

# TOGE TIS

## Inuslating screw for cold-, heat- and fire-protection



### Environmental Product Declaration (EPD)

The product has an Environmental Product Declaration (EPD) in accordance with ISO 14025 and EN 15804+A2.

### Fire protection

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

### Variable

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

### Maximum thickness

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

### 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.

### Cover Cap

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

### 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 user-friendly processing completely WITHOUT reinforcement hits.

### Fast installation

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

## Approval

### Approval

Environmental Product Declaration (EPD) in accordance with ISO 14025 and EN 15804+A2.

European technical assessment ETA-20/0779.

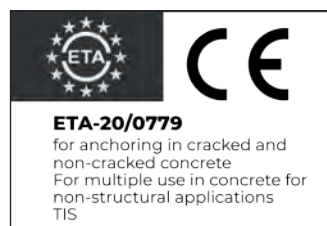
General technical approval Z-21.8.1971.

### 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.



# Headshapes & Materials

		Steel, zinc plated	Steel, TOGE-KORR zinc flake coated	Stainless Steel A4
	Cover cap white	✓	✓	
	Cover cap beige	✓	✓	
	Cover cap gray	✓	✓	
	Additional disc Ø 80 mm	✓		

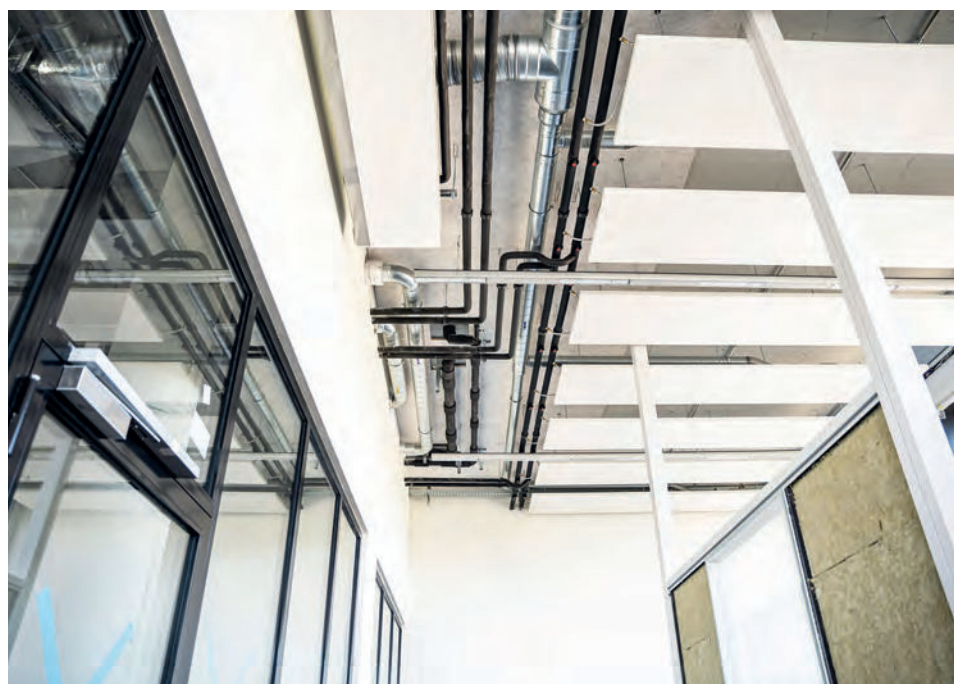
## Application Examples



Underground garage and basement walls



Underground parking and basement ceilings



Office ceilings

## Technical Characteristics

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

Screw size TIS			6	
Nominal embedment depth	h <sub>nom</sub>	[mm]	h <sub>nom,1</sub> <sup>1)</sup>	h <sub>nom,2</sub>
			25	35
Nominal diameter of drill bit	d <sub>0</sub>	[mm]	6	
Depth of drill hole	h <sub>1</sub> min	[mm]	28	38
Effective anchorage depth	h <sub>ef</sub>	[mm]	19	27
Diameter of clearance hole in the fixture	d <sub>r</sub> max	[mm]	8	
Approved tension load in cracked concrete <sup>2) 3)</sup>	N <sub>zul</sub>	[kN]	0,4	1,0
Approved shear load in cracked concrete <sup>2) 3)</sup>	V <sub>zul</sub>	[kN]	1,4	2,3
Approved tension load in non-cracked concrete <sup>2) 3)</sup>	N <sub>zul</sub>	[kN]	1,0	1,9
Approved shear load in non-cracked concrete <sup>2) 3)</sup>	V <sub>zul</sub>	[kN]	1,9	3,3
Approved bending resistance	M <sub>zul</sub>	[kN]	6,3	
Minimum edge distance	C <sub>min</sub>	[mm]	30	
Minimum spacing	S <sub>min</sub>	[mm]	30	
Minimum thickness of member	h <sub>min</sub>	[mm]	80	

<sup>1)</sup> Only for use in dry conditions

<sup>2)</sup> 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.

<sup>3)</sup> These values apply without influence of the spacing and edge distances.

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

Screw size TIS			6	
Nominal embedment depth	h <sub>nom</sub>	[mm]	h <sub>nom,1</sub>	h <sub>nom,2</sub>
			25	35
Nominal diameter of drill bit	d <sub>0</sub>	[mm]	6	
Depth of drill hole	h <sub>1</sub> min	[mm]	28	38
Diameter of clearance hole in the fixture	d <sub>r</sub> max	[mm]	8	
Approved load in all directions in cracked concrete <sup>3) 4)</sup>	F <sub>zul</sub>	[kN]	0,4	1,0
Minimum edge distance	C <sub>min</sub>	[mm]	30	
Minimum spacing	S <sub>min</sub>	[mm]	30	
Minimum thickness of member	h <sub>min</sub>	[mm]	80	

<sup>3)</sup> These values apply without influence of the spacing and edge distances

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

# Technical characteristics

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

Screw size TIS				6	
Nominal embedment depth		h <sub>nom</sub>	[mm]	h <sub>nom,1</sub> <sup>1)</sup>	h <sub>nom,2</sub>
				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 <sup>2)</sup>	F <sub>zul,fi 30</sub>	[kN]	0,23	0,27
R 60		F <sub>zul,fi 60</sub>	[kN]	0,23	0,27
R 90		F <sub>zul,fi 90</sub>	[kN]	0,22	
R 120		F <sub>zul,fi 120</sub>	[kN]	0,17	
R 30		M <sub>zul,fi 30</sub>	[Nm]	0,22	
R 60		M <sub>zul,fi 60</sub>	[Nm]	0,22	
R 90		M <sub>zul,fi 90</sub>	[Nm]	0,18	
R 120		M <sub>zul,fi 120</sub>	[Nm]	0,14	
Edge distance					
R 30 bis R 120		C <sub>cr,fi</sub>	[mm]	2 x h <sub>ef</sub>	
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 <sub>cr,fi</sub>	[mm]	4 x h <sub>ef</sub>	
Concrete pry-out failure					
R 30 bis R 120		k	[-]	1,0	
For wet concrete, the anchoring depth must be increased by at least 30 mm					

<sup>1)</sup> Only for use in dry conditions.

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

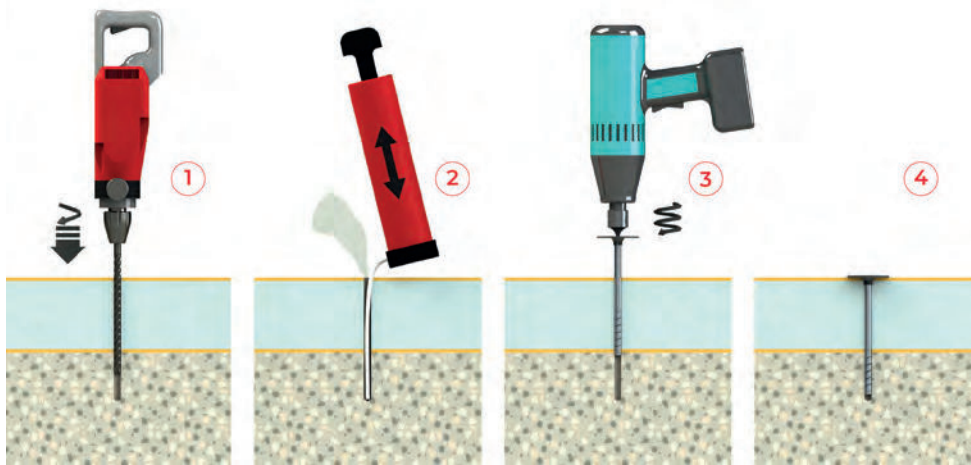
## Under fire exposure for multiple fastening TIS according Z-21.8-1971

Screw size TIS				6	
Nominal embedment depth		h <sub>nom</sub>	[mm]	h <sub>nom,1</sub>	h <sub>nom,2</sub>
				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 <sup>2)</sup>	F <sub>zul,fi 30</sub>	[kN]	0,27	
R 60		F <sub>zul,fi 60</sub>	[kN]	0,27	
R 90		F <sub>zul,fi 90</sub>	[kN]	0,22	
R 120		F <sub>zul,fi 120</sub>	[kN]	0,17	
Edge distance					
R 30 bis R 120		C <sub>cr,fi</sub>	[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 <sub>cr,fi</sub>	[mm]	120	

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



## Installation Instructions



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