✓ European technical assesment ETA-15/0055.

Basements

- ✓ Approved for concrete strength classes from C20/25 to C50/60.
- ✓ Cracked and non-cracked concrete.








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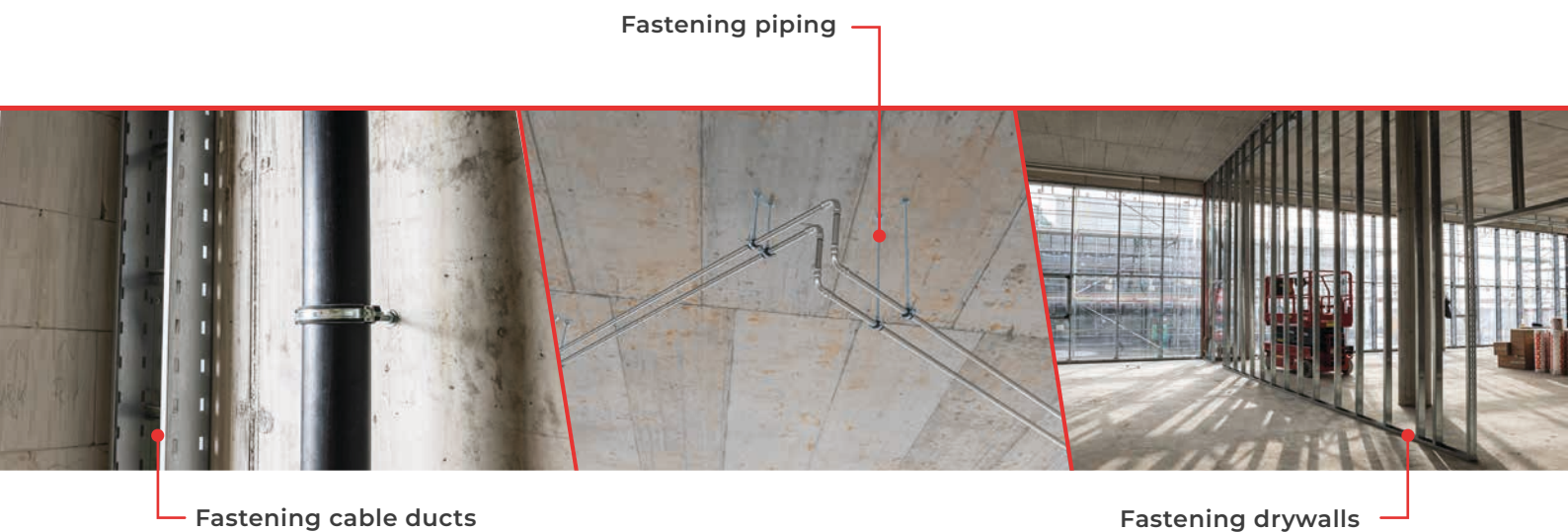
For example, to view the approvals in detail you only need one click. Feel free to try it out!

03 | TOGE TSM L

HEADSHAPES AND 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



03 | TOGE TSM L

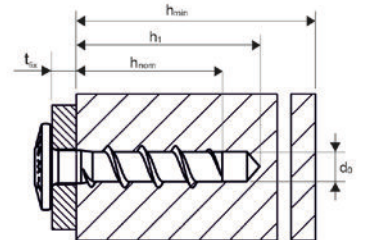
STEEL – ZINC PLATED

Version with panhead and multipoint drive



Size
6

Head-Ø
14,0 mm



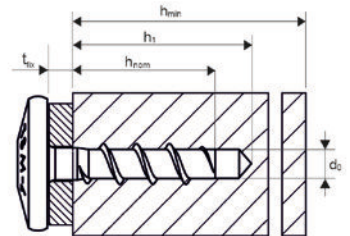
Item nr.	Designation	Depth of drill hole $h_{1,1}$	Embedment depth of anchor $h_{nom,1}$	Max. thickness of fixture $t_{fix,1}$	Packing Unit
205 060 280	TSM L 6x28 LiKo VZ30	28 mm	25 mm	3 mm	100

Version with large panhead and multipoint drive



Size
6

Head-Ø
17,5 mm

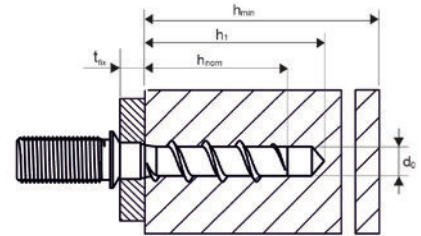


Item nr.	Designation	Depth of drill hole $h_{1,1} / h_{1,2}$	Embedment depth of anchor $h_{nom,1} / h_{nom,2}$	Max. thickness of fixture $t_{fix,1} / t_{fix,2}$	Packing Unit
205 060 281	TSM L 6x28 LP VZ30	28 mm	25 mm	3 mm	100
205 060 401	TSM L 6x40 LP VZ30	28 mm 38 mm	25 mm 35 mm	15 mm 5 mm	100

03 | TOGE TSM L

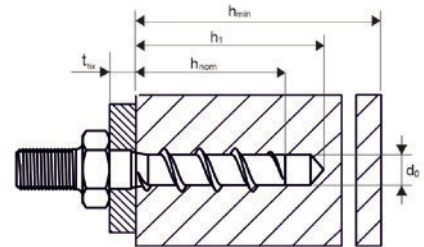
STEEL – ZINC PLATED

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	28 mm	25 mm	3 mm	100

Version with metric connection thread M6

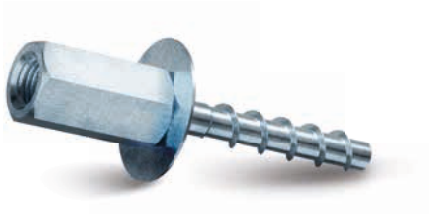


Item nr.	Designation	Depth of drill hole $h_{1,1}$	Embedment depth of anchor $h_{nom,1}$	Max. thickness of fixture $t_{fix,1}$	Packing Unit
205 060 282	TSM L 6x28 M6 SW10	28 mm	25 mm	3 mm	100

03 | TOGE TSM L

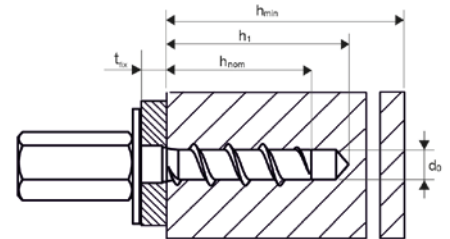
STEEL – ZINC PLATED

Version with metric female thread
M8/M10



Size
6

Washer-Ø
25,0 mm



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



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03 | TOGE TSM L

TECHNICAL CHARACTERISTICS

Single 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 _{i 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 $\gamma_M = 1,0$ 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 spacing and edge distances.

03 | TOGE TSM L

TECHNICAL CHARACTERISTICS

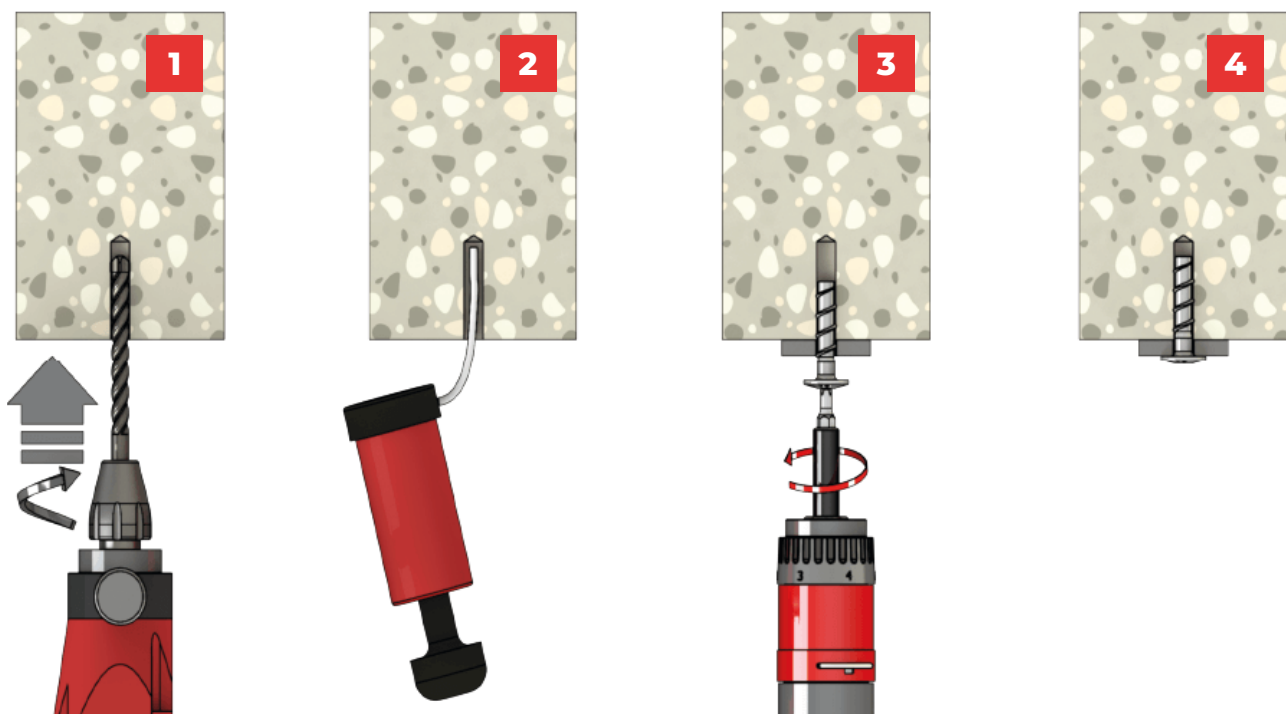
Single fastening under fire exposure, Steel

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 ($F_{zul,fi} = N_{zul,fi} = V_{zul,fi}$)					
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		
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 one 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	[-]	1,0	
In wet concrete, the embedment depth must be increased by at least 30 mm.					

03 | TOGE TSM L

INSTALLATION INSTRUCTIONS

Installation



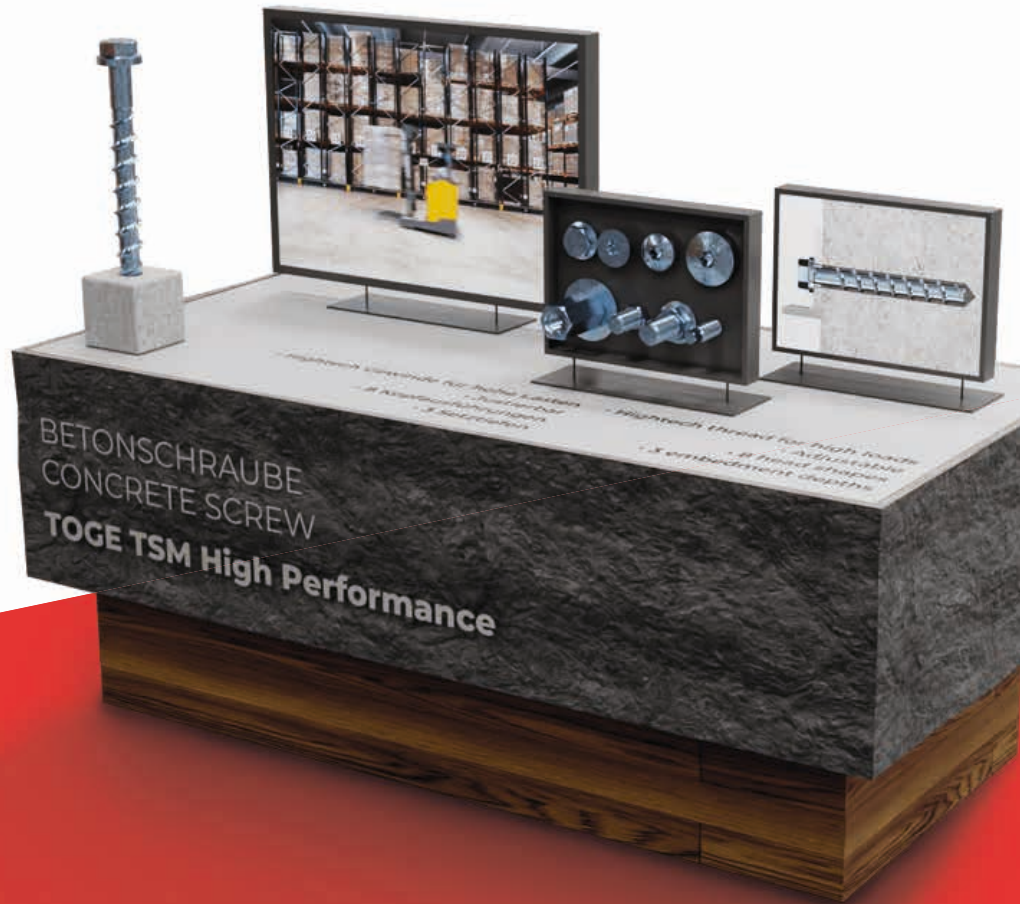
- 1** Create borehole.
- 2** Clean the borehole thoroughly.
- 3** Screw in the TOGE TSM L with a standard cordless screwdriver – without special tools.
- 4** The screw head must rest completely on the attachment.



Own research and development

Our engineers are continuously working on the optimization of our products, development of new products and customized product solutions.

SIDE NOTE



Discover now!

VIRTUAL SHOWROOM

Experience our products
in 3D in advance!

Welcome to our virtual showroom! Come in and learn everything about our products, their application, possible product variants and much more. We will be happy to accompany you on your tour and advise you on any questions you may have.

We look forward to your visit!

04 | TOGE TSM PB

TOGE TSM PB

Aerated concrete screw for easy installation – even without pre-drilling



Fast and easy installation

Installation possible with and also without pre-drilling.



High service loads

High recommended loads for various aerated concrete strengths.

Base Material

- Aerated concrete.






Scan the QR code and go directly to the product page

For example, to view the approvals in detail you only need one click. Feel free to try it out!

04 | TOGE TSM PB

HEADSHAPES AND MATERIALS

		Steel zinc-plated	Steel, zinc flake-coated	Stainless steel A4
	hexagonal head and pressed on washer	✓		
	countersunk head and multipoint drive	✓		
	panhead and multipoint drive	✓		

Application examples



Fastening wall cabinets

04 | TOGE TSM PB

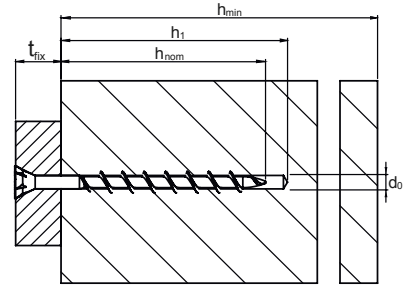
STEEL – ZINC PLATED

Version with hexagonal head and pressed on washer



Size
10

Washer-Ø
16,0 mm



Item nr.	Designation	Embedment depth of anchor h_{nom}	Max. thickness of fixture t_{fix}	Packing Unit
230 101 102	TSM PB 10x110 SW10	100 mm	10 mm	100
230 101 602	TSM PB 10x160 SW10	100 mm	60 mm	100

Version with countersunk head and multipoint drive



Size
8
10

Head-Ø
12,0 mm
14,0 mm

Item nr.	Designation	Embedment depth of anchor h_{nom}	Max. thickness of fixture t_{fix}	Packing Unit
230 081 100	TSM PB 8x110 SeKo VZ25	80 mm	30 mm	100
230 101 100	TSM PB 10x110 SeKo VZ30	100 mm	10 mm	100
230 101 600	TSM PB 10x160 SeKo VZ30	100 mm	60 mm	100

04 | TOGE TSM PB

STEEL – ZINC PLATED

Version with panhead and multipoint drive



Size
8

Head-Ø
12,0 mm

Item nr.	Designation	Embedment depth of anchor h_{nom}	Max. thickness of fixture t_{fix}	Packing Unit
230 080 801	TSM PB 8x80 LiKo VZ30	80 mm	–	100
230 081 001	TSM PB 8x100 LiKo VZ30	80 mm	20 mm	100



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04 | TOGE TSM PB

TECHNICAL CHARACTERISTICS ¹⁾

Single fastening without fire exposure, Steel

Screw size TSM PB			8	10
Nominal diameter of drill bit	d ₀	[mm]	0/4	0/4
Depth of drill hole	≥ h ₁	[mm]	0/40	0/50
Nominal embedment depth	≥ h _{nom}	[mm]	80	100
Recommended load for PP2 -0,50 ²⁾	F _{emp.f.}	[kN]	0,34	0,47
Recommended load for PP4 -0,65 ²⁾	F _{emp.f.}	[kN]	0,68	0,92
Recommended load for PP6 -0,80 ²⁾	F _{emp.f.}	[kN]	0,99	x
Recommended load for PP3,3 -0,60 ²⁾	F _{emp.f.}	[kN]	x	0,94
Recommended load for PP4,4 -0,70 ²⁾	F _{emp.f.}	[kN]	x	0,90
Diameter of clearing hole in the fixture	d	[mm]	9,0	10,0
Installation torque	T _{inst.}	[Nm]	8	12

¹⁾ All specified values apply for installation with pre-drilled hole!

²⁾ The partial safety factor γ = 5 was considered for determining the load.



Private Label – our service for retailers

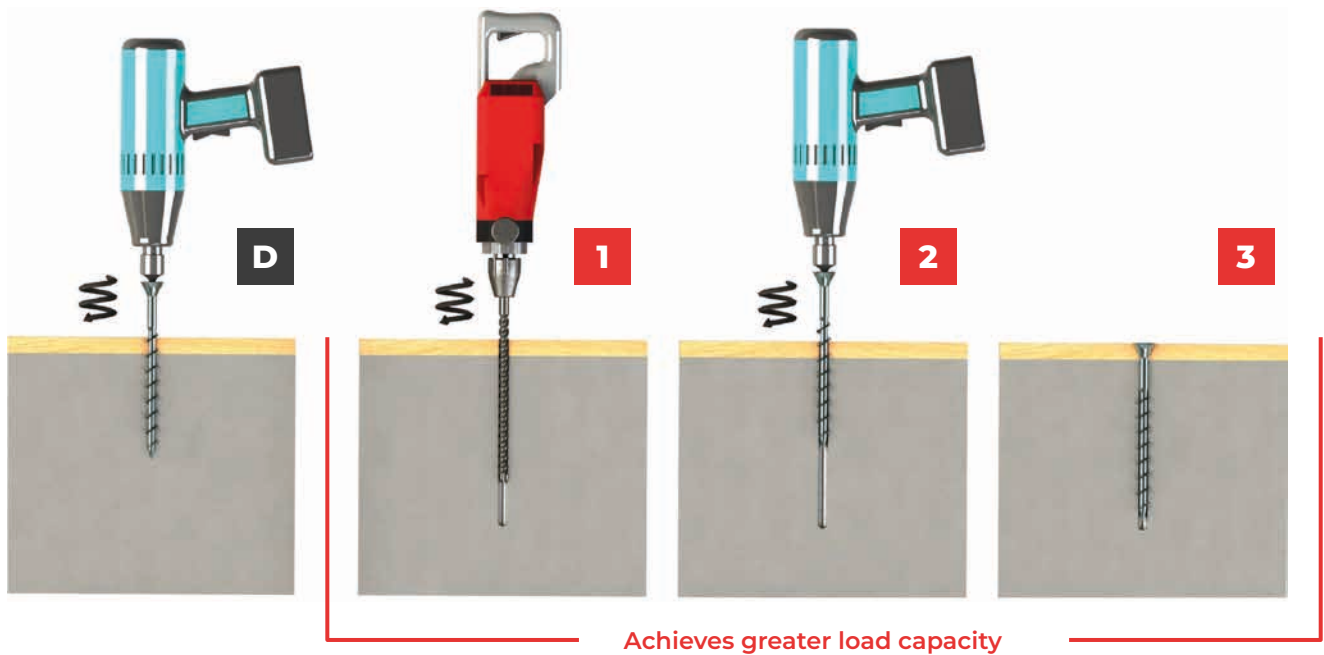
For our customers we offer a wide range of packaging solutions: Whether in TOGE presentation or adapted to your own individual design.

SIDE NOTE

04 | TOGE TSM PB

INSTALLATION INSTRUCTIONS

Direct installation Installation with pre-drilling

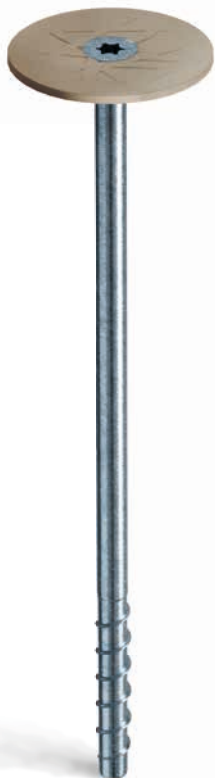


- D** Screw in without predrilling.
- 1** Create borehole.
- 2** Screw in the screw.
- 3** The screw head must rest completely on the attachment part.

05 | TOGE TIS

TOGE TIS

Insulating screw for cold-, heat- and fire-protection

**Cover Cap**

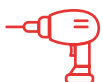
Cover caps with textured structure made of polyethylene in three different colors for a coherent look of the entire surface.

**Fast Installation**

The small drilling diameter of only 6 mm allows fast, uncomplicated installation.

**Variable load handling**

Two different embedment depths of 25 mm or 35 mm allow variable load bearing for different panel thicknesses.

**Easy Installation**

The patented thread allows quick and easy installation with a standard cordless screwdriver without special tools. The TOGE TIS can be removed just as easily without leaving any residue.

**No more reinforcement hits**

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

**Maximum thickness**

Screw lengths up to 325 mm enable the fastening of insulating panels up to a thickness of 300 mm.

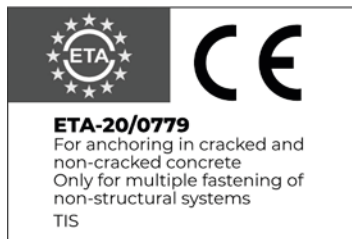
**Fire protection**

A fixed metal plate under the plastic cap ensures fire protection up to fire resistance class R120.

**Easily adjustable**

The screw thread allows adjustment of the insulation panels at any time during or after installation. For an even installation pattern over the entire surface.

Approval



- ✓ European technical assessment ETA-20/0779.
- ✓ General technical approval Z-21.8.1971.

Base Materials

- ✓ Approval for concrete strength classes from C20/25 to C50/60.
- ✓ Cracked and non-cracked concrete.
- ✓ TIS KORR coated for use in corrosivity categorie C3.







Scan the QR code and go directly to the product page

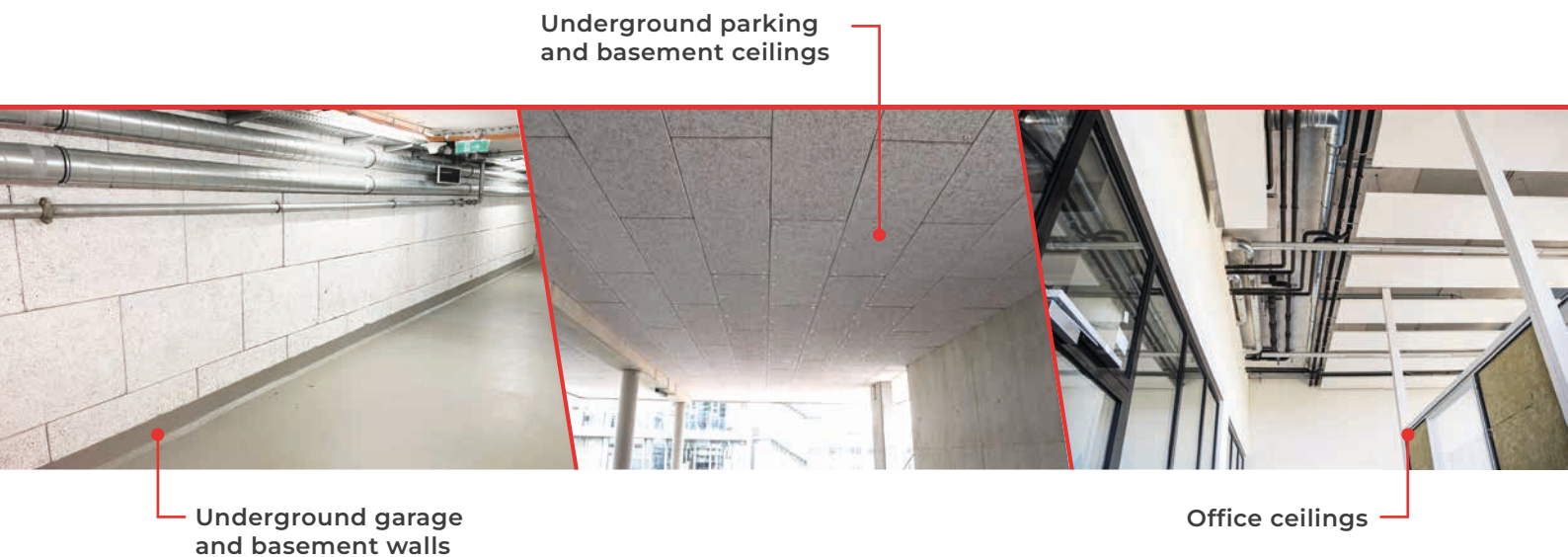
For example, to view the approvals in detail you only need one click. Feel free to try it out!

05 | TOGE TIS

HEADSHAPES AND MATERIALS

		Steel zinc-plated	Steel, zinc flake-coated	Stainless steel A4
	Cover cap white	✓	✓	
	Cover cap beige	✓	✓	
	Cover cap grey	✓	✓	
	Additional disc Ø 80 mm	✓		

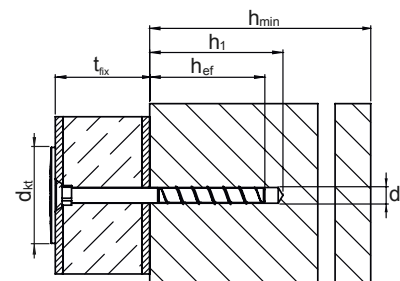
Application examples



05 | TOGE TIS

STEEL – ZINC PLATED

Version with cover cap made of polyethylene Ø37 mm in white



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
031 169 050	TIS 50 WHITE	28 mm / 38 mm	25 mm / 35 mm	25 mm / 15 mm	100
031 169 075	TIS 75 WHITE	28 mm / 38 mm	25 mm / 35 mm	50 mm / 40 mm	100
031 169 085	TIS 85 WHITE	28 mm / 38 mm	25 mm / 35 mm	60 mm / 50 mm	100
031 169 100	TIS 100 WHITE	28 mm / 38 mm	25 mm / 35 mm	75 mm / 65 mm	100
031 169 110	TIS 110 WHITE	28 mm / 38 mm	25 mm / 35 mm	85 mm / 75 mm	100
031 169 125	TIS 125 WHITE	28 mm / 38 mm	25 mm / 35 mm	100 mm / 90 mm	100
031 169 135	TIS 135 WHITE	28 mm / 38 mm	25 mm / 35 mm	110 mm / 100 mm	100
031 169 150	TIS 150 WHITE	28 mm / 38 mm	25 mm / 35 mm	125 mm / 115 mm	100
031 169 175	TIS 175 WHITE	28 mm / 38 mm	25 mm / 35 mm	150 mm / 140 mm	100
031 169 200	TIS 200 WHITE	28 mm / 38 mm	25 mm / 35 mm	175 mm / 165 mm	100
031 169 225	TIS 225 WHITE	28 mm / 38 mm	25 mm / 35 mm	200 mm / 190 mm	100
031 169 250	TIS 250 WHITE	28 mm / 38 mm	25 mm / 35 mm	225 mm / 215 mm	100
031 169 275	TIS 275 WHITE	28 mm / 38 mm	25 mm / 35 mm	250 mm / 240 mm	100
031 169 300	TIS 300 WHITE	28 mm / 38 mm	25 mm / 35 mm	275 mm / 265 mm	100
031 169 325	TIS 325 WHITE	28 mm / 38 mm	25 mm / 35 mm	300 mm / 290 mm	100

Additional disc without marking
Ø 80 mm

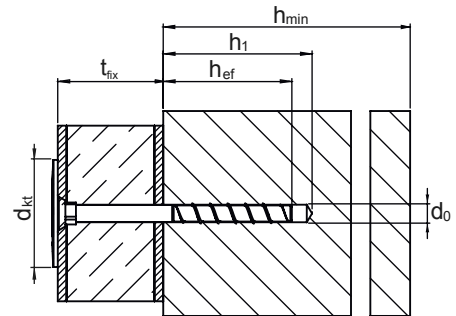


Item nr.	Designation	Diameter	Packing Unit
030 158	TIS Disc 80	80 mm	250

05 | TOGE TIS

STEEL – ZINC PLATED

Version with cover cap made of polyethylene Ø37 mm in beige

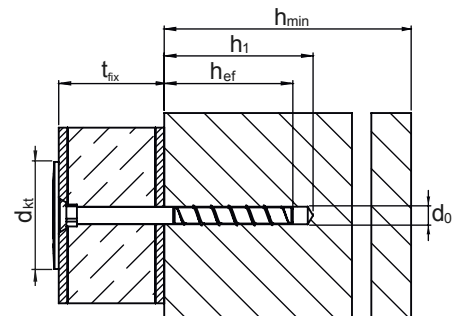


Item nr.	Designation	Depth of drill hole $h_{1,1} / h_{1,2}$	Embedment depth of anchor $h_{nom,1} / h_{nom,2}$	Max. thickness of fixture $t_{fix,1} / t_{fix,2}$	Packing Unit
031 269 050	TIS 50 BEIGE	28 mm / 38 mm	25 mm / 35 mm	25 mm / 15 mm	100
031 269 075	TIS 75 BEIGE	28 mm / 38 mm	25 mm / 35 mm	50 mm / 40 mm	100
031 269 085	TIS 85 BEIGE	28 mm / 38 mm	25 mm / 35 mm	60 mm / 50 mm	100
031 269 100	TIS 100 BEIGE	28 mm / 38 mm	25 mm / 35 mm	75 mm / 65 mm	100
031 269 110	TIS 110 BEIGE	28 mm / 38 mm	25 mm / 35 mm	85 mm / 75 mm	100
031 269 125	TIS 125 BEIGE	28 mm / 38 mm	25 mm / 35 mm	100 mm / 90 mm	100
031 269 135	TIS 135 BEIGE	28 mm / 38 mm	25 mm / 35 mm	110 mm / 100 mm	100
031 269 150	TIS 150 BEIGE	28 mm / 38 mm	25 mm / 35 mm	125 mm / 115 mm	100
031 269 175	TIS 175 BEIGE	28 mm / 38 mm	25 mm / 35 mm	150 mm / 140 mm	100
031 269 200	TIS 200 BEIGE	28 mm / 38 mm	25 mm / 35 mm	175 mm / 165 mm	100
031 269 225	TIS 225 BEIGE	28 mm / 38 mm	25 mm / 35 mm	200 mm / 190 mm	100
031 269 250	TIS 250 BEIGE	28 mm / 38 mm	25 mm / 35 mm	225 mm / 215 mm	100
031 269 275	TIS 275 BEIGE	28 mm / 38 mm	25 mm / 35 mm	250 mm / 240 mm	100
031 269 300	TIS 300 BEIGE	28 mm / 38 mm	25 mm / 35 mm	275 mm / 265 mm	100
031 269 325	TIS 325 BEIGE	28 mm / 38 mm	25 mm / 35 mm	300 mm / 290 mm	100

05 | TOGE TIS

STEEL – ZINC PLATED

Version with cover cap made of polyethylene Ø37 mm in grey

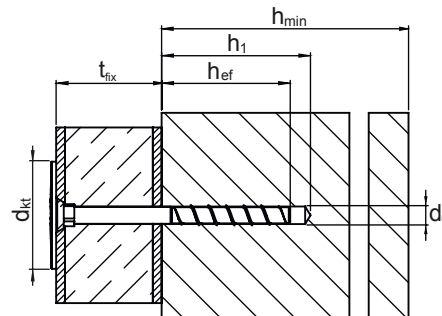


Item nr.	Designation	Depth of drill hole h_{t1} / h_{t2}	Embedment depth of anchor $h_{nom,1} / h_{nom,2}$	Max. thickness of fixture $t_{fix,1} / t_{fix,2}$	Packing Unit
031 069 050	TIS 50 GREY	28 mm / 38 mm	25 mm / 35 mm	25 mm / 15 mm	100
031 069 075	TIS 75 GREY	28 mm / 38 mm	25 mm / 35 mm	50 mm / 40 mm	100
031 069 085	TIS 85 GREY	28 mm / 38 mm	25 mm / 35 mm	60 mm / 50 mm	100
031 069 100	TIS 100 GREY	28 mm / 38 mm	25 mm / 35 mm	75 mm / 65 mm	100
031 069 110	TIS 110 GREY	28 mm / 38 mm	25 mm / 35 mm	85 mm / 75 mm	100
031 069 125	TIS 125 GREY	28 mm / 38 mm	25 mm / 35 mm	100 mm / 90 mm	100
031 069 135	TIS 135 GREY	28 mm / 38 mm	25 mm / 35 mm	110 mm / 100 mm	100
031 069 150	TIS 150 GREY	28 mm / 38 mm	25 mm / 35 mm	125 mm / 115 mm	100
031 069 175	TIS 175 GREY	28 mm / 38 mm	25 mm / 35 mm	150 mm / 140 mm	100
031 069 200	TIS 200 GREY	28 mm / 38 mm	25 mm / 35 mm	175 mm / 165 mm	100
031 069 225	TIS 225 GREY	28 mm / 38 mm	25 mm / 35 mm	200 mm / 190 mm	100
031 069 250	TIS 250 GREY	28 mm / 38 mm	25 mm / 35 mm	225 mm / 215 mm	100
031 069 275	TIS 275 GREY	28 mm / 38 mm	25 mm / 35 mm	250 mm / 240 mm	100
031 069 300	TIS 300 GREY	28 mm / 38 mm	25 mm / 35 mm	275 mm / 265 mm	100
031 069 325	TIS 325 GREY	28 mm / 38 mm	25 mm / 35 mm	300 mm / 290 mm	100

05 | TOGE TIS

TOGE-KORR: STEEL – ZINC-FLAKE COATED

Version with cover cap made of polyethylene Ø37 mm in white

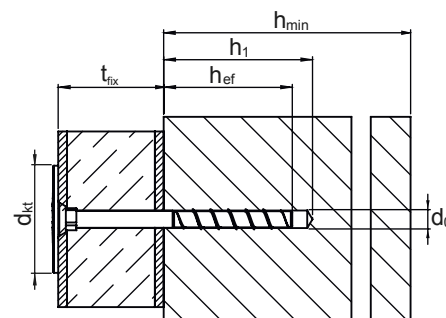


Item nr.	Designation	Depth of drill hole $h_{1,1} / h_{1,2}$	Embedment depth of anchor $h_{nom,1} / h_{nom,2}$	Max. thickness of fixture $t_{fix,1} / t_{fix,2}$	Packing Unit
031 168 050	TIS KORR 50 WHITE	28 mm / 38 mm	25 mm / 35 mm	25 mm / 15 mm	100
031 168 075	TIS KORR 75 WHITE	28 mm / 38 mm	25 mm / 35 mm	50 mm / 40 mm	100
031 168 085	TIS KORR 85 WHITE	28 mm / 38 mm	25 mm / 35 mm	60 mm / 50 mm	100
031 168 100	TIS KORR 100 WHITE	28 mm / 38 mm	25 mm / 35 mm	75 mm / 65 mm	100
031 168 125	TIS KORR 125 WHITE	28 mm / 38 mm	25 mm / 35 mm	100 mm / 90 mm	100
031 168 135	TIS KORR 135 WHITE	28 mm / 38 mm	25 mm / 35 mm	110 mm / 100 mm	100
031 168 150	TIS KORR 150 WHITE	28 mm / 38 mm	25 mm / 35 mm	125 mm / 115 mm	100
031 168 175	TIS KORR 175 WHITE	28 mm / 38 mm	25 mm / 35 mm	150 mm / 140 mm	100
031 168 200	TIS KORR 200 WHITE	28 mm / 38 mm	25 mm / 35 mm	175 mm / 165 mm	100
031 168 225	TIS KORR 225 WHITE	28 mm / 38 mm	25 mm / 35 mm	200 mm / 190 mm	100
031 168 250	TIS KORR 250 WHITE	28 mm / 38 mm	25 mm / 35 mm	225 mm / 215 mm	100
031 168 275	TIS KORR 275 WHITE	28 mm / 38 mm	25 mm / 35 mm	250 mm / 240 mm	100
031 168 300	TIS KORR 300 WHITE	28 mm / 38 mm	25 mm / 35 mm	275 mm / 265 mm	100
031 168 325	TIS KORR 325 WHITE	28 mm / 38 mm	25 mm / 35 mm	300 mm / 290 mm	100

05 | TOGE TIS

TOGE-KORR: STEEL – ZINC-FLAKE COATED

Version with cover cap made of polyethylene Ø37 mm in beige

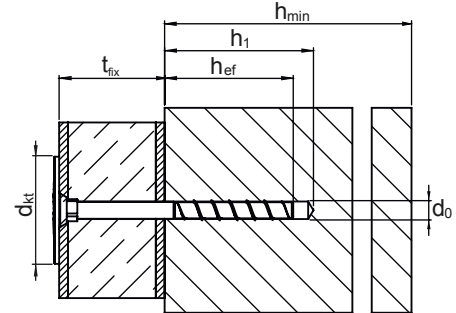


Item nr.	Designation	Depth of drill hole $h_{1,1} / h_{1,2}$	Embedment depth of anchor $h_{nom,1} / h_{nom,2}$	Max. thickness of fixture $t_{fix,1} / t_{fix,2}$	Packing Unit
031 268 050	TIS KORR 50 BEIGE	28 mm / 38 mm	25 mm / 35 mm	25 mm / 15 mm	100
031 268 075	TIS KORR 75 BEIGE	28 mm / 38 mm	25 mm / 35 mm	50 mm / 40 mm	100
031 268 085	TIS KORR 85 BEIGE	28 mm / 38 mm	25 mm / 35 mm	60 mm / 50 mm	100
031 268 100	TIS KORR 100 BEIGE	28 mm / 38 mm	25 mm / 35 mm	75 mm / 65 mm	100
031 268 125	TIS KORR 125 BEIGE	28 mm / 38 mm	25 mm / 35 mm	100 mm / 90 mm	100
031 268 135	TIS KORR 135 BEIGE	28 mm / 38 mm	25 mm / 35 mm	110 mm / 100 mm	100
031 268 150	TIS KORR 150 BEIGE	28 mm / 38 mm	25 mm / 35 mm	125 mm / 115 mm	100
031 268 175	TIS KORR 175 BEIGE	28 mm / 38 mm	25 mm / 35 mm	150 mm / 140 mm	100
031 268 200	TIS KORR 200 BEIGE	28 mm / 38 mm	25 mm / 35 mm	175 mm / 165 mm	100
031 268 225	TIS KORR 225 BEIGE	28 mm / 38 mm	25 mm / 35 mm	200 mm / 190 mm	100
031 268 250	TIS KORR 250 BEIGE	28 mm / 38 mm	25 mm / 35 mm	225 mm / 215 mm	100
031 268 275	TIS KORR 275 BEIGE	28 mm / 38 mm	25 mm / 35 mm	250 mm / 240 mm	100
031 268 300	TIS KORR 300 BEIGE	28 mm / 38 mm	25 mm / 35 mm	275 mm / 265 mm	100
031 268 325	TIS KORR 325 BEIGE	28 mm / 38 mm	25 mm / 35 mm	300 mm / 290 mm	100

05 | TOGE TIS

TOGE-KORR: STEEL – ZINC-FLAKE COATED

Version with cover cap made of polyethylene Ø37 mm in grey



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
031 068 050	TIS KORR 50 GREY	28 mm / 38 mm	25 mm / 35 mm	25 mm / 15 mm	100
031 068 075	TIS KORR 75 GREY	28 mm / 38 mm	25 mm / 35 mm	50 mm / 40 mm	100
031 068 085	TIS KORR 85 GREY	28 mm / 38 mm	25 mm / 35 mm	60 mm / 50 mm	100
031 068 100	TIS KORR 100 GREY	28 mm / 38 mm	25 mm / 35 mm	75 mm / 65 mm	100
031 068 125	TIS KORR 125 GREY	28 mm / 38 mm	25 mm / 35 mm	100 mm / 90 mm	100
031 068 135	TIS KORR 135 GREY	28 mm / 38 mm	25 mm / 35 mm	110 mm / 100 mm	100
031 068 150	TIS KORR 150 GREY	28 mm / 38 mm	25 mm / 35 mm	125 mm / 115 mm	100
031 068 175	TIS KORR 175 GREY	28 mm / 38 mm	25 mm / 35 mm	150 mm / 140 mm	100
031 068 200	TIS KORR 200 GREY	28 mm / 38 mm	25 mm / 35 mm	175 mm / 165 mm	100
031 068 225	TIS KORR 225 GREY	28 mm / 38 mm	25 mm / 35 mm	200 mm / 190 mm	100
031 068 250	TIS KORR 250 GREY	28 mm / 38 mm	25 mm / 35 mm	225 mm / 215 mm	100
031 068 275	TIS KORR 275 GREY	28 mm / 38 mm	25 mm / 35 mm	250 mm / 240 mm	100
031 068 300	TIS KORR 300 GREY	28 mm / 38 mm	25 mm / 35 mm	275 mm / 265 mm	100
031 068 325	TIS KORR 325 GREY	28 mm / 38 mm	25 mm / 35 mm	300 mm / 290 mm	100

05 | TOGE TIS

TECHNICAL CHARACTERISTICS

Without fire exposure for multiple fastening TIS according ETA-20/0779

Screw size TIS			6	
Nominal embedment depth	h _{nom}	[mm]	h _{nom,1} 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 ^{2) 3)}	N _{zul}	[kN]	0,4	1,0
Approved shear load in cracked concrete ^{2) 3)}	V _{zul}	[kN]	1,4	2,3
Approved tension load in non-cracked concrete ^{2) 3)}	N _{zul}	[kN]	1,0	1,9
Approved shear load in non-cracked concrete ^{2) 3)}	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	

Without fire exposure for multiple fastening TIS according Z-21.8-1971

Screw size TIS			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
Diameter of clearance hole in the fixture	d _f max	[mm]	8	
Approved load in all directions in cracked concrete ^{3) 4)}	F _{zul}	[kN]	0,4	1,0
Minimum edge distance	C _{min}	[mm]	30	
Minimum spacing	S _{min}	[mm]	30	
Minimum base material thickness	h _{min}	[mm]	80	

¹⁾ Only for use in dry conditions

²⁾ The partial safety factor for material resistance from the approval $\gamma_M = 1,5$ as well a partial safety factor for load actions $\gamma_F = 1,4$ were considered for determining the load.

³⁾ These values apply without influence of the spacing and edge distances.

⁴⁾ The partial safety factor for load actions $\gamma_F = 1,35$ was considered for determining the load.

05 | TOGE TIS

TECHNICAL CHARACTERISTICS

Under fire exposure for multiple fastening TIS according ETA-20/0779

Screw size TIS		6				
Nominal embedment depth		h _{nom} [mm]	h _{nom,1} ¹⁾		h _{nom,2}	
			25		35	
Approved load under tensile and shear use ($F_{zul,fi} = N_{zul,fi} = V_{zul,fi}$)						
Fire resistance class						
R 30	Approved load ²⁾	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		
Edge distance						
R 30 bis 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 bis R 120		S _{cr,fi}	[mm]	4 x h _{ef}		
Concrete pry-out failure						
R 30 bis R 120		k	[-]	1,0		
In wet concrete, the embedment depth must be increased by at least 30 mm.						

¹⁾ Only for use in dry conditions.

²⁾ The partial safety factor for material resistance from the approval $\gamma_M = 1,5$ as well a partial safety factor for load actions $\gamma_F = 1,4$ were considered for determining the load.

05 | TOGE TIS

TECHNICAL CHARACTERISTICS

Under fire exposure for multiple fastening TIS according Z-21.8-1971

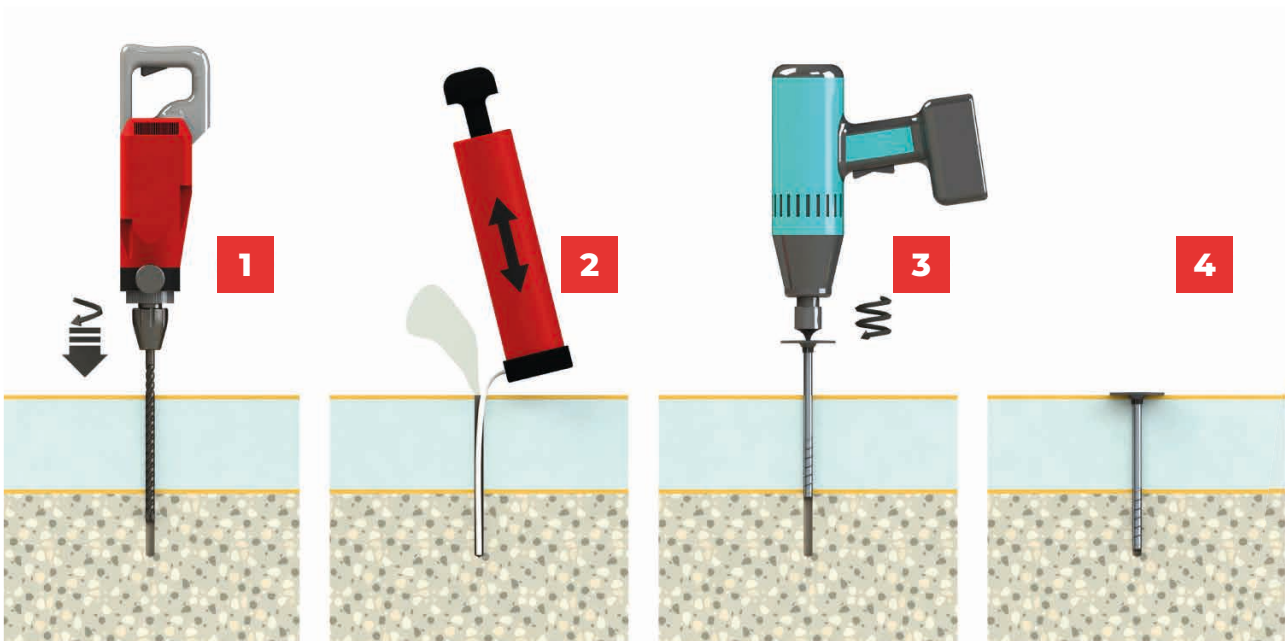
Screw size TIS				6	
Nominal embedment depth		h _{nom}	[mm]	h _{nom,1}	h _{nom,2}
				25	35
Approved load under tensile and shear use ($F_{zul,fi} = N_{zul,fi} = V_{zul,fi}$)					
Fire resistance class					
R 30	Approved load ²⁾	F _{zul,fi,30}	[kN]	0,27	
R 60		F _{zul,fi,60}	[kN]	0,27	
R 90		F _{zul,fi,90}	[kN]	0,22	
R 120		F _{zul,fi,120}	[kN]	0,17	
Edge distance					
R 30 bis R 120		C _{cr,fi}	[mm]	60	
The edge distance must be at least 300 mm if the fire load attacks from more than one side.					
Spacing					
R 30 bis R 120		S _{cr,fi}	[mm]	120	

²⁾ The partial safety factor for material resistance from the approval $\gamma_M = 1,5$ as well a partial safety factor for load actions $\gamma_F = 1,4$ were considered for determining the load.

05 | TOGE TIS

INSTALLATION INSTRUCTIONS

Installation



- 1 Create borehole.
- 2 Clean the borehole thoroughly.
- 3 Screw in the TOGE TIS with a standard cordless screwdriver – without special tools.
- 4 The screw head must rest completely on the attachment.



**Our quality is and remains
„Made in Germany“**

All our products are in-house developments and are largely produced at our Nuremberg site.

SIDE NOTE



NEW

Calculation acc.
to DIN EN 1992-4:
2018-04

Request now!

DESIGN SOFTWARE

The user-friendly tool for the design
of fasteners in concrete.

With our free anchor design software DesignFix,
you can easily determine the right anchor require-
ments. The software makes it possible to carry
out design according to the latest guidelines
and select the right product.

Request it now: www.toge.de/en/software

06 | TOGE TID

TOGE TID

The insulating anchor for cold-, heat- and fire-protection



Cover cap

Optional cover caps with textured structure made of polyethylene in different colors for a coherent look of the entire surface.



Corrosion resistance

The A2 stainless steel design provides optimum corrosion protection even in humid environments.



Fire protection

Fire protection up to fire resistance class R120.



Maximum thickness

Screw lengths up to 300 mm enable the fastening of insulating panels up to a thickness of 260 mm.

Approval



- ✓ General technical approval Z-21.8.1970.

Base Material

- ✓ Approval for concrete strength classes from C20/25 to C50/60.
- ✓ Cracked and non-cracked concrete.








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For example, to view the approvals in detail you only need one click. Feel free to try it out!

06 | TOGE TID

HEADSHAPES AND MATERIALS

		Steel zinc-plated	Steel, zinc flake-coated	Stainless steel A2
	Insulating anchor	✓		✓
	Insulating anchor with premounted large cap, white	✓		✓
	Cover caps in different colours, polyethylene			
	Additional disc without embossing Ø 80 mm	✓		
	Additional disc Ø 80 mm	✓		✓

Application examples



Underground garage and basement walls

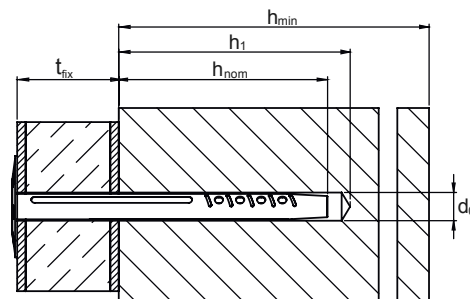
Underground parking and basement ceilings

06 | TOGE TID

STEEL – ZINC PLATED

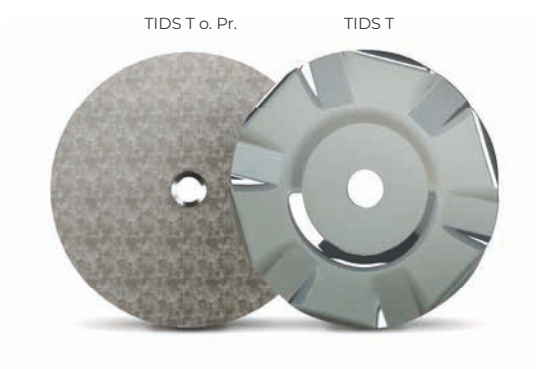
Version without cover cap

Head Ø35 mm



Item nr.	Designation	Depth of drill hole h_0	Embedment depth of anchor h_{nom}	Max. thickness of fixture t_{fix}	Packing Unit
031 061 050	TIDS 50	45 mm	40 mm	10 mm	500
031 061 080	TIDS 80	45 mm	40 mm	40 mm	250
031 061 110	TIDS 110	45 mm	40 mm	70 mm	250
031 061 120	TIDS 120	45 mm	40 mm	80 mm	250
031 061 140	TIDS 140	45 mm	40 mm	100 mm	250
031 061 170	TIDS 170	45 mm	40 mm	130 mm	250
031 061 200	TIDS 200	45 mm	40 mm	160 mm	250
031 061 250	TIDS 250	45 mm	40 mm	210 mm	200
031 061 300	TIDS 300	45 mm	40 mm	260 mm	200

Additional disc
Ø 80 mm



Item nr.	Designation	Diameter	Packing Unit
030 156	TIDS T	80 mm	250
030 158	TIDS T o. Pr.	80 mm	250

Cover caps Polyethylen,
various colours*

Item nr.	Designation	Diameter	Packing Unit
042 000 000	TID-E BEIGE	38 mm	250
042 000 100	TID-E WHITE	38 mm	250
042 000 200	TID-E GREY	38 mm	250

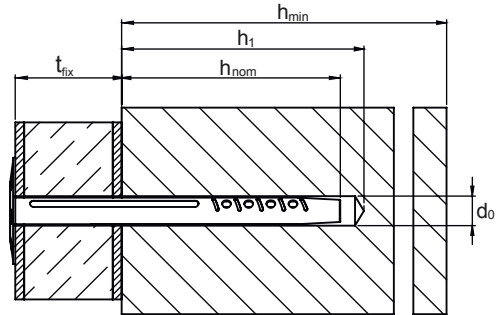


* other colours available upon request

06 | TOGE TID

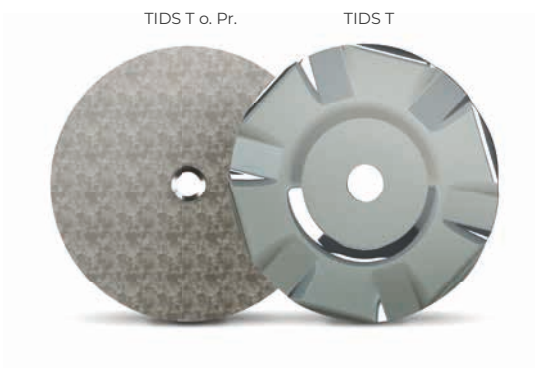
STEEL – ZINC PLATED

Version with premounted large cover cap in Polyethylen, white
Head Ø 54 mm



Item nr.	Designation	Depth of drill hole h_o	Embedment depth of anchor h_{nom}	Max. thickness of fixture t_{fix}	Packing Unit
031 361 080	TIDS-K 80	45 mm	40 mm	40 mm	250
031 361 110	TIDS-K 110	45 mm	40 mm	70 mm	250
031 361 140	TIDS-K 140	45 mm	40 mm	100 mm	250
031 361 170	TIDS-K 170	45 mm	40 mm	130 mm	250
031 361 200	TIDS-K 200	45 mm	40 mm	160 mm	250
031 361 250	TIDS-K 250	45 mm	40 mm	210 mm	200

Additional Disc
Ø 80 mm

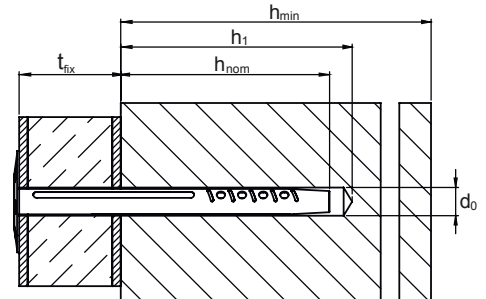


Item nr.	Designation	Diameter	Packing Unit
030 156	TIDS T	80 mm	250
030 158	TIDS T o. Pr.	80 mm	250

06 | TOGE TID

STAINLESS STEEL – A2

Version without cover cap
Head Ø35 mm



Item nr.	Designation	Depth of drill hole h_0	Embedment depth of anchor h_{nom}	Max. thickness of fixture t_{fix}	Packing Unit
031 063 050	TIDR 50	45 mm	40 mm	10 mm	500
031 063 080	TIDR 80	45 mm	40 mm	40 mm	250
031 063 110	TIDR 110	45 mm	40 mm	70 mm	250
031 063120	TIDR 120	45 mm	40 mm	80 mm	250
031 063 140	TIDR 140	45 mm	40 mm	100 mm	250
031 063 170	TIDR 170	45 mm	40 mm	130 mm	250
031 063 200	TIDR 200	45 mm	40 mm	160 mm	250
031 063 250	TIDR 250	45 mm	40 mm	210 mm	200
031 063 300	TIDR 300	45 mm	40 mm	260 mm	200

Additional disc
Ø 80 mm



Item nr.	Designation	Diameter	Packing Unit
030 157	TIDR T	80 mm	250

Cover caps Polyethylen,
various colours*

Item nr.	Designation	Diameter	Packing Unit
042 000 000	TID-E BEIGE	38 mm	250
042 000 100	TID-E WHITE	38 mm	250
042 000 200	TID-E GREY	38 mm	250

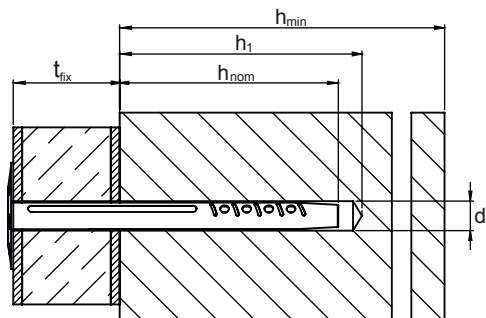


* other colours available upon request

06 | TOGE TID

STAINLESS STEEL – A2

Version with premounted large cover cap in Polyethylen, white
Head Ø 54 mm



Item nr.	Designation	Depth of drill hole h_0	Embedment depth of anchor h_{nom}	Max. thickness of fixture t_{fix}	Packing Unit
031 363 080	TIDR-K 80	45 mm	40 mm	40 mm	250
031 363 110	TIDR-K 110	45 mm	40 mm	70 mm	250
031 363 140	TIDR-K 140	45 mm	40 mm	100 mm	250
031 363 170	TIDR-K 170	45 mm	40 mm	130 mm	250
031 363 200	TIDR-K 200	45 mm	40 mm	160 mm	250
031 363 250	TIDR-K 250	45 mm	40 mm	210 mm	200

Additional disc
Ø 80 mm



Item nr.	Designation	Diameter	Packing Unit
030 157	TIDR T	80 mm	250

06 | TOGE TID

TECHNICAL CHARACTERISTICS

Without fire exposure for multiple fastening TID according Z-21.8-1970

Insulating anchor TID			
Nominal diameter of drill bit	d_0	[mm]	8
Depth of drill hole	$h_0 \geq$	[mm]	45
Embedment depth of anchor	$h_{nom} \geq$	[mm]	40
Approved load in cracked and non-cracked concrete ¹⁾	N_{zul}	[kN]	0,07
Minimum edge distance	c_{min}	[mm]	60
Minimum spacing	s_{min}	[mm]	120
Minimum base material thickness	h_{min}	[mm]	80

Under fire exposure for multiple fastening TID according Z-21.8-1970

Insulating anchor TID				
Approved load under tensile and shear use ($F_{zul,fi} = N_{zul,fi} = V_{zul,fi}$)				
Fire resistance class				
R 30	Approved load ²⁾	$F_{zul,fi,30}$	[kN]	0,07
R 60		$F_{zul,fi,60}$	[kN]	0,07
R 90		$F_{zul,fi,90}$	[kN]	0,07
R 120		$F_{zul,fi,120}$	[kN]	0,06
Edge distance				
R 30 bis R 120	$c_{cr,fi}$	[mm]	80	
The edge distance must be at least 300 mm if the fire load attacks from more than one side.				
Spacing				
R 30 bis R 120	$s_{cr,fi}$	[mm]	160	

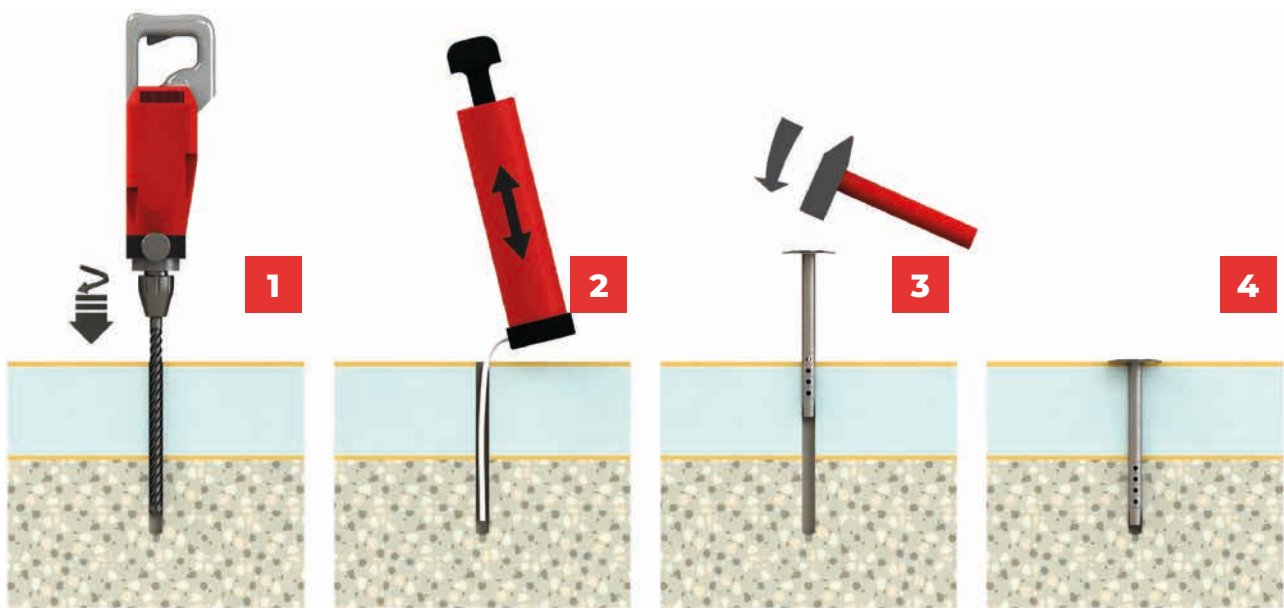
¹⁾ The partial safety factor for material resistance from the approval $\gamma_M = 1,5$ as well a partial safety factor for load actions $\gamma_F = 1,4$ were considered for determining the load.

²⁾ The partial safety factor for material resistance from the approval $\gamma_M = 1,0$ as well a partial safety factor for load actions $\gamma_F = 1,0$ were considered for determining the load.

06 | TOGE TID

INSTALLATION INSTRUCTIONS

Installation



- 1 Create borehole.
- 2 Clean the borehole thoroughly.
- 3 Drive the insulating anchor through the insulating plate with a hammer.
- 4 The dowel plate must rest completely on the attachment part.



Short supply chains

Currently, 90% of our suppliers are located within a 500 km radius – for shorter delivery times and an improved environmental balance.

SIDE NOTE



Quality made in Germany

SUSTAINABILITY

Our goal: To become more sustainable every year.

When selecting our suppliers and service providers, we pay attention to long-term partnerships but also to regional proximity. Already today, we source more than 90% of our materials needed for production from Germany or Europe within a radius of max. 500 km. In addition to shortening delivery times, the shorter transport routes significantly save CO₂.

We are working to increase this to 98% over the next 5 years.

07 | TOGE TSM A

TOGE TSM A

Asphalt screw for fastening directly into asphalt – without concrete foundation



Simple Fastening

Simple fastening directly into the asphalt – without additional concrete foundation.



Frost proof

Sealing the borehole prevents water penetration and frost damage in winter.



Flush with surface

Surface flush installation, also suitable for temporary installation.

Base Material

- ✓ Application in all common asphalt types.



Scan the QR code and go directly to the product page

For example, to view the approvals in detail you only need one click. Feel free to try it out!

07 | TOGE TSM A

HEADSHAPES AND MATERIALS

Steel
zinc-plated

Steel,
anti-corrosion
coated

Stainless steel
A4

	TSM A	
--	--------------	--



Composite mortar
and accessories

* TOGE KORR as per corrosiveness category C5-I medium

Application examples

Fastening of
protective devices



Fastening passive restraint
systems and traffic signs

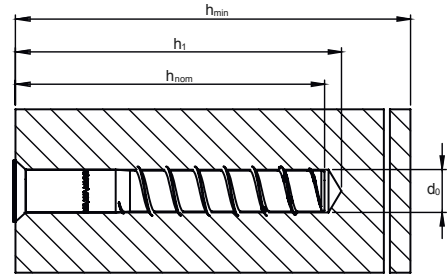


Fastening of impact
protection systems

07 | TOGE TSM A

STEEL – ANTI-CORROSION COATED

Version with female thread
IM 10 or IM 16



Item nr.	Designation	Bore \varnothing	Depth of drill hole h_o	Embedment depth of anchor h_{nom}	Packing Unit
202 161 001	TSM A 16x100 IM10 x 20 SW12 KORR	16 mm	110mm	100 mm	50
202 221 000	TSM A 22x100 IM16 x 30 SW12 KORR	22 mm	110 mm	100 mm	50
202 221 551	TSM A 22x155 IM16 x 30 SW12 KORR	22 mm	165 mm	155 mm	40
500 000 014	Reducer M16/M12				25
500 000 015	Reducer M16/M10				25
500 000 002	Setting tool SW12				1

COMPOSITE MORTAR ATA 2004C

Chemical special mortar
Pure epoxy, suitable for asphalt screws



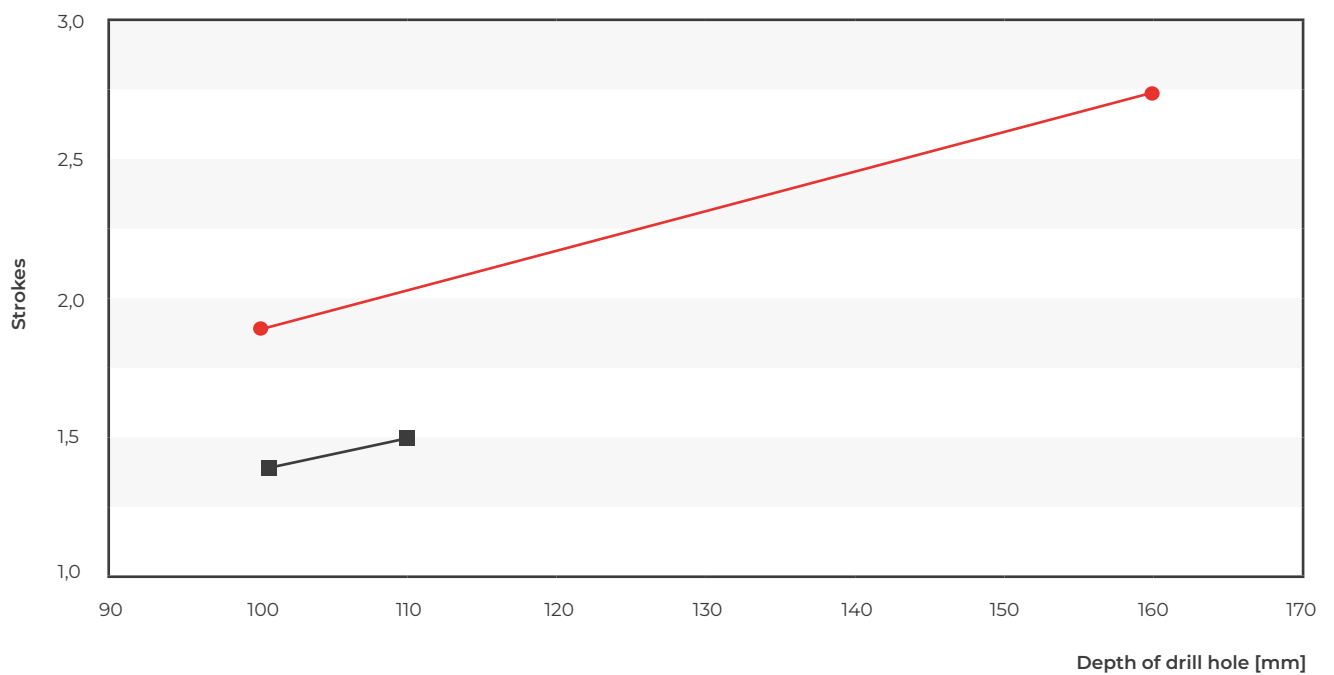
Item nr.	Designation	Packing Unit
222 222 019	Cartridge ATA 2004C, 585 ml	1
222 223 002	Mixing nozzle for ATA 2004C	1
222 222 014	Squeezing pistol for ATA 2004C, 585 ml	1

07 | TOGE TSM A

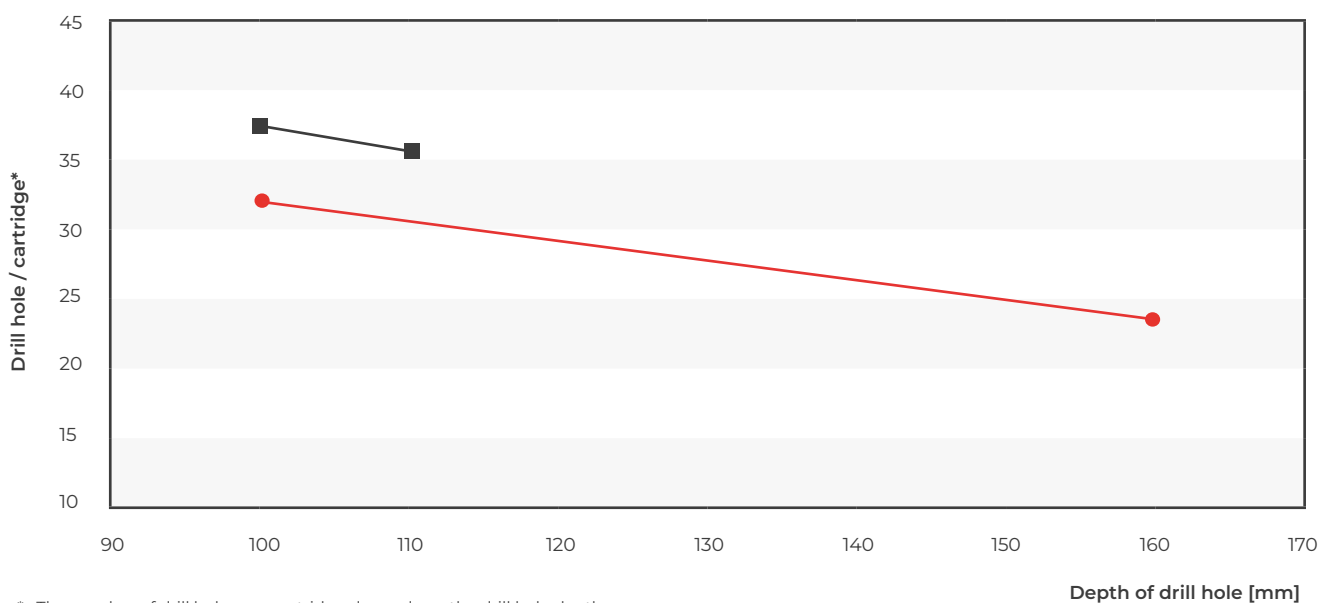
COMPOSITE MORTAR ATA 2004C

Strokes ATA 2004C/
Depth of drill hole and Ø

● Ø 22
■ Ø 16



Cartridge coverage
ATA 2004C



* The number of drill holes per cartridge depends on the drill hole depth.
The specified quantities only apply if the borehole depth is adhered to.

07 | TOGE TSM A

COMPOSITE MORTAR ATA 2004C

Processing instructions
Composite mortar

Temperature in ground	Processing time	Min. curing time
0 °C	90 min	144 h
6 °C	80 min	48 h
10 °C	60 min	28 h
15 °C	40 min	18 h
20 °C	30 min	12 h
25 °C	12 min	9 h
35 °C	8 min	6 h
45 °C	8 min	4 h

TECHNICAL CHARACTERISTICS

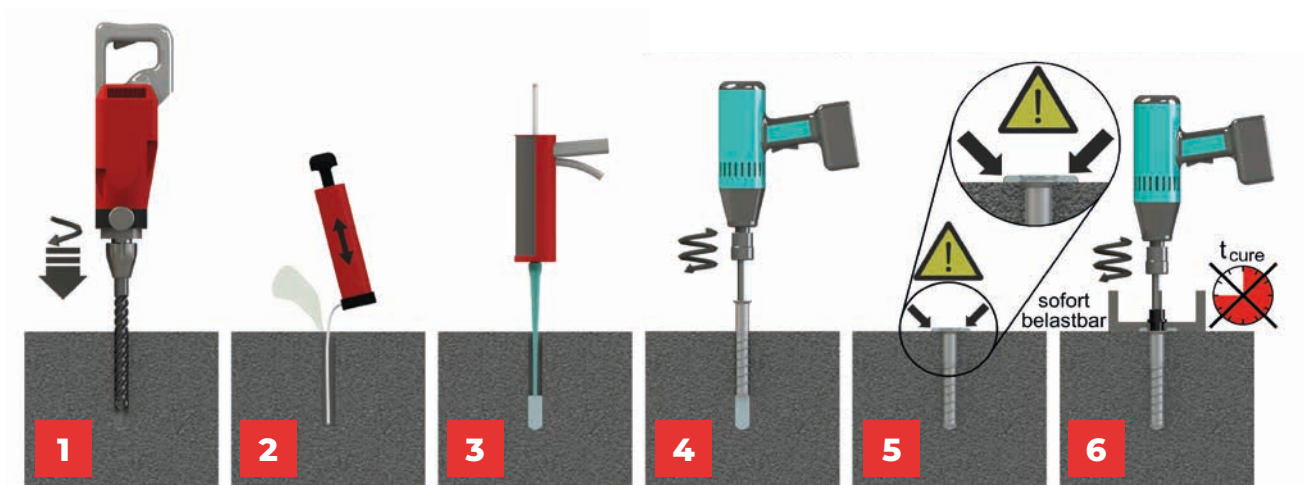
Without fire exposure, steel

Screw size TSM A			16 x 100	22 x 100	22 x 155
Nominal diameter of drill bit	d_0	[mm]	16	22	22
Depth of drill hole	h_1 min	[mm]	110	110	165
Minimum thickness of member	$h_{min} \geq$	[mm]	150	150	200
Nominal embedment depth	h_{nom}	[mm]	100	100	155
Fastening screw used			M 10 x 30	M 16 x 40	M 16 x 40
Strokes ATA 2004			1 to 2	1 to 2	2 to 3
Cartridge is sufficient			40	32	24
Maximum shock load	F	[kN]	40	50	80

07 | TOGE TSM A

INSTALLATION INSTRUCTIONS

Installation



- 1** Create borehole.
- 2** Clean the borehole thoroughly.
- 3** Inject composite mortar.
- 4** Screw in the asphalt screw.
- 5** After reaching the screw-in depth, the composite mortar must emerge at the asphalt surface.
- 6** The attachment can be installed immediately – there is no need to observe the curing time of the composite mortar.

07 | TOGE TSM A

INSTALLATION INSTRUCTIONS

Operating principle of anchoring



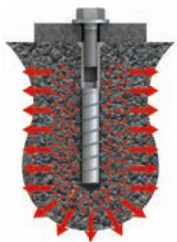
1. The 90°-Principle

The collar of the anchor is braced against the base plate at an angle of 90°. When torque is applied, the entire system is tilted, but this is prevented by the asphalt. Vertical extraction of the anchor from the substrate is not possible.



2. The Undercut

When the screw anchor is screwed in, a thread-shaped undercut is created in the substrate. This creates a positive fit between the substrate and the thread of the asphalt screw.



3. The chemical mortar

The air voids present in the asphalt are compressed by the final turning process of the TSM A as if by a hydraulic cylinder with the composite mortar. This results in a firmer and more homogeneous base in the force application area.



4. Preloaded free anchoring

The collar of the TSM A is larger than the clearance hole in the fixture to be connected. The base plate is clamped between the collar and the head of the fastening screw. This way the TSM A remains unencumbered.

07 | TOGE TSM A

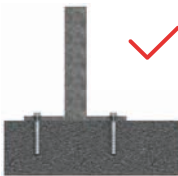
INSTALLATION INSTRUCTIONS

Operating principle of anchoring



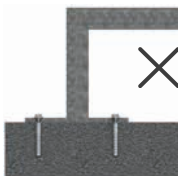
5. Large surface

In the case of shock load, a limited excavation does not occur as in concrete. A much larger area is activated.



6. No overhanging loads

The anchoring system is not suitable for permanent tensile loading.



QUALITY
MADE
GERMANY **IN**

08 | TOGE TSM Adhesive Screw Anchor

TOGE TSM ADHESIVE SCREW ANCHOR

Concrete screw in combination with injection mortar – for highest loads



Highest loads

Highest loads in concrete due to the combination of concrete screw with suitable injection mortar.



Frost proof

Sealing the borehole prevents water penetration and frost damage in winter.



Instantly loadable

Immediately loadable directly after installation.



High service load

Versatile due to variable anchoring depths.

Approval



- ✓ General type approval / General technical approval Z-21.1-2074.

Base Materials

- ✓ Application in cracked and non-cracked concrete of strength classes from C20/25 to C50/60.






Scan the QR code and go directly to the product page

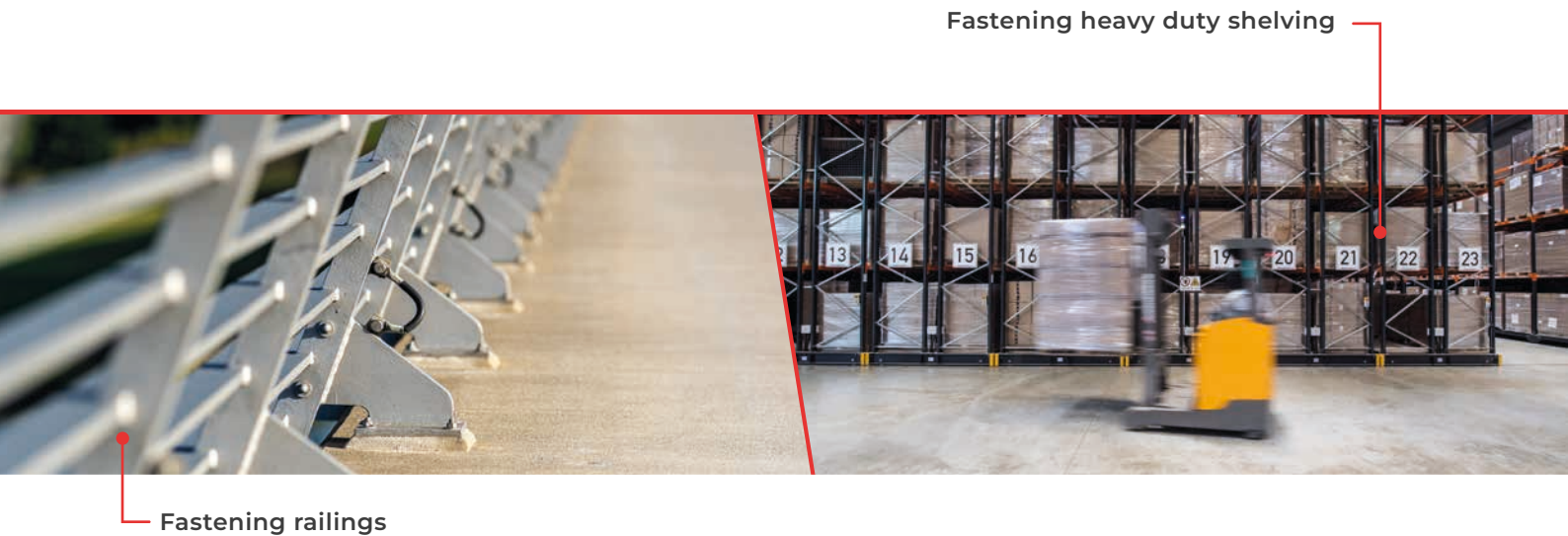
For example, to view the approvals in detail you only need one click. Feel free to try it out!

08 | TOGE TSM Adhesive Screw Anchor

HEADSHAPES AND MATERIALS

		Steel zinc-plated	Steel, zinc flake-coated	Stainless steel A4
	Hexagonal head pressed on washer	✓	✓	
	Metric connection thread M12	✓		✓
	Injection mortar and accessories			

Application examples



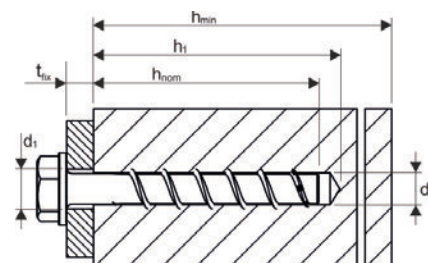
08 | TOGE TSM Adhesive Screw Anchor

STEEL – ZINC PLATED

Version with hexagonal head and pressed on washer



Size	Washer-Ø
10	20,0 mm
12	23,5 mm
14	28,5 mm

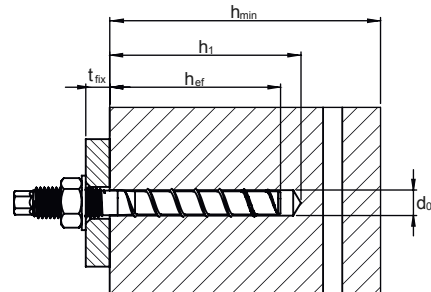
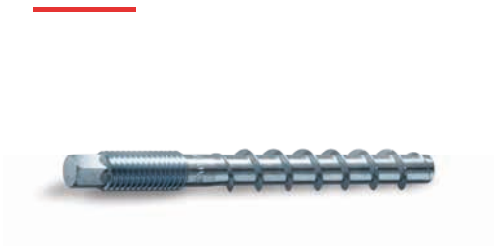


Item nr.	Designation	Depth of drill hole h_0	Embedment depth of anchor h_{nom}	Max. thickness of fixture t_{fix}	Packing Unit
300 010 090	TSM 10x90 SW15	≥ 80 mm	≥ 80 mm	10 mm	50
300 010 100	TSM 10x100 SW15	≥ 80 mm	≥ 80 mm	20 mm	50
300 010 120	TSM 10x120 SW15	≥ 80 mm	≥ 80 mm	40 mm	50
300 010 140	TSM 10x140 SW15	≥ 80 mm	≥ 80 mm	60 mm	50
300 010 150	TSM 10x150 SW15	≥ 80 mm	≥ 80 mm	70 mm	50
300 010 160	TSM 10x160 SW15	≥ 80 mm	≥ 80 mm	80 mm	50
300 010 180	TSM 10x180 SW15	≥ 80 mm	≥ 80 mm	100 mm	25
300 010 200	TSM 10x200 SW15	≥ 80 mm	≥ 80 mm	120 mm	25
300 010 240	TSM 10x240 SW15	≥ 80 mm	≥ 80 mm	160 mm	25
300 010 280	TSM 10x280 SW15	≥ 80 mm	≥ 80 mm	200 mm	25
300 010 320	TSM 10x320 SW15	≥ 80 mm	≥ 80 mm	240 mm	25
300 010 360	TSM 10x360 SW15	≥ 80 mm	≥ 80 mm	280 mm	25
300 010 400	TSM 10x400 SW15	≥ 80 mm	≥ 80 mm	320 mm	25
300 012 110	TSM 12x110 SW17	≥ 100 mm	≥ 100 mm	10 mm	25
300 012 130	TSM 12x130 SW17	≥ 100 mm	≥ 100 mm	30 mm	25
300 012 150	TSM 12x150 SW17	≥ 100 mm	≥ 100 mm	50 mm	25
300 014 130	TSM 14x130 SW21	≥ 100 mm	≥ 100 mm	30 mm	25
300 014 150	TSM 14x150 SW21	≥ 100 mm	≥ 100 mm	50 mm	25

08 | TOGE TSM Adhesive Screw Anchor

STEEL – ZINC PLATED

Version with metric connection thread M12



Item nr.	Designation	Depth of drill hole h_o	Embedment depth of anchor h_{ef}	Max. thickness of fixture t_{fix}	Packing Unit
366 010 120	TSM 10x120 M12x20 SW9	≥ 80 mm	≥ 80 mm	5 - 15 mm	50



Pioneers of Composite Anchor Technology

The steel and stainless steel concrete screws from TOGE have already had a system approval with significant load increases since 2002, which allows the use of the screw technology with composite adhesive with immediate load capacity (no curing times required).

SIDE NOTE

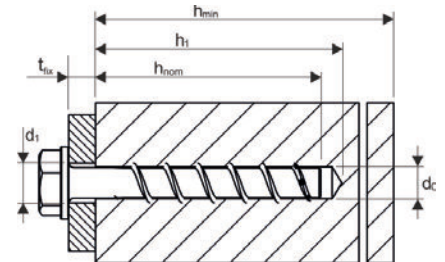
08 | TOGE TSM Adhesive Screw Anchor

STEEL – ZINC-FLAKE COATED

Version with hexagonal head
and pressed on washer



Size	Washer-Ø
10	20,0 mm
12	23,5 mm
14	28,5 mm

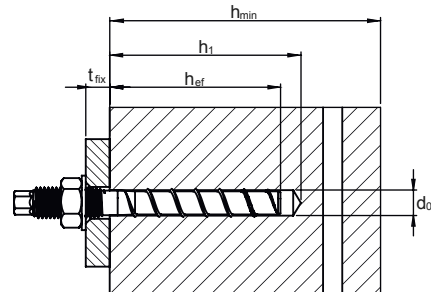


Item nr.	Designation	Depth of drill hole h_o	Embedment depth of anchor h_{nom}	Max. thickness of fixture t_{fix}	Packing Unit
400 010 090	TSM 10x90 SW15 ZFC	≥ 80 mm	≥ 80 mm	10 mm	50
400 010 100	TSM 10x100 SW15 ZFC	≥ 80 mm	≥ 80 mm	20 mm	50
400 010 120	TSM 10x120 SW15 ZFC	≥ 80 mm	≥ 80 mm	40 mm	50
400 010 140	TSM 10x140 SW15 ZFC	≥ 80 mm	≥ 80 mm	60 mm	50
400 010 150	TSM 10x150 SW15 ZFC	≥ 80 mm	≥ 80 mm	70 mm	50
400 010 160	TSM 10x160 SW15 ZFC	≥ 80 mm	≥ 80 mm	80 mm	50
400 010 180	TSM 10x180 SW15 ZFC	≥ 80 mm	≥ 80 mm	100 mm	25
400 010 200	TSM 10x200 SW15 ZFC	≥ 80 mm	≥ 80 mm	120 mm	25
400 010 240	TSM 10x240 SW15 ZFC	≥ 80 mm	≥ 80 mm	160 mm	25
400 010 280	TSM 10x280 SW15 ZFC	≥ 80 mm	≥ 80 mm	200 mm	25
400 010 320	TSM 10x320 SW15 ZFC	≥ 80 mm	≥ 80 mm	240 mm	25
400 010 360	TSM 10x360 SW15 ZFC	≥ 80 mm	≥ 80 mm	280 mm	25
400 010 400	TSM 10x400 SW15 ZFC	≥ 80 mm	≥ 80 mm	320 mm	25
400 012 110	TSM 12x110 SW17 ZFC	≥ 100 mm	≥ 100 mm	10 mm	25
400 012 130	TSM 12x130 SW17 ZFC	≥ 100 mm	≥ 100 mm	30 mm	25
400 012 150	TSM 12x150 SW17 ZFC	≥ 100 mm	≥ 100 mm	50 mm	25
400 014 130	TSM 14x130 SW21 ZFC	≥ 100 mm	≥ 100 mm	30 mm	25
400 014 150	TSM 14x150 SW21 ZFC	≥ 100 mm	≥ 100 mm	50 mm	25

08 | TOGE TSM Adhesive Screw Anchor

STAINLESS STEEL – A4

Version with metric connection thread M12



Item nr.	Designation	Depth of drill hole h_0	Embedment depth of anchor h_{nom}	Max. thickness of fixture t_{fix}	Packing Unit
866 010 140	TSM 10x140 M12x35 SW9 A4	≥ 80 mm	≥ 80 mm	5 - 34 mm	50
866 010 160	TSM 10x160 M12x55 SW9 A4	≥ 80 mm	≥ 80 mm	5 - 34 mm	50

COMPOSITE MORTAR CF-T 300V

Chemical special mortar, vinylester styrene-free, suitable for concrete screws



Item nr.	Designation	Packing Unit
222 222 003	Cartridge CF-T 300 V	1
222 223 001	Mixing nozzle for CF-T 300 V	1
222 222 004	Squeezing pistol for CF-T 300 V	1

08 | TOGE TSM Adhesive Screw Anchor

COMPOSITE MORTAR CF-T 300V

Processing instructions
composite mortar

Temperature in ground	Processing time	Min. curing time in dry borehole	Min. curing time in wet borehole
≥ -5°C	60 min	360 min	720 min
≥ 0°C	60 min	180 min	360 min
≥ 5°C	60 min	120 min	240 min
≥ 10°C	45 min	80 min	160 min
≥ 20°C	15 min	45 min	90 min
≥ 30°C	5 min	25 min	50 min
≥ 35°C	4 min	20 min	40 min

Strokes & cartridge coverage
composite mortar

Depth of drill hole [mm]	Strokes / TSM screws Ø			Drills per cartridge / TSM screws Ø		
	10	12	14	10	12	14
80 - 90	0,8			44		
90 - 100	0,9			40		
100 - 110	1,0	1,1	1,3	37	32	28
110 - 120		1,2	1,4		30	26
120 - 130		1,3	1,5		27	24
130 - 140			1,6			22

08 | TOGE TSM Adhesive Screw Anchor

TECHNICAL CHARACTERISTICS

Single fastening without fire exposure,
TSM high performance according Z-21.1-2074

Screw size TSM high performance			TSM 10			TSM 12			TSM 14	
Embedment depth	h _{ef}	[mm]	h _{ef,1}	h _{ef,2}	h _{ef,3}	h _{ef,1}	h _{ef,2}	h _{ef,3}	h _{ef,1}	h _{ef,2}
			90	120	280	110	130	150	130	150
Nominal diameter of drill bit	d ₀	[mm]	10			12			14	
Depth of drill hole	h ₀ min	[mm]	90	120	280	110	130	150	130	150
Effective anchorage depth	h _{ef}	[mm]	90	120	280	110	130	150	130	150
Diameter of clearance hole in the fixture	d _f max	[mm]	14			16			18	
Diameter of the brush	d _b max	[mm]	11			13			15	
Approved tension load in cracked concrete ^{1) 2)}	N _{zul}	[kN]	14,0	18,9	18,9	18,9	24,3	28,7	24,3	30,1
Approved shear load in cracked concrete ^{1) 2)}	V _{zul}	[kN]	19,4	19,4	19,4	24,0	24,0	24,0	32,0	32,0
Approved tension load in non-cracked concrete ^{1) 2)}	N _{zul}	[kN]	18,9	18,9	18,9	27,0	28,7	28,7	32,1	32,1
Approved shear load in non-cracked concrete ^{1) 2)}	V _{zul}	[kN]	19,4	19,4	19,4	24,0	24,0	24,0	32,0	32,0
Approved bending resistance	M _{zul}	[kN]	32,0			64,6			105,7	
Minimum egde distance	C _{min}	[mm]	40			50			60	
Minimum spacing	S _{min}	[mm]	40			50			60	
Minimum base material thickness	h _{min}	[mm]	150	180	340	170	190	210	200	220
Installation torque (with metric connection thread)	T _{inst}	[Nm]	40			60			80	
Maximum torque (with impact screw driver)		[Nm]	400			650			650	

¹⁾ For the determination of the allowable load, the partial safety factor from the approval γM = 1.4 was taken into account for material resistance and a partial safety factor γF = 1.4 for load actions.

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

08 | TOGE TSM Adhesive Screw Anchor

TECHNICAL CHARACTERISTICS

Single fastening under fire exposure TSM high performance according Z-21.1-2074

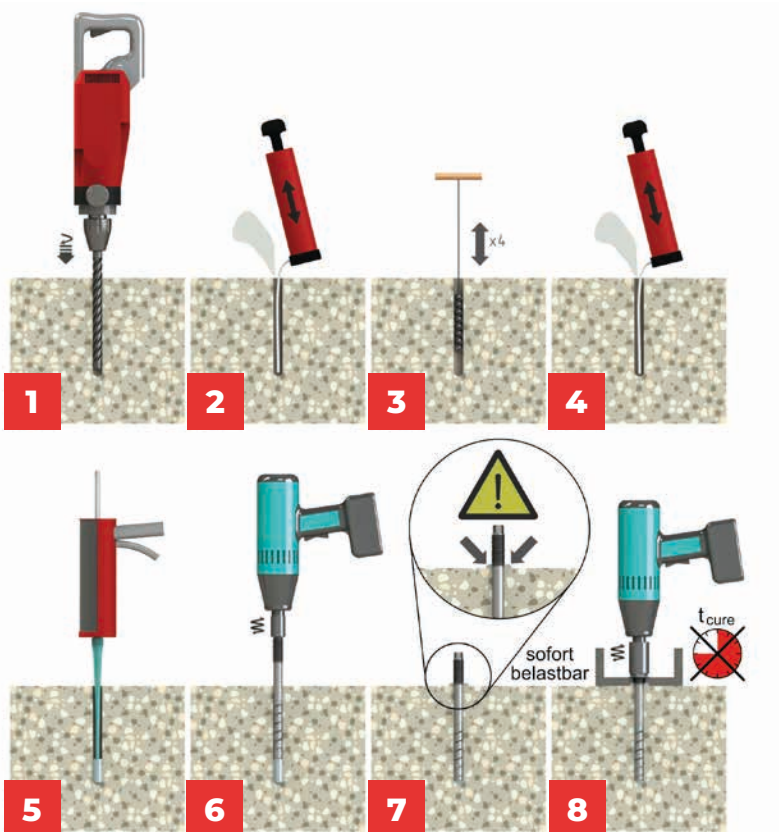
Screw size TSM high performance		TSM 10			TSM 12			TSM 14		
Nominal embedment depth	h_{ef} [mm]	$h_{ef,1}$	$h_{ef,2}$	$h_{ef,3}$	$h_{ef,1}$	$h_{ef,2}$	$h_{ef,3}$	$h_{ef,1}$	$h_{ef,2}$	
		90	120	280	110	130	150	130	150	
Approved load under tensile and shear use ($F_{zul} = N_{zul,fi} = V_{zul,fi}$)										
Fire resistance class										
R30	Approved load	$F_{zul, fi30}$ [kN]	4,4			6,2			7,6	
R60		$F_{zul, fi60}$ [kN]	3,3			5,8			7,6	
R90		$F_{zul, fi90}$ [kN]	2,3			4,2			5,9	
R120		$F_{zul, fi120}$ [kN]	1,7			3,4			4,8	
R30		$M_{zul, fi30}$ [kN]	5,9			12,3			20,4	
R60		$M_{zul, fi60}$ [kN]	4,5			9,7			15,9	
R90		$M_{zul, fi90}$ [kN]	3,0			7,0			11,6	
R120		$M_{zul, fi120}$ [kN]	2,3			5,7			9,4	
Edge distance										
R30 bis R120		$C_{cr,fi}$ [mm]	$2 \times h_{ef}$							
The edge distance must be at least 300 mm if the fire load attacks from more than one side.										
Spacing										
R30 bis R120	$S_{cr,fi}$ [mm]	$4 \times h_{ef}$								
Concrete pry-out failure										
R30 bis R120	k [-]	2,0								
In wet concrete the embedment depth must be increased by at least 30 mm.										

¹⁾ For the determination of the allowable load, 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.

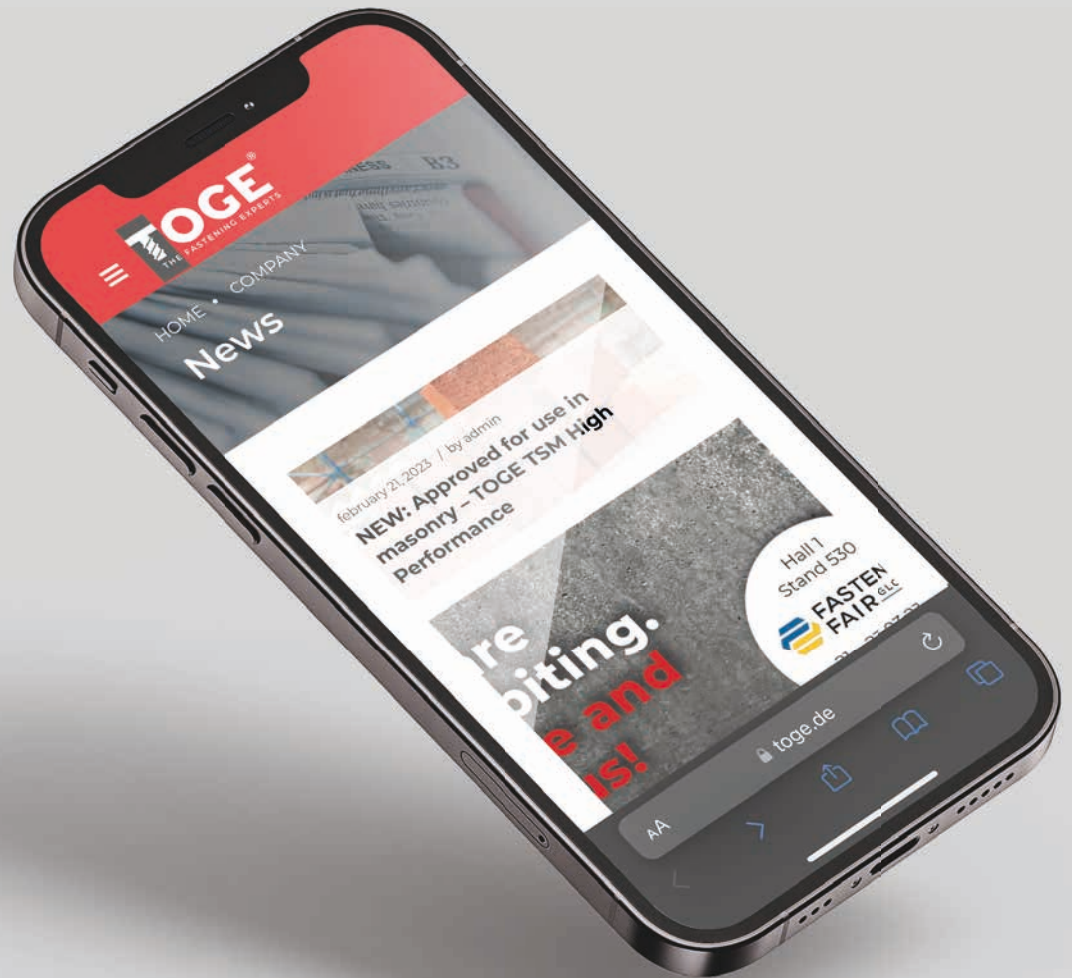
08 | TOGE TSM Adhesive Screw Anchor

INSTALLATION INSTRUCTIONS

Installation



- 1** Create borehole.
- 2** Clean the borehole thoroughly.
- 3** Brush the borehole 4x.
- 4** Thoroughly clean the borehole again.
- 5** Discard three full strokes of composite mortar – then inject composite mortar.
- 6** Screw in concrete screw.
- 7** After reaching the embedment depth, the composite mortar must emerge at the concrete surface.
- 8** The attachment can be installed immediately – there is no need to observe the curing time of the composite mortar.



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09 | TOGE TSM B

TOGE TSM B

Adhesive screw anchor
for fastening crash barriers



High loads

High load bearing capacity in cracked and non-cracked concrete.



Fast and safe installation

The optimized thread enables a quick and safe installation process.



Frost proof

Borehole sealing by the composite mortar prevents water penetration and frost damage in winter.



Special thread

Load transmission via undercut.



Immediately loadable

Immediately loadable without observing the curing time for the composite mortar.

Approval



- ✓ General type approval / General technical approval Z-21.1-1799.

Base Materials

- ✓ Application in cracked and non-cracked concrete of strength classes from C20/25 to C50/60.






Scan the QR code and go directly to the product page

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09 | TOGE TSM B

HEADSHAPES AND MATERIALS

		Steel zinc-plated	Steel, anti-corrosion-coated	Stainless steel A4
	TSM B 14 M16 x 35 SW 12		✓*	
	TSM B 16 M18 x 45 SW13		✓*	
	Injection mortar and accessories			

* TOGE KORR

Application examples

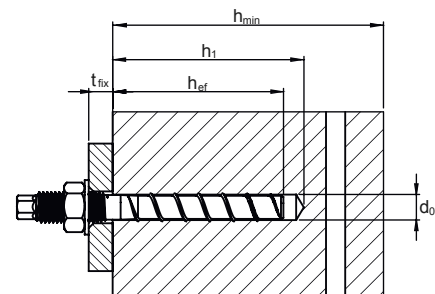


Fastening of crash barrier systems

09 | TOGE TSM B

STEEL – ANTI-CORROSION COATED, TOGE KORR

TSM B14 M16 x 35 SW 12
TSM B16 M18 x 45 SW 13



Item nr.	Designation	Bore Ø	Depth of drill hole h_0	Embedment depth of anchor h_{nom}	Max. thickness of fixture t_{fix}	Packing Unit
202 141 650	TSM B 14x165 M16x35 SW12	14 mm	≥ 100 mm	100 - 125 mm	35 mm	25
202 161 900	TSM B 16x190 M18x45 SW13	16 mm	≥ 100 mm	100 - 160 mm	60 mm	25
202 162 200	TSM B 16x220 M18x45 SW13	16 mm	≥ 100 mm	100 - 160 mm	90 mm	25
202 016 501	Washer TSM B 50x18x4, hot-dip galvanised					100
202 014 161	Nut M16, hot-dip galvanised					50
202 016 181	Nut M18, hot-dip galvanised					50

COMPOSITE MORTAR CF-T 300V

Chemical special mortar
Vinylester styrolfree, suitable for concrete screws



Item nr.	Designation	Packing Unit
222 222 003	Cartridge CF-T 300 V	1
222 223 001	Mixing nozzle for CF-T 300 V	1
222 222 004	Squeezing pistol for CF-T 300 V	1

09 | TOGE TSM B

COMPOSITE MORTAR CF-T 300V

Processing instructions
composite mortar

Temp. in ground	Processing time	Min. curing time in dry borehole	Min. curing time in wet borehole
≥ -5°C	60 min	360 min	720 min
≥ 0°C	60 min	180 min	360 min
≥ 5°C	60 min	120 min	240 min
≥ 10°C	45 min	80 min	160 min
≥ 20°C	15 min	45 min	90 min
≥ 30°C	5 min	25 min	50 min
≥ 35°C	4 min	20 min	40 min

Strokes & cartridge coverage
composite mortar

Depth of drill hole [mm]	Strokes / TSM screws Ø		Drills per cartridge / TSM screws Ø	
	14	16	14	16
80 - 90				
90 - 100				
100 - 110	1,3	1,4	28	25
110 - 120	1,4	1,6	26	23
120 - 130	1,5	1,7	24	21
130 - 140		1,8		20
150 - 160		2,0		18

09 | TOGE TSM B

TECHNICAL CHARACTERISTICS

Single fastening without fire exposure, TSM B according Z-21.1-1799

Screw size TSM B			TSM B 14			TSM B 16		
Embedment depth	h_{ef}	[mm]	$h_{ef,1}$	$h_{ef,2}$	$h_{ef,3}$	$h_{ef,1}$	$h_{ef,2}$	$h_{ef,3}$
			100	110	125	100	130	160
Nominal diameter of drill bit	d_o	[mm]	12			14		
Depth of drill hole	h_o min	[mm]	100	110	125	100	130	160
Effective anchorage depth	h_{ef}	[mm]	100	110	125	100	130	160
Diameter of clearance hole in the fixture	d_f max	[mm]	18			20		
Diameter of the brush	d_b max	[mm]	15			18		
Approved tension load in cracked concrete ^{1) 2)}	N_{zul}	[kN]	16,4	19,0	22,9	18,9	24,3	33,2
Approved shear load in cracked concrete ^{1) 2)}	V_{zul}	[kN]	16,4	19,0	22,9	18,9	24,3	33,2
Approved tension load in non-cracked concrete ^{1) 2)}	N_{zul}	[kN]	23,4	27,0	32,1	27,0	34,7	39,2
Approved shear load in non-cracked concrete ^{1) 2)}	V_{zul}	[kN]	23,4	27,0	32,7	27,0	34,7	47,4
Approved bending resistance	M_{zul}	[kN]	114,3			141,1		
Minimum edge distance	c_{min}	[mm]	60			70		
Minimum spacing	s_{min}	[mm]	60			70		
Minimum base material thickness	h_{min}	[mm]	170	180	195	170	200	230
Installation torque (with metric connection thread)	T_{inst}	[Nm]	80			100		
Maximum torque (with impact screw driver)		[Nm]	650			650		

¹⁾ For the determination of the allowable load, 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 spacing and edge distances.

08 | TOGE TSM Adhesive Screw Anchor

TECHNICAL CHARACTERISTICS

Single fastening under fire exposure TSM B according Z-21.1-1799

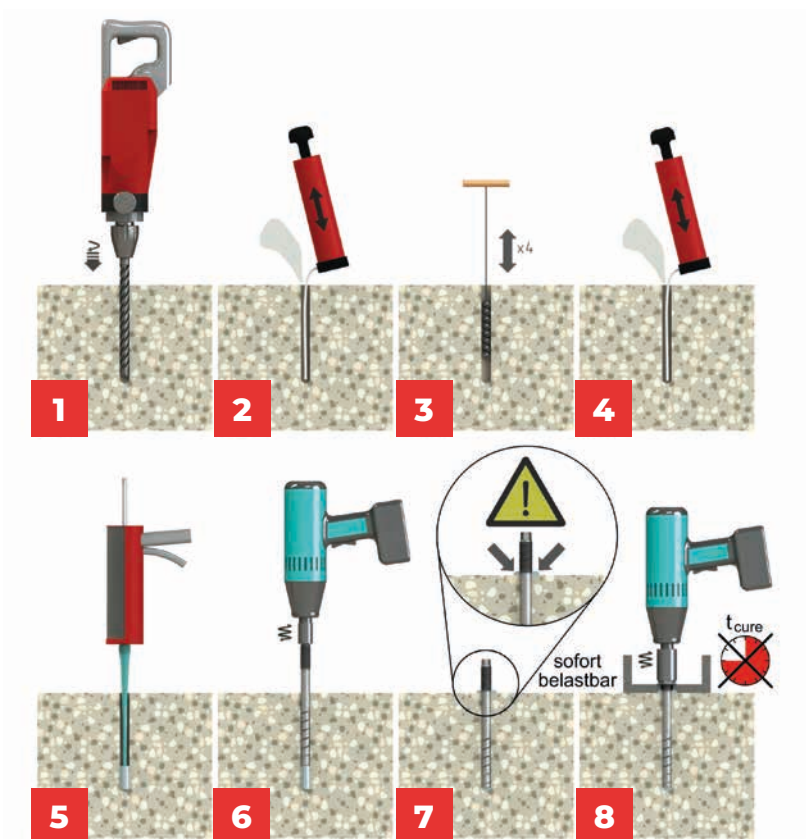
Screw size TSM B		TSM B 14			TSM B 16			
Embedment depth	h_{ef} [mm]	$h_{ef,1}$	$h_{ef,2}$	$h_{ef,3}$	$h_{ef,1}$	$h_{ef,2}$	$h_{ef,3}$	
		100	110	125	100	130	160	
Approved load under tensile and shear use ($F_{zul} = N_{zul,fi} = V_{zul,fi}$)								
Fire resistance class								
R30	Approved load	$F_{zul, fi30}$ [kN]	9,8		13,9			
R60		$F_{zul, fi60}$ [kN]	8,1		11,0			
R90		$F_{zul, fi90}$ [kN]	5,9		8,0			
R120		$F_{zul, fi120}$ [kN]	4,8		6,5			
R30		$M_{zul, fi30}$ [kN]	18,8		30,9			
R60		$M_{zul, fi60}$ [kN]	15,6		24,4			
R90		$M_{zul, fi90}$ [kN]	11,3		17,8			
R120		$M_{zul, fi120}$ [kN]	9,2		14,4			
Edge distance								
R30 bis R120		$C_{cr,fi}$ [mm]	$2 \times h_{ef}$					
The edge distance must be at least 300 mm, if the fire load attacks from more than one side.								
Spacing								
R30 bis R120	$S_{cr,fi}$ [mm]	$4 \times h_{ef}$						
Concrete pry-out failure								
R30 bis R120	k [-]	2,0						
For wet concrete, increase the anchorage depth by at least 30 mm.								

¹⁾ For the determination of the allowable load, 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.

09 | TOGE TSM B

INSTALLATION INSTRUCTIONS

Installation



- 1** Create borehole.
- 2** Clean the borehole thoroughly.
- 3** Brush the borehole 4x.
- 4** Thoroughly clean the borehole again.
- 5** Discard three full strokes of composite mortar – then inject composite mortar.
- 6** Screw in concrete screw.
- 7** After reaching the embedment depth, the composite mortar must emerge at the concrete surface.
- 8** The attachment can be installed immediately – there is no need to observe the curing time of the composite mortar.

STAND 04/2023



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