

**20<sup>24</sup><sub>25</sub>**

**PRODUCT  
CATALOGUE**



TOGE Product catalogue 2024 / 2025

# PRODUCT OVERVIEW

Find the right product  
for your needs



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**Concrete screw –  
even for heavy loads**

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temporary fixation**

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**Female threaded  
screw for various  
substrates**

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drywall constructions**

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concrete screw**

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**Insulating screw  
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anchor**

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**Crash barrier  
anchor**

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ONLINE

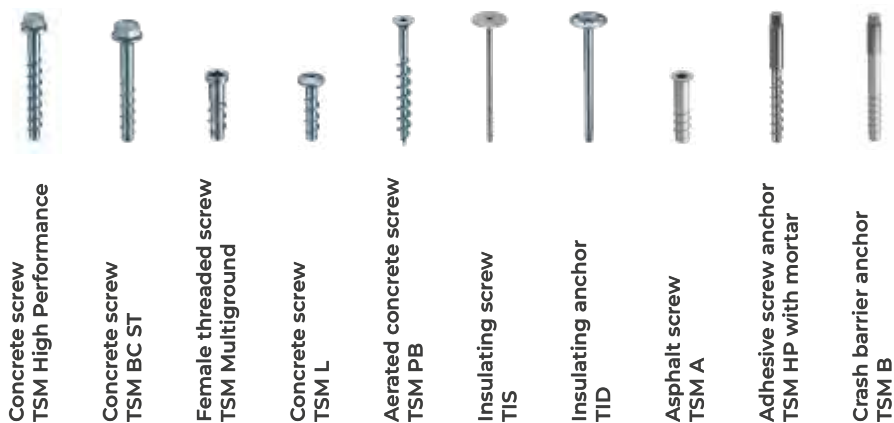
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- ✓ Approved
- Suitable

| Application examples                  | <div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div></div> |                             |                                          |                         |                                  |                         |                          |                        |                                             |                               |
|---------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------|------------------------------------------|-------------------------|----------------------------------|-------------------------|--------------------------|------------------------|---------------------------------------------|-------------------------------|
|                                       | Concrete screw<br>TSM High Performance                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Concrete screw<br>TSM BC ST | Female threaded screw<br>TSM Multiground | Concrete screw<br>TSM L | Aerated concrete screw<br>TSM PB | Insulating screw<br>TIS | Insulating anchor<br>TID | Asphalt screw<br>TSM A | Adhesive screw anchor<br>TSM HP with mortar | Crash barrier anchor<br>TSM B |
| <b>Concrete</b>                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                             |                                          |                         |                                  |                         |                          |                        |                                             |                               |
| Facade substructures                  | ✓                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                             |                                          |                         |                                  |                         |                          |                        | ✓                                           |                               |
| Steel girders /<br>Steel structures   | ✓                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                             |                                          |                         |                                  |                         |                          |                        | ✓                                           |                               |
| Railing                               | ✓                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                             |                                          |                         |                                  |                         |                          |                        | ✓                                           |                               |
| Handrails                             | ✓                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                             | ✓                                        |                         |                                  |                         |                          |                        | ✓                                           |                               |
| Shelving systems                      | ✓                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                             |                                          |                         |                                  |                         |                          |                        | ✓                                           |                               |
| Cable ducts / cable clamps            | ✓                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                             | ✓                                        | ✓                       |                                  |                         |                          |                        | ✓                                           |                               |
| Piping / Pipe clamps                  | ✓                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                             | ✓                                        | ✓                       |                                  |                         |                          |                        | ✓                                           |                               |
| Ventilation ducts                     | ✓                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                             | ✓                                        | ✓                       |                                  |                         |                          |                        | ✓                                           |                               |
| Ceiling suspensions                   | ✓                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                             | ✓                                        | ✓                       |                                  |                         |                          |                        | ✓                                           |                               |
| Lightweight and drywall               | ✓                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                             |                                          | ✓                       |                                  |                         |                          |                        |                                             |                               |
| Insulations                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                             |                                          |                         |                                  | ✓                       | ✓                        |                        |                                             |                               |
| Temporary construction site<br>safety | ✓                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | ✓                           |                                          |                         |                                  |                         |                          |                        |                                             |                               |
| Crash barriers                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                             |                                          |                         |                                  |                         |                          |                        |                                             | ✓                             |
| <b>Solid brick masonry</b>            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                             |                                          |                         |                                  |                         |                          |                        |                                             |                               |
| Facade substructures                  | ✓                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                             |                                          |                         |                                  |                         |                          |                        |                                             |                               |
| Cable ducts / cable clamps            | ✓                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                             |                                          |                         |                                  |                         |                          |                        |                                             |                               |
| Piping / Pipe clamps                  | ✓                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                             |                                          |                         |                                  |                         |                          |                        |                                             |                               |
| Ventilation ducts                     | ✓                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                             |                                          |                         |                                  |                         |                          |                        |                                             |                               |
| Insulations                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                             |                                          |                         |                                  | ○                       | ○                        |                        |                                             |                               |
| <b>Asphalt</b>                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                             |                                          |                         |                                  |                         |                          |                        |                                             |                               |
| Traffic signs                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                             |                                          |                         |                                  |                         |                          | ○                      |                                             |                               |
| Protective devices                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                             |                                          |                         |                                  |                         |                          | ○                      |                                             |                               |
| Crash protection systems              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                             |                                          |                         |                                  |                         |                          | ○                      |                                             |                               |
| Speed bumpers                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                             |                                          |                         |                                  |                         |                          | ○                      |                                             |                               |
| Shopping cart canopies                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                             |                                          |                         |                                  |                         |                          | ○                      |                                             |                               |
| E-Charge Stations                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                             |                                          |                         |                                  |                         |                          | ○                      |                                             |                               |
| Crash barriers                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                             |                                          |                         |                                  |                         |                          | ○                      |                                             |                               |

## Application examples



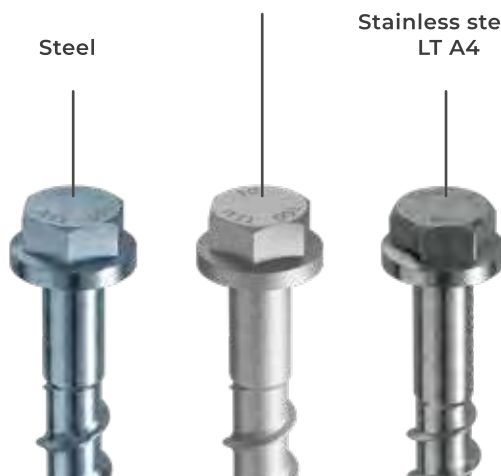
### Aerated concrete

|                                     |   |
|-------------------------------------|---|
| Light cabinets                      | ○ |
| Light shelves                       | ○ |
| Substructures made of wood or metal | ○ |
| Metal rails                         | ○ |

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



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

TOGE Product Catalogue 2024 / 2025

# EDITORIAL

Innovation and quality  
in perfection

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**We proudly present our new product catalogue 2024/2025. TOGE's wide and extensive range of concrete screws and other fastening products once again sets new standards in terms of quality, safety and innovation. With this catalogue, we offer you a comprehensive overview of the latest developments and additions to our product portfolio, which meets the highest demands in the construction industry.**

## **Our wide range and customised coatings**

An outstanding feature of TOGE is our wide and extensive range of concrete screws, which offers the right solution for almost every application.

We place particular emphasis on the variety of coatings that can be selected depending on the area of application. Our products are available in up to five different materials that offer specific advantages:

1. Galvanising: optimum protection against corrosion for general indoor applications.

### **TOGE TSM Multiground**

*More about the product on pages 41 to 47*

2. TOGE ZFC: Offers increased protection for applications that are exposed to light moisture.

3. TOGE ZFC Solid: Specially developed coating for very high corrosion protection, for example for industrial atmospheres.

4. TOGE KORR: Ideal for highly corrosive environments, such as near the coast or in industrial areas (corrosion class CS - high).

5. Stainless steel: maximum corrosion protection for particularly demanding applications, e.g. in the chemical industry, tunnelling or in seawater environments.





### ***We are celebrating our birthday!***

*More about 60 years of TOGE on page 58*

These different materials ensure that each of our products is optimally adapted to the respective operating conditions and delivers maximum performance.

### **Independent tests and approvals as a sign of quality**

Another distinguishing feature of TOGE is the large number of approvals that characterise our products. Safety and quality are of the utmost importance to us, which is why all safety-relevant products are subjected to extensive testing procedures. These tests are carried out by independent bodies to ensure that our products meet the highest standards.

The test procedures required by various guidelines guarantee that approved products fulfil the areas of application and performance data specified in the approval. Our concrete screws and fastening solutions are equipped with very high-quality approvals - in some cases even with up to five different approvals for a wide range of applications. These approvals are a real sign of quality and emphasise our claim to offer only the best and safest products.

### **German quality and reliability**

As a manufacturer in Germany, it is a matter of course for us to have our products approved by the German Institute for Building Technology (DIBt). The DIBt enjoys an excellent international reputation, and these approvals fit perfectly with our claim to the highest quality and reliability. We continuously invest in new approvals and the further development of our products in order to always be at the cutting edge of technology and fulfil the requirements of our customers.

### **Innovations and expansions in the product portfolio**

A highlight in our new catalogue is the **TSM High Performance concrete screw**, which now has ETA approval for masonry. This expands the area of application considerably, as this screw is now approved not only for concrete but also for other substrates.

We have added a second product line to our concrete screw range, which comprises a basic range. Thanks to a special production process, we offer our customers an economical solution that is ideal for applications with lower load requirements. This product line also has a high-quality approval and is of course manufactured in Germany.

Another new product is the **TSM Multiground internally threaded screw**, which is approved for multiple fixings in concrete and offers load recommendations for various other substrates. This screw can be screwed into concrete flush with the surface and is a quick, simple and economical solution for ceiling suspensions. It facilitates especially overhead work and increases efficiency and safety efficiency and safety on the construction site.

### **Future-proof solutions and continuous further development**

Two further approvals will be added to the **TSM LT A4 stainless steel concrete screw** by the end of the year. Firstly, this screw will be integrated into the masonry approval and secondly, it will receive approval as a multiple fastening in concrete and prestressed concrete hollow core slabs. ■



## TOGE Product Catalogue 2024 / 2025

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you are looking for

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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.



### 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.



### 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).



### Easy and fast installation

The optimized thread enables a fast and easy installation process.



### High load level

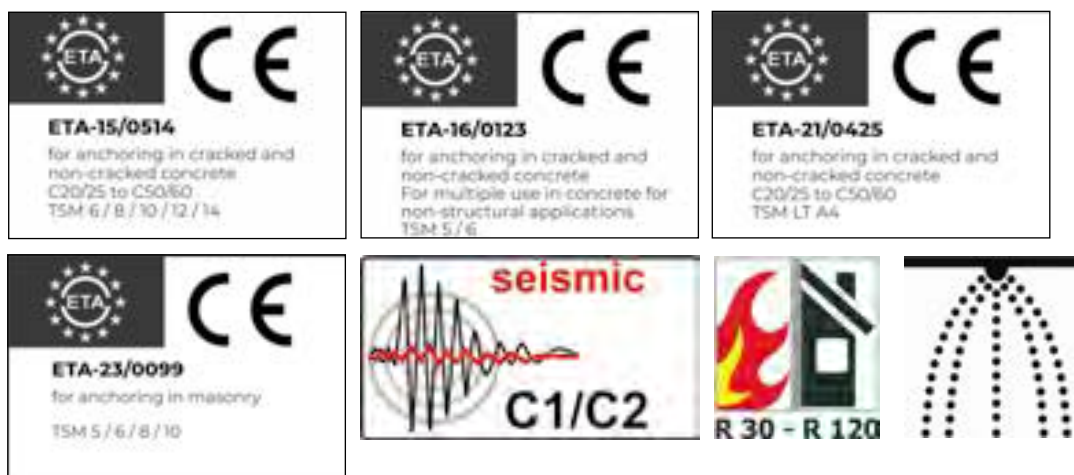
The special thread geometry ensures extreme hold and high loads in concrete – whether tensile or shear loads.



### Particularity 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.
- ✓ European technical assessment ETA-23/0099, single fixing in masonry.
- ✓ 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,<br>zinc plated | Steel, zinc<br>flake-coated | Stainless steel<br>A4 |
|-------------------------------------------------------------------------------------|--------------------------------------------------------------------|-----------------------|-----------------------------|-----------------------|
|    | <b>Hexagon head</b> and<br>pressed on washer                       | ✓                     | ✓                           | ✓                     |
|    | <b>Countersunk head</b><br>with multipoint drive                   | ✓                     |                             | ✓                     |
|    | <b>Panhead</b> with<br>multipoint drive                            | ✓                     |                             | ✓                     |
|    | <b>Large panhead</b> with<br>multipoint drive                      | ✓                     |                             |                       |
|  | <b>Hexagonal drive</b> and<br>metric external thread<br>M8 and M10 | ✓                     |                             |                       |
|  | <b>Metric female thread</b><br>M8 / M10                            | ✓                     |                             | ✓                     |
|  | <b>Metric external<br/>thread</b>                                  | ✓                     |                             | ✓                     |

## Application examples



## 01 TOGE TSM HIGH PERFORMANCE

# STEEL – ZINC PLATED

Version with hexagon head  
and pressed on washer

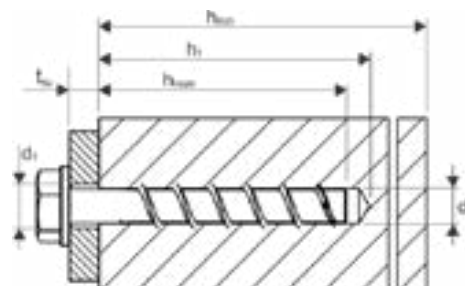


### Size

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<br>$h_{01} / h_{02} / h_{03}$ | Embedment depth<br>of anchor<br>$h_{nom1} / h_{nom2} / h_{nom3}$ | Max. thickness<br>of fixture<br>$t_{fix1} / t_{fix2} / t_{fix3}$ | 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          |
| 300 005 080 | TSM 5x80 SW10   | 40 mm / - / -                                     | 35 mm / - / -                                                    | 45 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           |

↳ Type list – continued on page 11

## 01 TOGE TSM HIGH PERFORMANCE

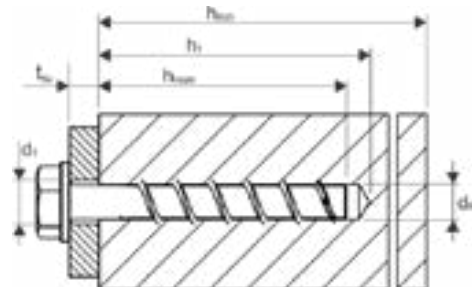
# STEEL – ZINC PLATED

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<br>$h_{01} / h_{02} / h_{03}$ | Embedment depth<br>of anchor<br>$h_{nom1} / h_{nom2} / h_{nom3}$ | Max. thickness<br>of fixture<br>$t_{fix1} / t_{fix2} / t_{fix3}$ | Packing Unit |
|--------------|-----------------|---------------------------------------------------|------------------------------------------------------------------|------------------------------------------------------------------|--------------|
| 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           |
| 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           |

\* Washer according to DIN 440, galvanised steel, included in delivery.



## 01 TOGE TSM HIGH PERFORMANCE

# STEEL – ZINC PLATED

Version with countersunk head  
with multipoint drive

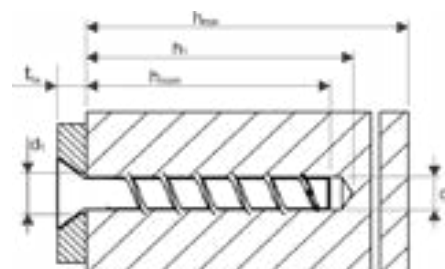


### Size

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<br>$h_{01} / h_{02} / h_{03}$ | Embedment depth<br>of anchor<br>$h_{nom1} / h_{nom2} / h_{nom3}$ | Max. thickness<br>of fixture<br>$t_{fix1} / t_{fix2} / t_{fix3}$ | 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          |
| 311 006 160 | TSM 6x160 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

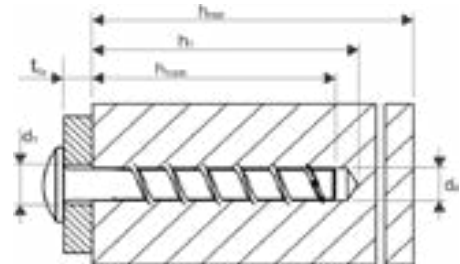


**Size**

5  
6

**Head-Ø**

14,0 mm  
14,5 mm



| Item nr.    | Designation      | Depth of drill hole<br>$h_{01} / h_{02} / h_{03}$ | Embedment depth<br>of anchor<br>$h_{nom1} / h_{nom2} / h_{nom3}$ | Max. thickness<br>of fixture<br>$t_{fix1} / t_{fix2} / t_{fix3}$ | 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

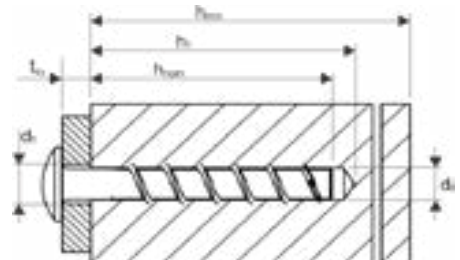


**Size**

6

**Head-Ø**

18,0 mm

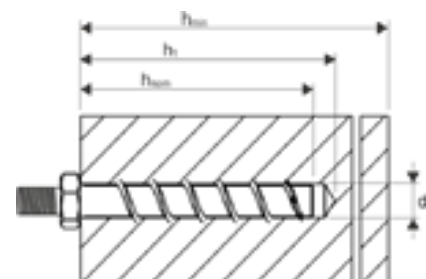


| Item nr.    | Designation      | Depth of drill hole<br>$h_{01} / h_{02} / h_{03}$ | Embedment depth<br>of anchor<br>$h_{nom1} / h_{nom2} / h_{nom3}$ | Max. thickness<br>of fixture<br>$t_{fix1} / t_{fix2} / t_{fix3}$ | Packing Unit |
|-------------|------------------|---------------------------------------------------|------------------------------------------------------------------|------------------------------------------------------------------|--------------|
| 333 006 040 | TSM 6x40 LP VZ30 | 40mm / - / -                                      | 35mm / - / -                                                     | 5mm / - / -                                                      | 100          |
| 333 006 050 | TSM 6x50 LP VZ30 | 40mm / 45mm / 40mm                                | 35mm / 40mm / 55mm                                               | 15mm / 10mm / 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



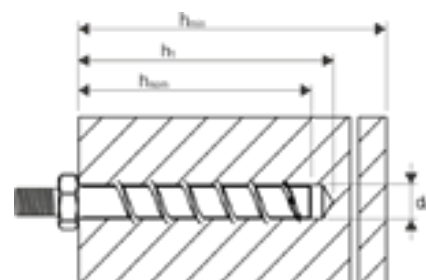
| Item nr.    | Designation           | Depth of drill hole<br>$h_{01} / h_{02} / h_{03}$ | Embedment depth<br>of anchor<br>$h_{nom1} / h_{nom2} / h_{nom3}$ | Max. thickness<br>of fixture<br>$t_{fix1} / t_{fix2} / t_{fix3}$ | Packing Unit |
|-------------|-----------------------|---------------------------------------------------|--------------------------------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

## 01 TOGE TSM HIGH PERFORMANCE

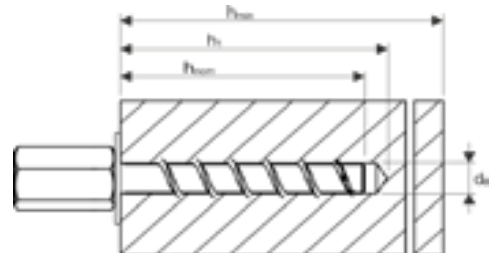
# STEEL – ZINC PLATED

Version with metric female thread  
M8/M10



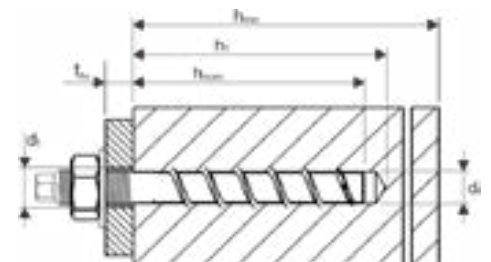
**Size**  
6

**Washer-Ø**  
25,0 mm



| Item nr.    | Designation        | Depth of drill hole<br>$h_{01} / h_{02} / h_{03}$ | Embedment depth<br>of anchor<br>$h_{nom1} / h_{nom2} / h_{nom3}$ | Max. thickness<br>of fixture<br>$t_{fix1} / t_{fix2} / t_{fix3}$ | 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<br>$h_{01} / h_{02} / h_{03}$ | Embedment depth<br>of anchor<br>$h_{nom1} / h_{nom2} / h_{nom3}$ | Max. thickness<br>of fixture<br>$t_{fix1} / t_{fix2} / t_{fix3}$ | Packing Unit |
|-------------|--------------------------|---------------------------------------------------|------------------------------------------------------------------|------------------------------------------------------------------|--------------|
| 366 008 105 | TSM 8x105<br>M10x30 SW7  | 55mm / 65mm / 75mm                                | 45mm / 55mm / 65mm                                               | 39mm / 29mm / 19mm                                               | 50           |
| 366 010 120 | TSM 10x120<br>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

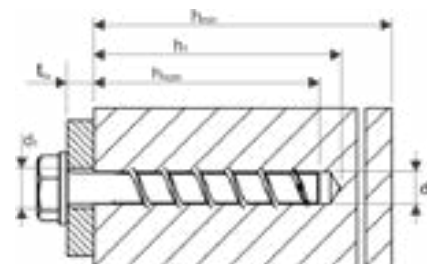


### Size

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<br>$h_{01} / h_{02} / h_{03}$ | Embedment depth<br>of anchor<br>$h_{nom1} / h_{nom2} / h_{nom3}$ | Max. thickness<br>of fixture<br>$t_{fix1} / t_{fix2} / t_{fix3}$ | 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          |
| 400 005 080 | TSM 5x80 SW10 ZFC   | 40mm / - / -                                      | 35mm / - / -                                                     | 45mm / - / -                                                     | 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

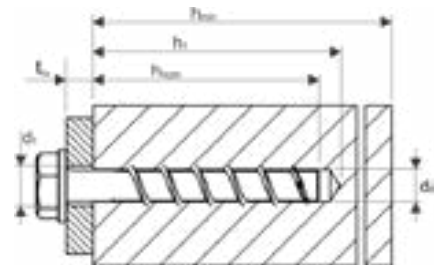
# STEEL – ZINC FLAKE-COATED

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<br>$h_{01} / h_{02} / h_{03}$ | Embedment depth<br>of anchor<br>$h_{nom1} / h_{nom2} / h_{nom3}$ | Max. thickness<br>of fixture<br>$t_{fix1} / t_{fix2} / t_{fix3}$ | 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           |

Washer according to DIN 440, galvanised steel, included in delivery

## 01 TOGE TSM HIGH PERFORMANCE

# STAINLESS STEEL – LT A4

Version with hexagon head  
and pressed on washer

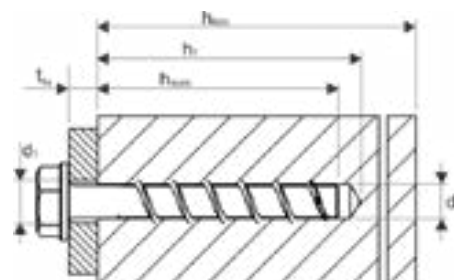


### Size

6  
8  
10

### Washer-Ø

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



| Item nr.    | Designation           | Depth of drill hole<br>$h_{01} / h_{02} / h_{03}$ | Embedment depth<br>of anchor<br>$h_{nom1} / h_{nom2} / h_{nom3}$ | Max. thickness<br>of fixture<br>$t_{fix1} / t_{fix2} / t_{fix3}$ | 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          |
| 700 006 070 | TSM 6x70 SW13 LT A4   | 40mm / 50mm / 60mm                                | 35mm / 45mm / 55mm                                               | 35mm / 25mm / 15mm                                               | 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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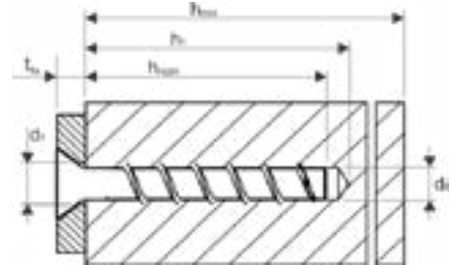
## 01 TOGE TSM HIGH PERFORMANCE

# STAINLESS STEEL – LT A4

Version with countersunk head  
with multipoint drive



| Size | Head-Ø  |
|------|---------|
| 6    | 13,0 mm |
| 8    | 19,5 mm |
| 10   | 21,5 mm |

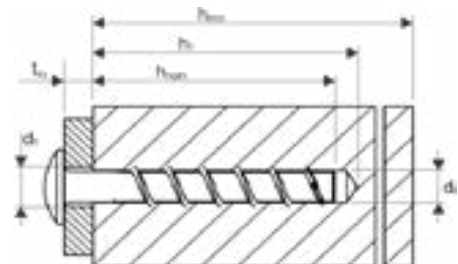


| Item nr.    | Designation             | Depth of drill hole<br>$h_{01} / h_{02} / h_{03}$ | Embedment depth<br>of anchor<br>$h_{nom1} / h_{nom2} / h_{nom3}$ | Max. thickness<br>of fixture<br>$t_{fix1} / t_{fix2} / t_{fix3}$ | Packing Unit |
|-------------|-------------------------|---------------------------------------------------|------------------------------------------------------------------|------------------------------------------------------------------|--------------|
| 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 | Head-Ø  |
|------|---------|
| 6    | 15,0 mm |



| Item nr.    | Designation            | Depth of drill hole<br>$h_{01} / h_{02} / h_{03}$ | Embedment depth<br>of anchor<br>$h_{nom1} / h_{nom2} / h_{nom3}$ | Max. thickness<br>of fixture<br>$t_{fix1} / t_{fix2} / t_{fix3}$ | 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

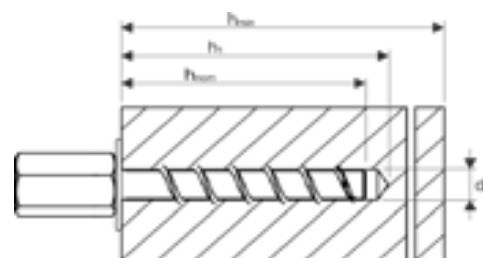
# STAINLESS STEEL – LT A4

Version with metric female thread  
M8/M10



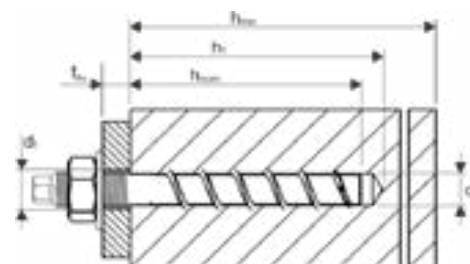
**Size**  
6

**Washer-Ø**  
25,0 mm



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

Version with  
metric external thread <sup>1)</sup>



| Item nr.    | Designation              | Depth of drill hole<br>$h_{01} / h_{02} / h_{03}$ | Embedment depth<br>of anchor<br>$h_{nom1} / h_{nom2} / h_{nom3}$ | Max. thickness<br>of fixture<br>$t_{fix1} / t_{fix2} / t_{fix3}$ | 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           |

<sup>1)</sup> 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<br>TSM high performance                                            |                    |      | TSM 6             |                   | TSM 8             |                   |                   | TSM 10            |                   |                   | TSM 12            |                   |                   | TSM 14            |                   |                   |  |
|-------------------------------------------------------------------------------|--------------------|------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|--|
| Nominal embedment depth                                                       | h <sub>nom</sub>   | [mm] | h <sub>nom1</sub> | h <sub>nom2</sub> | h <sub>nom1</sub> | h <sub>nom2</sub> | h <sub>nom3</sub> | h <sub>nom1</sub> | h <sub>nom2</sub> | h <sub>nom3</sub> | h <sub>nom1</sub> | h <sub>nom2</sub> | h <sub>nom3</sub> | h <sub>nom1</sub> | h <sub>nom2</sub> | h <sub>nom3</sub> |  |
|                                                                               |                    |      | 40                | 55                | 45                | 55                | 65                | 55                | 75                | 85                | 65                | 85                | 100               | 75                | 100               | 115               |  |
| Nominal diameter of drill bit                                                 | d <sub>0</sub>     | [mm] | 6                 |                   | 8                 |                   |                   | 10                |                   |                   | 12                |                   |                   | 14                |                   |                   |  |
| Depth of drill hole                                                           | h <sub>0</sub> min | [mm] | 45                | 60                | 55                | 65                | 75                | 65                | 85                | 95                | 75                | 95                | 110               | 85                | 110               | 125               |  |
| Effective anchorage depth                                                     | h <sub>ef</sub>    | [mm] | 31                | 44                | 35                | 43                | 52                | 43                | 60                | 68                | 50                | 67                | 80                | 58                | 79                | 92                |  |
| Diameter of clearance hole in the fixture                                     | d <sub>i</sub> max | [mm] | 8                 |                   | 12                |                   |                   | 14                |                   |                   | 16                |                   |                   | 18                |                   |                   |  |
| Approved tension load<br>in cracked concrete <sup>1),2)</sup>                 | N <sub>zul</sub>   | [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<br>in cracked concrete <sup>1),2)</sup>                   | V <sub>zul</sub>   | [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<br>in non-cracked concr <sup>ete</sup> <sup>1),2)</sup> | N <sub>zul</sub>   | [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<br>in non-cracked concr <sup>ete</sup> <sup>1),2)</sup>   | V <sub>zul</sub>   | [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              |  |
| Permissible bending moment                                                    | M <sub>zul</sub>   | [kN] | 6,2               |                   | 14,9              |                   |                   | 32,0              |                   |                   | 64,6              |                   |                   | 105,7             |                   |                   |  |
| Minimum egde distance                                                         | C <sub>min</sub>   | [mm] | 40                |                   | 40                | 50                |                   | 50                |                   |                   | 50                |                   | 70                | 50                | 70                |                   |  |
| Minimum spacing                                                               | S <sub>min</sub>   | [mm] | 40                |                   | 40                | 50                |                   | 50                |                   |                   | 50                |                   | 70                | 50                | 70                |                   |  |
| Minimum Basements thickness                                                   | h <sub>min</sub>   | [mm] | 100               |                   | 100               |                   |                   | 100               | 130               |                   | 120               | 130               | 150               | 130               | 150               | 170               |  |
| Installation torque<br>(with metric connection thread)                        | T <sub>inst</sub>  | [Nm] | 10                |                   | 20                |                   |                   | 40                |                   |                   | 60                |                   |                   | 80                |                   |                   |  |
| Maximum torque<br>(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                                                                | C2                 |      | x                 |                   | x                 |                   | Yes               | x                 |                   | Yes               | x                 |                   | Yes               | x                 |                   | Yes               |  |

<sup>1)</sup> To determine the permissible load, the partial safety factor from the approval γ<sub>M</sub> = 1.5 was taken into account on the resistance side and on the action side a partial safety factor γ<sub>F</sub> = 1.4 was taken into account.

<sup>2)</sup> The specified values apply regardless of center and edge distances.



## 01 TOGE TSM HIGH PERFORMANCE

# TECHNICAL CHARACTERISTICS

### Single fastening under fire exposure, Steel

| Screw size<br>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        |     |
| Permissible load under tensile and shear use ( $F_{zul,fi} = N_{zul,fi} = V_{zul,fi}$ ) <sup>1) 2)</sup> |                |                       |                   |            |            |            |            |            |            |            |            |            |            |            |            |     |
| 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        | 3,0        | 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 to 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 to R 120                                                                                            | $S_{cr,fi}$    | [mm]                  | $4 \times h_{ef}$ |            |            |            |            |            |            |            |            |            |            |            |            |     |
| Concrete pry-out failure                                                                                 |                |                       |                   |            |            |            |            |            |            |            |            |            |            |            |            |     |
| R 30 to R 120                                                                                            | k              | [-]                   | 1,0               |            | 1,0        |            | 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.                                |                |                       |                   |            |            |            |            |            |            |            |            |            |            |            |            |     |

<sup>1)</sup> For the determination of the approved loads, the partial safety factor from the approval  $\gamma_M = 1.0$  was taken into account for material resistance and a partial safety factor  $\gamma_F = 1.0$  for load actions.

<sup>2)</sup> These values apply without influence of the spacing and edge distances.

## 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 <sub>nom</sub> [mm] |      | h <sub>nom1</sub> | h <sub>nom2</sub> | h <sub>nom3</sub> | h <sub>nom1</sub> | h <sub>nom2</sub> | h <sub>nom3</sub> | h <sub>nom1</sub> | h <sub>nom2</sub> | h <sub>nom3</sub> |
|                                                                |                       |      | 35 <sup>3)</sup>  | 45                | 55                | 45                | 55                | 65                | 55                | 75                | 85                |
| Nominal diameter of drill bit                                  | d <sub>0</sub>        | [mm] | 6                 |                   |                   | 8                 |                   |                   | 10                |                   |                   |
| Depth of drill hole                                            | h <sub>0</sub> min    | [mm] | 40                | 50                | 60                | 55                | 65                | 75                | 65                | 85                | 95                |
| Effective anchorage depth                                      | h <sub>ef</sub>       | [mm] | 25                | 34                | 42                | 32                | 41                | 49                | 40                | 57                | 65                |
| Diameter of clearance hole in the fixture                      | d <sub>f</sub> max    | [mm] | 8                 |                   |                   | 12                |                   |                   | 14                |                   |                   |
| Approved tension load in cracked concrete <sup>1) 2)</sup>     | N <sub>zul</sub>      | [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 <sup>1) 2)</sup>       | V <sub>zul</sub>      | [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 <sup>1) 2)</sup> | N <sub>zul</sub>      | [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 <sup>1) 2)</sup>   | V <sub>zul</sub>      | [kN] | 2,9               | 4,0               | 4,0               | 7,7               | 7,7               | 9,7               | 12,9              | 19,4              | 19,4              |
| Persmissible bending moment                                    | M <sub>zul</sub>      | [kN] | 6,2               |                   |                   | 14,9              |                   |                   | 32,0              |                   |                   |
| Minimum egde distance                                          | C <sub>min</sub>      | [mm] | 35                |                   |                   | 35                |                   |                   | 40                |                   |                   |
| Minimum spacing                                                | S <sub>min</sub>      | [mm] | 35                |                   |                   | 35                |                   |                   | 40                |                   |                   |
| Minimum Basements thickness                                    | h <sub>min</sub>      | [mm] | 80                |                   | 100               | 80                | 100               | 120               | 100               | 130               |                   |
| Installation torque (with metric connection thread)            | T <sub>inst</sub>     | [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               |

<sup>1)</sup> For the determination of the approved loads, the partial safety factor from the approval  $\gamma_M = 1.5$  was taken into account for material resistance and a partial safety factor  $\gamma_F = 1.4$  for load actions.

<sup>2)</sup> These values apply without influence of the spacing and edge distances.

<sup>3)</sup> 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 <sub>nom</sub>   | [mm] | h <sub>nom1</sub>   | h <sub>nom2</sub> | h <sub>nom3</sub> | h <sub>nom1</sub> | h <sub>nom2</sub> | h <sub>nom3</sub> | h <sub>nom1</sub> | h <sub>nom2</sub> | h <sub>nom3</sub> |
|                                                                                                                                  |               |                         |                    |      | 35 <sup>3)</sup>    | 45                | 55                | 45                | 55                | 65                | 55                | 75                | 85                |
| Permissible load under tensile and shear use (F <sub>zul,fi</sub> = N <sub>zul,fi</sub> = V <sub>zul,fi</sub> ) <sup>1) 2)</sup> |               |                         |                    |      |                     |                   |                   |                   |                   |                   |                   |                   |                   |
| Fire resistance class                                                                                                            |               |                         |                    |      |                     |                   |                   |                   |                   |                   |                   |                   |                   |
| R 30                                                                                                                             | Approved load | F <sub>zul,fi 30</sub>  | [kN]               | 0,5  | 0,4                 | 0,8               | 0,8               | 1,4               | 2,0               | 1,5               | 3,3               | 4,3               |                   |
| R 60                                                                                                                             |               | F <sub>zul,fi 60</sub>  | [kN]               | 0,5  | 0,4                 | 0,8               | 0,8               | 1,4               | 1,7               | 1,5               | 3,3               |                   |                   |
| R 90                                                                                                                             |               | F <sub>zul,fi 90</sub>  | [kN]               | 0,5  | 0,4                 | 0,6               | 0,8               | 1,1               | 1,5               | 2,3               |                   |                   |                   |
| R 120                                                                                                                            |               | F <sub>zul,fi 120</sub> | [kN]               | 0,4  | 0,3                 | 0,4               | 0,6               | 0,7               | 1,2               | 1,7               |                   |                   |                   |
| R 30                                                                                                                             |               | M <sub>zul,fi 30</sub>  | [Nm]               | 0,7  |                     | 2,4               |                   | 5,9               |                   |                   |                   |                   |                   |
| R 60                                                                                                                             |               | M <sub>zul,fi 60</sub>  | [Nm]               | 0,6  |                     | 1,8               |                   | 4,5               |                   |                   |                   |                   |                   |
| R 90                                                                                                                             |               | M <sub>zul,fi 90</sub>  | [Nm]               | 0,5  |                     | 1,2               |                   | 3,0               |                   |                   |                   |                   |                   |
| R 120                                                                                                                            |               | M <sub>zul,fi 120</sub> | [Nm]               | 0,3  |                     | 0,9               |                   | 2,3               |                   |                   |                   |                   |                   |
| Edge distance                                                                                                                    |               |                         |                    |      |                     |                   |                   |                   |                   |                   |                   |                   |                   |
| R 30 to 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 to R 120                                                                                                                    |               |                         | S <sub>cr,fi</sub> | [mm] | 4 x h <sub>ef</sub> |                   |                   |                   |                   |                   |                   |                   |                   |
| Concrete pry-out failure                                                                                                         |               |                         |                    |      |                     |                   |                   |                   |                   |                   |                   |                   |                   |
| R 30 to 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.                                                        |               |                         |                    |      |                     |                   |                   |                   |                   |                   |                   |                   |                   |

<sup>1)</sup> For the determination of the approved loads, the partial safety factor from the approval  $\gamma_M = 1.0$  was taken into account for material resistance and a partial safety factor  $\gamma_F = 1.0$  for load actions.

<sup>2)</sup> These values apply without influence of the spacing and edge distances.

<sup>3)</sup> 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 <sup>1),2)</sup>     | $N_{zul}$  | [kN]     | 0,6   | 1,4   | 3,6 |
| Approved shear load in cracked concrete <sup>1),2)</sup>       | $V_{zul}$  | [kN]     | 1,9   | 2,3   | 4,8 |
| Approved tension load in non-cracked concrete <sup>1),2)</sup> | $N_{zul}$  | [kN]     | 0,6   | 1,4   | 3,6 |
| Approved shear load in non-cracked concrete <sup>1),2)</sup>   | $V_{zul}$  | [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 Basements 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   |     |

<sup>1)</sup> For the determination of the approved loads, the partial safety factor from the approval  $\gamma_M = 1.5$  was taken into account for material resistance and a partial safety factor  $\gamma_F = 1.4$  for load actions.

<sup>2)</sup> 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 5                   |                   | TSM 6             |     |     |
|----------------------------------------------------------------------------------------------------------------------------------|---------------|-----------------------|------|-------------------------|-------------------|-------------------|-----|-----|
| Nominal embedment depth                                                                                                          |               | h <sub>nom</sub> [mm] |      | h <sub>nom1</sub>       | h <sub>nom1</sub> | h <sub>nom2</sub> |     |     |
|                                                                                                                                  |               |                       |      | 35                      | 35                | 55                |     |     |
| Permissible load under tensile and shear use (F <sub>zul,fi</sub> = N <sub>zul,fi</sub> = V <sub>zul,fi</sub> ) <sup>1) 2)</sup> |               |                       |      |                         |                   |                   |     |     |
| Fire resistance class                                                                                                            |               |                       |      |                         |                   |                   |     |     |
| R 30                                                                                                                             | Approved load |                       |      | F <sub>zul,fi 30</sub>  | [kN]              | 0,4               | 0,8 | 0,9 |
| R 60                                                                                                                             |               |                       |      | F <sub>zul,fi 60</sub>  | [kN]              | 0,4               | 0,8 |     |
| R 90                                                                                                                             |               |                       |      | F <sub>zul,fi 90</sub>  | [kN]              | 0,4               | 0,6 |     |
| R 120                                                                                                                            |               |                       |      | F <sub>zul,fi 120</sub> | [kN]              | 0,3               | 0,4 |     |
| R 30                                                                                                                             |               |                       |      | M <sub>zul,fi 30</sub>  | [Nm]              | 0,5               | 0,7 |     |
| R 60                                                                                                                             |               |                       |      | M <sub>zul,fi 60</sub>  | [Nm]              | 0,4               | 0,6 |     |
| R 90                                                                                                                             |               |                       |      | M <sub>zul,fi 90</sub>  | [Nm]              | 0,2               | 0,5 |     |
| R 120                                                                                                                            |               |                       |      | M <sub>zul,fi 120</sub> | [Nm]              | 0,2               | 0,3 |     |
| Edge distance                                                                                                                    |               |                       |      |                         |                   |                   |     |     |
| R 30 to 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 to R 120                                                                                                                    |               | S <sub>cr,fi</sub>    | [mm] | 4 x h <sub>ef</sub>     |                   |                   |     |     |
| Concrete pry-out failure                                                                                                         |               |                       |      |                         |                   |                   |     |     |
| R 30 to R 120                                                                                                                    |               | k                     | [-]  | 1,0                     |                   |                   |     |     |
| In wet concrete, the embedment depth must be increased by at least 30 mm.                                                        |               |                       |      |                         |                   |                   |     |     |

<sup>1)</sup> For the determination of the approved loads, the partial safety factor from the approval  $\gamma_M = 1.0$  was taken into account for material resistance and a partial safety factor  $\gamma_F = 1.0$  for load actions.

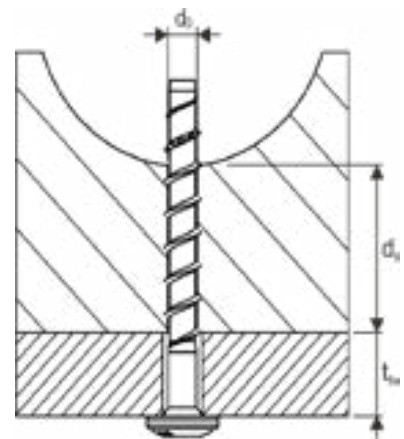
<sup>2)</sup> These values apply without influence of the spacing and edge distances.

## 01 TOGE TSM HIGH PERFORMANCE

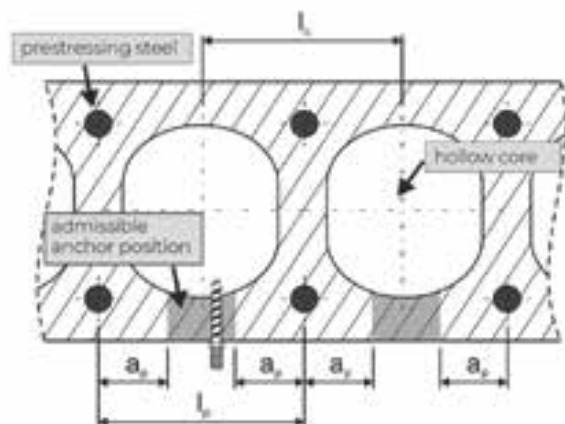
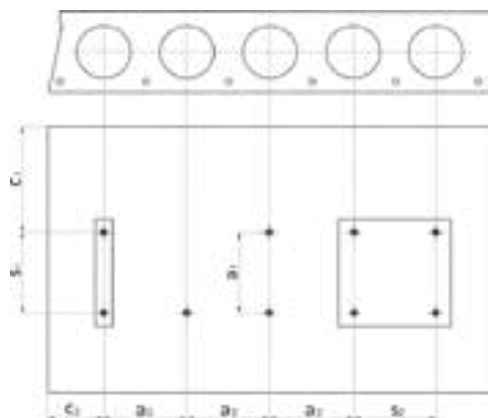
# TECHNICAL CHARACTERISTICS

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

| Screw size TSM high performance                       |                    |      | TSM 6 |      |      |
|-------------------------------------------------------|--------------------|------|-------|------|------|
| Bottom flange thickness                               | d <sub>b</sub>     | [mm] | ≥ 25  | ≥ 30 | ≥ 35 |
| Nominal diameter of drill bit                         | d <sub>0</sub>     | [mm] | 6     |      |      |
| Depth of drill hole                                   | h <sub>0</sub> min | [mm] | 30    | 35   | 40   |
| Diameter of clearance hole in the fixture             | d <sub>f</sub> max | [mm] | 8     |      |      |
| Approved tension load <sup>1)</sup>                   | F <sub>zul</sub>   | [kN] | 0,5   | 1,0  | 1,4  |
| Minimum egde distance                                 | C <sub>min</sub>   | [mm] | 100   |      |      |
| Minimum spacing                                       | S <sub>min</sub>   | [mm] | 100   |      |      |
| Minimum distance between anchor groups                | a <sub>min</sub>   | [mm] | 100   |      |      |
| Core distance                                         | l <sub>c</sub> min | [mm] | 100   |      |      |
| Prestressing steel distance                           | l <sub>p</sub> min | [mm] | 100   |      |      |
| Distance between anchor position & prestressing steel | a <sub>p</sub> min | [mm] | 50    |      |      |
| Hollow core width (w)                                 | (w/e) max [mm]     |      | 4,2   |      |      |
| Bridge width (e)                                      |                    |      |       |      |      |
| Installation torque (with metric connection thread)   | T <sub>inst</sub>  | [Nm] | 10    |      |      |
| Maximum torque (with impact screw driver)             |                    | [Nm] | 160   |      |      |



<sup>1)</sup> 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.



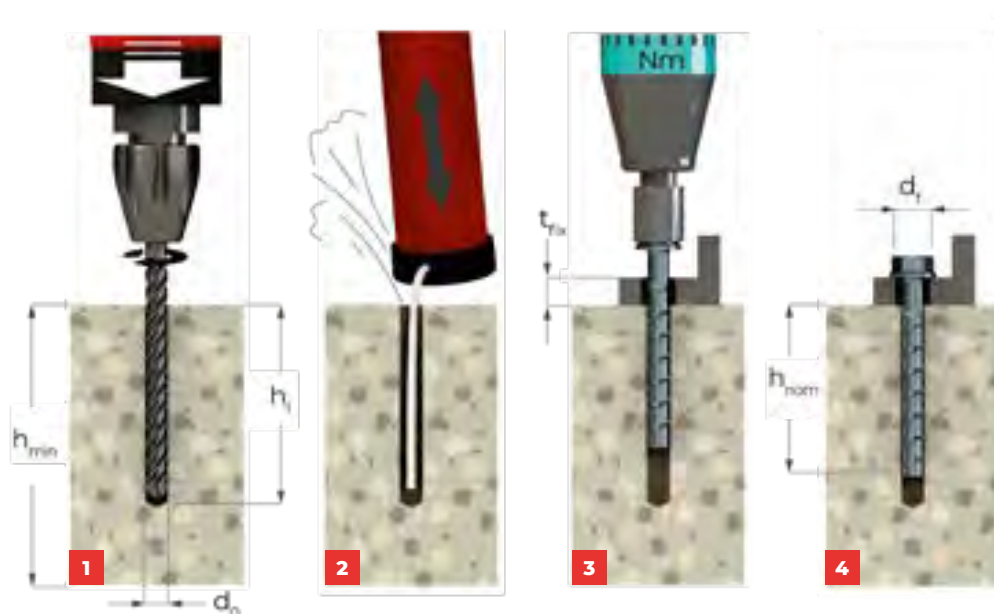
$C_1, C_2$  = Edge distance  
 $S_1, S_2$  = Spacing  
 $a_1, a_2$  = Distance between anchor groups

$l_c$  = 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.

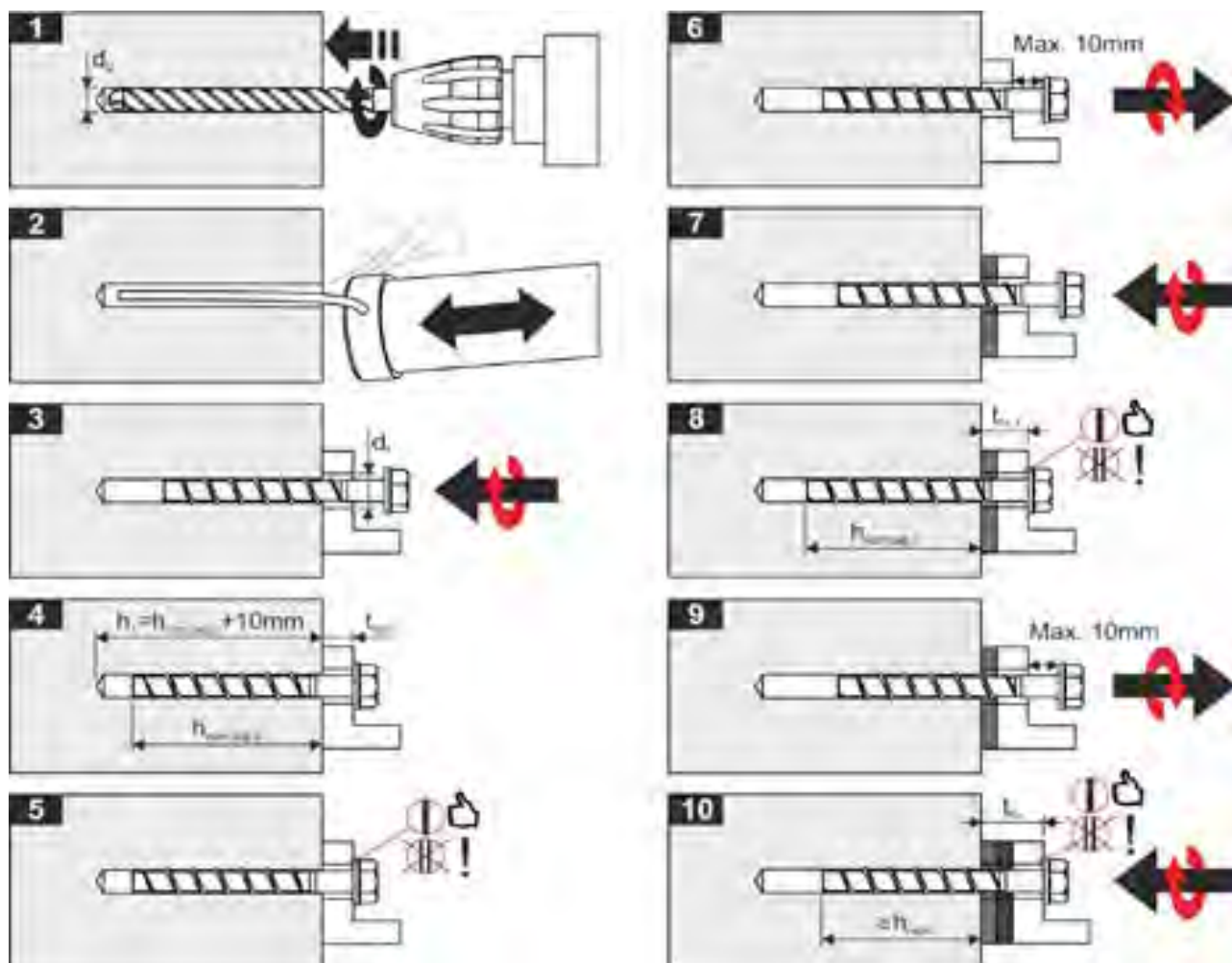
### SIDE NOTE



01 TOGE TSM HIGH PERFORMANCE

# INSTALLATION INSTRUCTIONS

Installation instructions  
with adjustment for sizes 6 to 14



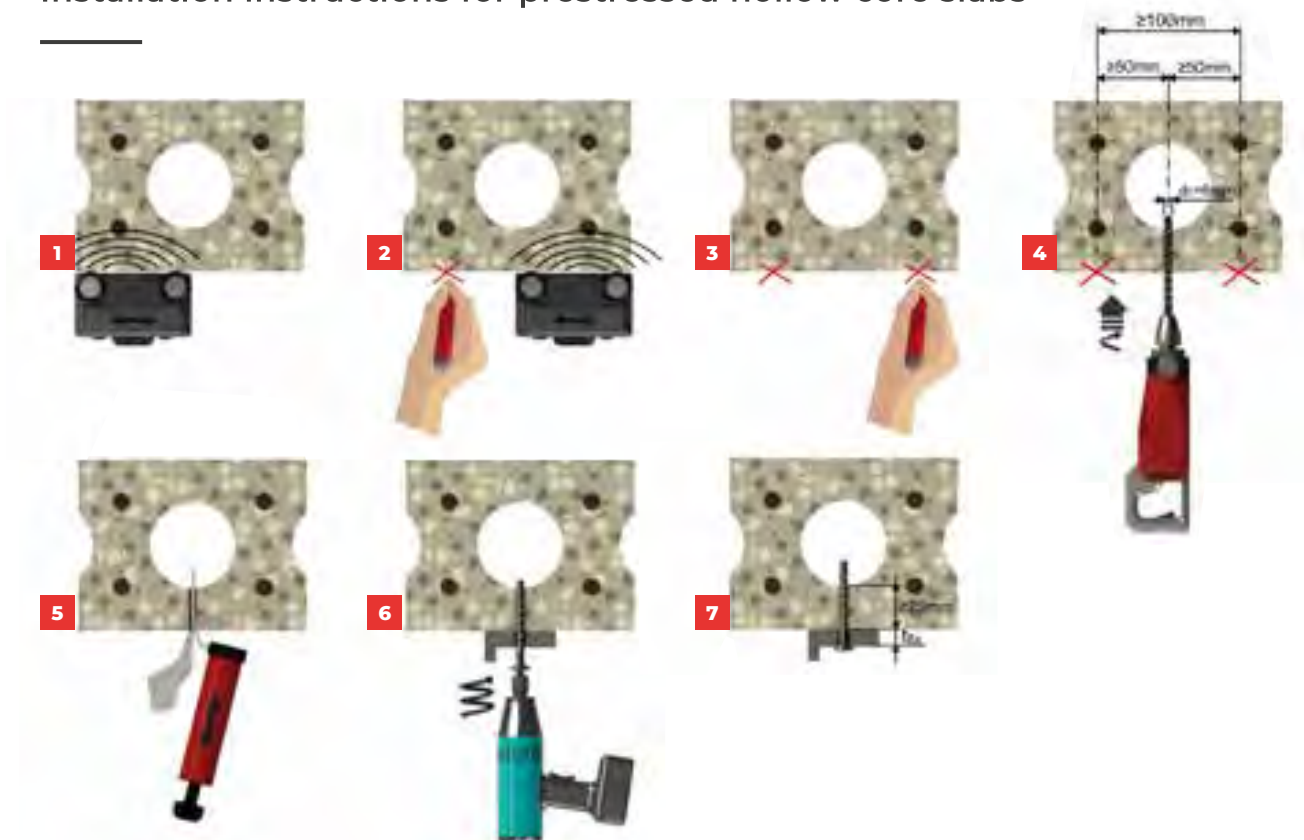
**⚠ Important – please note during adjustment:**

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

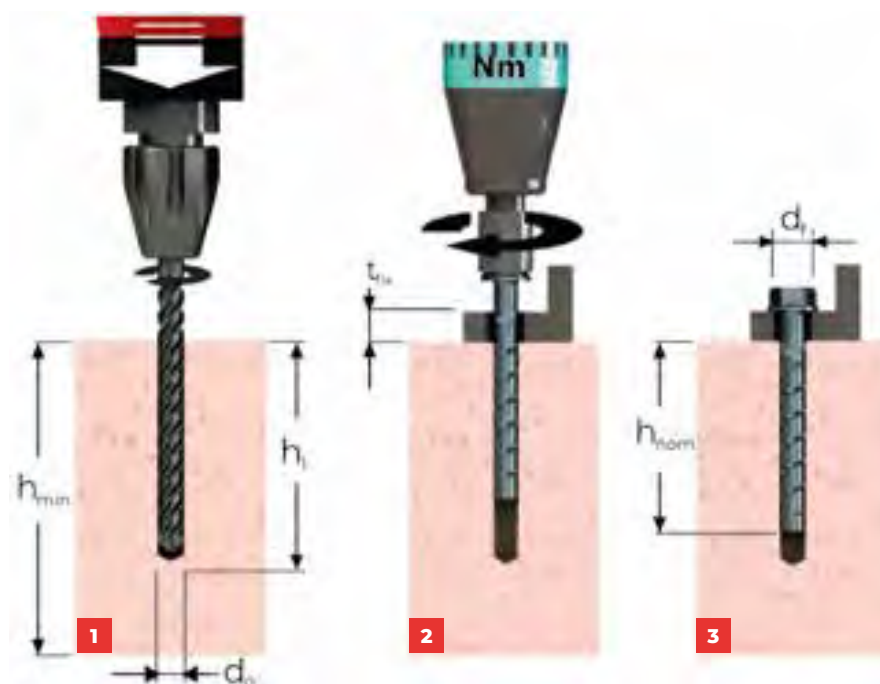
As a specialist in concrete screws, we produce more than 600 different product types in this category.

### SIDE NOTE

## 01 TOGE TSM HIGH PERFORMANCE

# INSTALLATION INSTRUCTIONS

### Installation instructions für Montage in Mauerwerk



- 1** Drill hole in hammer or rotary mode.
- 2** Screw in with impact screw driver, cordless screw driver or wrench according to the respective stone and size.
- 3** The head must be undamaged and in contact with the fixture. It must not be possible to turn the screw,  $T_{inst \max}$  must not be exceeded.

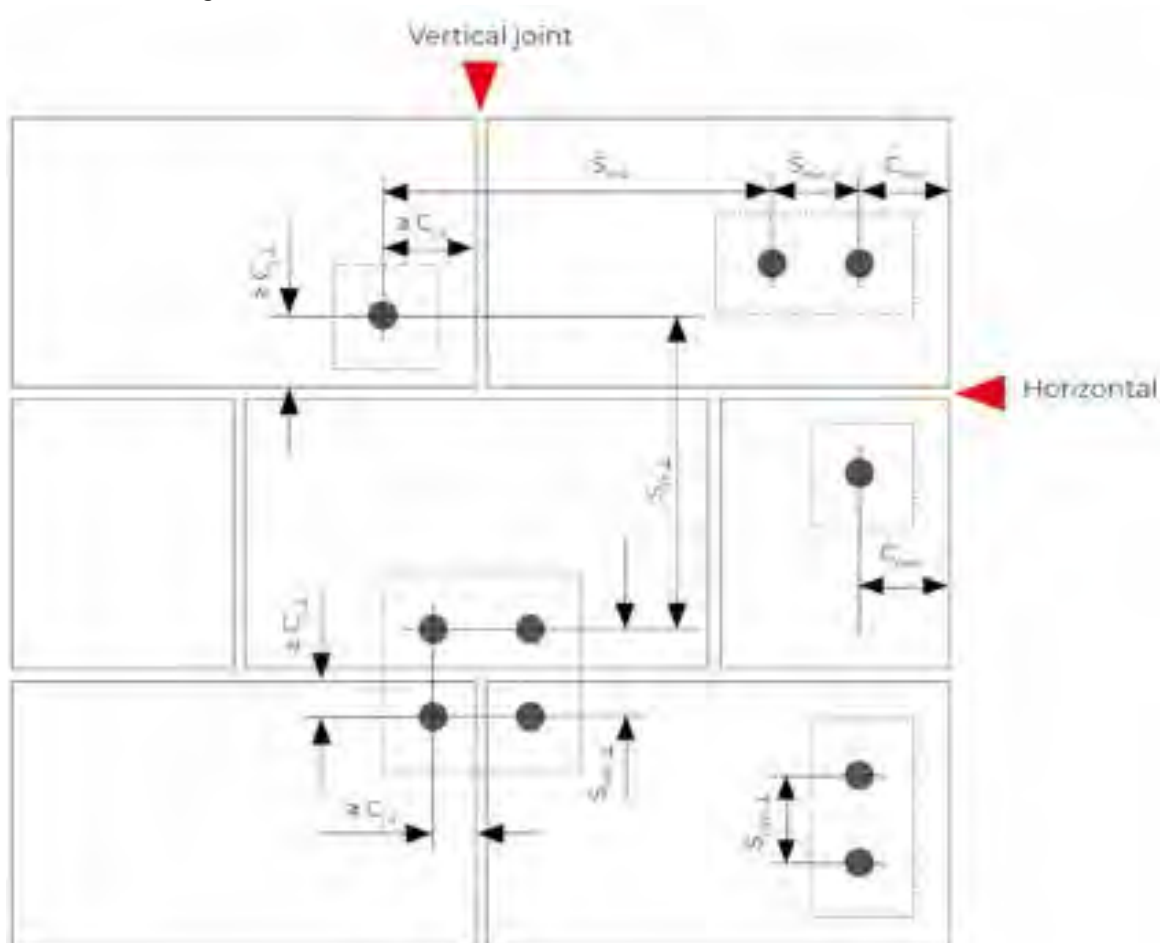
### Adjustability for installation in masonry

See p. 29 Installation instructions for adjustment for Sizen 6 to 14 (installation in concrete).  
The installation data for bricks in masonry must be observed.

## 01 TOGE TSM HIGH PERFORMANCE

# INSTALLATION OPTIONS

Possible installation options  
in masonry



$C_{min}$  = Minimum edge distance to the free edge of the wall

$C_v$  = Distance to vertical joints

$C_h$  = Distance to horizontal joints

$S_{min,||}$  = Minimum spacing parallel to horizontal joint

$S_{min,⊥}$  = Minimum spacing perpendicular to horizontal joint

$S_{||}$  = Characteristic spacing parallel to horizontal joint

$S_{⊥}$  = Characteristic spacing perpendicular to horizontal joint

## 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.



### **Easily 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,<br>zinc plated | Steel, zinc<br>flake-coated | Steel,<br>stainless A4 |
|-----------------------------------------------------------------------------------|--------------------------------------------------|-----------------------|-----------------------------|------------------------|
|  | <b>Hexagon head</b><br>with collar               | ✓                     |                             |                        |
|  | <b>Hexagon head</b><br>with pressed<br>on washer | ✓                     | ✓                           |                        |
|  | <b>Sleeve gauge</b>                              | ✓                     |                             |                        |

## Application examples



Fastening of guardrails,  
scaffolding or formwork props



## 02 TOGE TSM BC ST

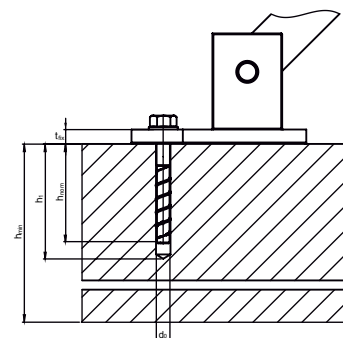
# STEEL – ZINC PLATED

Version with hexagonal head and collar



**Size**  
14

**Washer-Ø**  
32,0 mm



| Item nr.      | Designation             | Depth of drill hole<br>$h_{01} / h_{02} / h_{03}$ | Embedment depth<br>of anchor<br>$h_{nom1} / h_{nom2} / h_{nom3}$ | Max. thickness<br>of fixture<br>$t_{fix1} / t_{fix2} / t_{fix3}$ | Packing<br>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              |

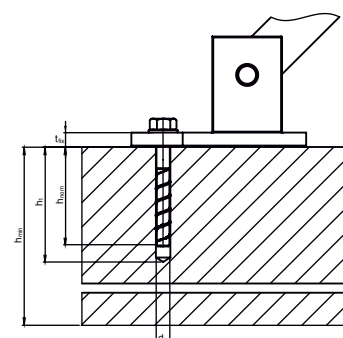
\* Sleeve gauge already included

Version with hexagonal head and pressed on washer



**Size**  
10  
12  
14

**Washer-Ø**  
20,0 mm  
23,5 mm  
28,5 mm



| Item nr.    | Designation     | Depth of drill hole<br>$h_{01} / h_{02} / h_{03}$ | Embedment depth<br>of anchor<br>$h_{nom1} / h_{nom2} / h_{nom3}$ | Max. thickness<br>of fixture<br>$t_{fix1} / t_{fix2} / t_{fix3}$ | 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           |
| 300 014 080 | TSM 14x80 SW21  | 85mm                                              | 75mm                                                             | 5mm                                                              | 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           |

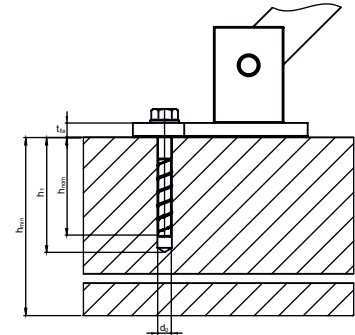
## 02 TOGE TSM BC ST

# STEEL – ZINC FLAKE-COATED

Version with hexagon 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<br>$h_{01} / h_{02} / h_{03}$ | Embedment depth<br>of anchor<br>$h_{nom1} / h_{nom2} / h_{nom3}$ | Max. thickness<br>of fixture<br>$t_{fix1} / t_{fix2} / t_{fix3}$ | 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           |
| 400 014 080 | TSM 14x80 SW21      | 85mm                                              | 75mm                                                             | 5mm                                                              | 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 nur.   | 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

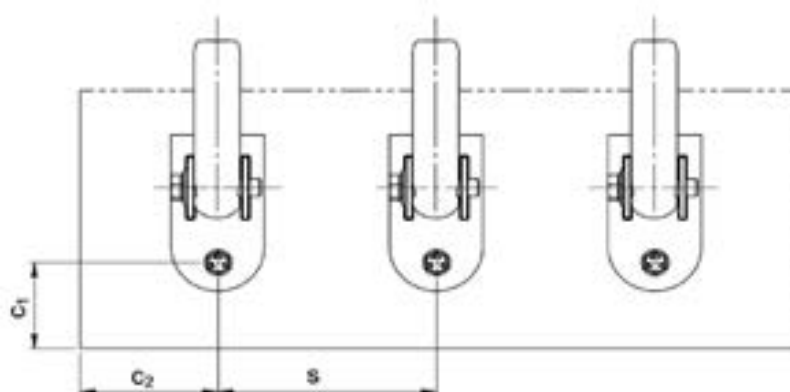
# TECHNICAL CHARACTERISTICS

### Without fire exposure, Steel

| Screw size TSM BC ST & TSM High Performance                                                                |           |          | TSM 10      | TSM 12      |             | TSM 14      |             |             |
|------------------------------------------------------------------------------------------------------------|-----------|----------|-------------|-------------|-------------|-------------|-------------|-------------|
| Nominal 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         |
| Nominal 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 Basements thickness                                                                                | $h_{min}$ | [mm]     | 150         | 150         | 195         | 150         | 195         | 200 225     |
| Approved tension load in cracked concrete with compressive strenght $f_{ck,cube}$ 10 N/mm <sup>1) 2)</sup> | $N_{zul}$ | [kN]     | 4,3         | 4,3         | 8,6         | 4,3         | 8,6         | 10,7 12,1   |
| Approved tension load in cracked concrete with compressive strenght $f_{ck,cube}$ 15 N/mm <sup>1) 2)</sup> | $N_{zul}$ | [kN]     | 5,0         | 5,0         | 9,3         | 5,0         | 9,3         | 12,9 15,0   |
| Approved tension load in cracked concrete with compressive strenght $f_{ck,cube}$ 20 N/mm <sup>1) 2)</sup> | $N_{zul}$ | [kN]     | 5,7         | 5,7         | 10,0        | 5,7         | 10,0        | 14,3 17,1   |
| Minimum edge distance in load direction <sup>1)</sup>                                                      | $C_1$     | [mm]     | 105         | 105         | 130         | 105         | 130         | 165         |
| Minimum edge distance crosswise to load direction <sup>1)</sup>                                            | $C_2$     | [mm]     | 160         | 160         | 195         | 160         | 195         | 250         |
| Minimum spacing                                                                                            | $S_{min}$ | [mm]     | 320         | 320         | 390         | 320         | 390         | 500         |
| Maximum torque (with impact screw driver)                                                                  |           | [Nm]     | 400         | 650         |             | 650         |             |             |

<sup>1)</sup> See drawing.

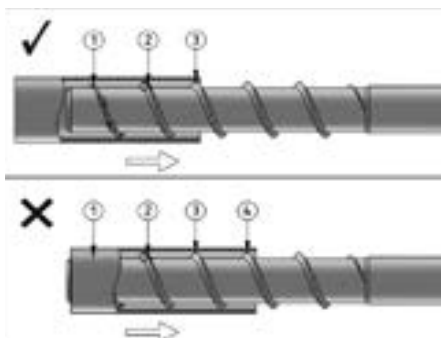
<sup>2)</sup> The partial safety for load actions  $\gamma F = 1,4$  were considered for determining the load.



## 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 instructions



- 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.

NEW!

# PRODUCT CATALOGUE: FASTENING SOLUTIONS FOR STRUCTURAL ENGINEERING

---

## PRODUCT OVERVIEW

---

See page 78 of  
the catalogue

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---

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fastening solutions in structural engineering?  
This catalogue offers a comprehensive selection  
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to the special requirements and challenges of  
this particular application.

## TO CATALOGUE

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03 TOGE TSM MULTIGROUND **NEW**

# TOGE TSM MULTIGROUND

Female threaded screw  
for various substrates



## Easy Installation

Easy, fast and safe installation with a impact screwdriver. This makes overhead work in particular much easier.



## Easily demountable

If required, the TOGE TSM Multi-ground can be quickly and easily dismantled.



## Flush with surface

The flush surface installation results in a clean installation appearance without any interfering elements.



## High load values

The special thread geometry ensures secure hold and high loads in concrete.



## Internal thread

The practical internal thread enables use for a wide range of applications.



## Small edge distances

Small edge distances and spacing allow particularly close-edge and closely spaced installation.



## Approval

---



- ✓ European technical assessment ETA-23/0542.

## Base Material

---

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



**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!



03 TOGE TSM MULTIGROUND **NEW**

# HEADSHAPES AND MATERIALS

Steel,  
zinc plated

Steel, zinc  
flake-coated

Stainless Steel  
A4



**Female thread**  
M6, M8, M10



## Application examples

Fastening of  
cable ducts

Fastening of ceiling  
suspension of any kind



Fastening of piping

Detail: TSM Multiground  
with threaded rod  
and pipe clamp

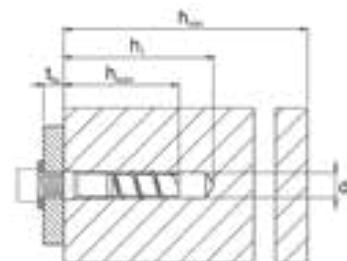
### 03 TOGE TSM MULTIGROUND **NEW**

## STEEL – ZINC PLATED

Version with  
female thread



| Size | Ø Female thread |
|------|-----------------|
| 8    | M6              |
| 10   | M8              |
| 12   | M10             |



| Item nr.    | Designation              | Depth of drill hole<br>$h_1$ | Embedment depth<br>$h_{nom}$ | Length<br>female thread<br>$L_{Gew}$ | Packung<br>Unit |
|-------------|--------------------------|------------------------------|------------------------------|--------------------------------------|-----------------|
| 345 008 040 | TSM M 8x40 IM6x10 VZ50   | 50mm                         | 40mm                         | 10 mm                                | 100             |
| 345 010 040 | TSM M 10x40 IM8x10 VZ55  | 50mm                         | 40mm                         | 10 mm                                | 100             |
| 345 012 040 | TSM M 12x40 IM10x10 VZ60 | 50mm                         | 40mm                         | 10 mm                                | 100             |



### Determine your needs correctly: With our free anchor design software

Our user-friendly software for dimensioning fasteners of fasteners is free of charge.

More on page 48



### 03 TOGE TSM MULTIGROUND NEW

# TECHNICAL CHARACTERISTICS

## Multiple fastening without fire exposure, Steel

| Screw size TSM M                                                 |                    |     |      | TSM 8 M | TSM 10 M | TSM 12 M |
|------------------------------------------------------------------|--------------------|-----|------|---------|----------|----------|
| Nominal embedment depth                                          | h <sub>nom</sub>   |     | [mm] | 40      | 40       | 40       |
| Nominal diameter of drill bit                                    | d <sub>o</sub>     |     | [mm] | 8       | 10       | 12       |
| Depth of drill hole                                              | h <sub>i</sub> min |     | [mm] | 50      | 50       | 50       |
| Effective anchorage depth                                        | h <sub>ef</sub>    |     | [mm] | 31      | 31       | 30       |
| Diameter of clearance hole in the fixture                        | d <sub>f</sub> max |     | [mm] | 7       | 9        | 12       |
| Minimum egde distance                                            | C <sub>min</sub>   |     | [mm] | 40      | 40       | 40       |
| Minimum spacing                                                  | S <sub>min</sub>   |     | [mm] | 30      | 40       | 40       |
| Minimum Basements thickness                                      | h <sub>min</sub>   |     | [mm] | 80      | 80       | 80       |
| Installation torque (for metrical thread)                        | T <sub>inst</sub>  |     | [Nm] | 4       | 8        | 15       |
| Minimum screw-in depth metrical thread                           |                    |     | [mm] | 8       | 8        | 8        |
| Maximum torque (with impact screw driver)                        |                    |     | [Nm] | 180     | 180      | 180      |
| Permissible load for metrical thread of tension class 4.8        |                    |     |      |         |          |          |
| Permissible tension load in cracked concrete <sup>1) 3)</sup>    | N <sub>zul</sub>   | 4,8 | [kN] | 2,6     | 2,8      | 1,8      |
| Permissible shear load in cracked concrete <sup>2) 3)</sup>      | V <sub>zul</sub>   | 4,8 | [kN] | 2,3     | 2,8      | 2,3      |
| Persmissible tension load in uncracked concrete <sup>1) 3)</sup> | N <sub>zul</sub>   | 4,8 | [kN] | 3,1     | 3,8      | 2,2      |
| Persmissible shear load in uncracked concrete <sup>2) 3)</sup>   | V <sub>zul</sub>   | 4,8 | [kN] | 2,3     | 4,0      | 3,2      |
| Persmissible bending moment <sup>2) 3)</sup>                     | M <sub>zul</sub>   | 4,8 | [kN] | 2,9     | 7,1      | 13,7     |
| Permissible load for metrical thread of tension class 5.8        |                    |     |      |         |          |          |
| Permissible tension load in cracked concrete <sup>1) 3)</sup>    | N <sub>zul</sub>   | 5,8 | [kN] | 2,6     | 2,8      | 1,8      |
| Permissible shear load in cracked concrete <sup>2) 3)</sup>      | V <sub>zul</sub>   | 5,8 | [kN] | 2,8     | 2,8      | 2,3      |
| Persmissible tension load in uncracked concrete <sup>1) 3)</sup> | N <sub>zul</sub>   | 5,8 | [kN] | 3,1     | 3,8      | 2,2      |
| Persmissible shear load in uncracked concrete <sup>2) 3)</sup>   | V <sub>zul</sub>   | 5,8 | [kN] | 2,9     | 4,0      | 3,2      |
| Persmissible bending moment <sup>2) 3)</sup>                     | M <sub>zul</sub>   | 5,8 | [kN] | 3,6     | 8,8      | 13,7     |
| Permissible load for metrical thread of tension class 8.8        |                    |     |      |         |          |          |
| Permissible tension load in cracked concrete <sup>1) 3)</sup>    | N <sub>zul</sub>   | 8,8 | [kN] | 2,6     | 2,8      | 1,8      |
| Permissible shear load in cracked concrete <sup>2) 3)</sup>      | V <sub>zul</sub>   | 8,8 | [kN] | 2,8     | 2,8      | 2,3      |
| Persmissible tension load in uncracked concrete <sup>1) 3)</sup> | N <sub>zul</sub>   | 8,8 | [kN] | 3,1     | 3,8      | 2,2      |
| Persmissible shear load in uncracked concrete <sup>2) 3)</sup>   | V <sub>zul</sub>   | 8,8 | [kN] | 3,4     | 4,0      | 3,2      |
| Persmissible bending moment <sup>2) 3)</sup>                     | M <sub>zul</sub>   | 8,8 | [kN] | 5,0     | 8,8      | 13,7     |

<sup>1)</sup> For the determination of the approved loads, the partial safety factor from the approval  $\gamma_M = 1.5$  was taken into account for material resistance and a partial safety factor of  $\gamma_F = 1.4$  for load actions.

<sup>2)</sup> For the determination of the approved loads, the partial safety factor from the approval  $\gamma_M = 1.25$  was taken into account for material resistance and a partial safety factor of  $\gamma_F = 1.4$  for load actions.

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

### 03 TOGE TSM MULTIGROUND NEW

# TECHNICAL CHARACTERISTICS

## Multiple fastening under fire exposure, Steel

| Screw size TSM M                                                                                                                 |               |                         |      | TSM 8 M             | TSM 10 M | TSM 12 M |
|----------------------------------------------------------------------------------------------------------------------------------|---------------|-------------------------|------|---------------------|----------|----------|
| Nominal embedment depth                                                                                                          |               | h <sub>nom</sub> [mm]   |      | 40                  | 40       | 40       |
| Permissible load under tensile and shear use (F <sub>zul,fi</sub> = N <sub>zul,fi</sub> = V <sub>zul,fi</sub> ) <sup>1) 2)</sup> |               |                         |      |                     |          |          |
| Fire resistance class                                                                                                            |               |                         |      |                     |          |          |
| R 30                                                                                                                             | Approved load | F <sub>zul,fi 30</sub>  | [kN] | 0,9                 | 0,9      | 0,8      |
| R 60                                                                                                                             |               | F <sub>zul,fi 60</sub>  | [kN] | 0,9                 | 0,9      | 0,8      |
| R 90                                                                                                                             |               | F <sub>zul,fi 90</sub>  | [kN] | 0,9                 | 0,9      | 0,8      |
| R 120                                                                                                                            |               | F <sub>zul,fi 120</sub> | [kN] | 0,7                 | 0,7      | 0,7      |
| R 30                                                                                                                             |               | M <sub>zul,fi 30</sub>  | [Nm] | 0,63                | 1,81     | 4,28     |
| R 60                                                                                                                             |               | M <sub>zul,fi 60</sub>  | [Nm] | 0,49                | 1,36     | 3,12     |
| R 90                                                                                                                             |               | M <sub>zul,fi 90</sub>  | [Nm] | 0,34                | 0,91     | 1,97     |
| R 120                                                                                                                            |               | M <sub>zul,fi 120</sub> | [Nm] | 0,27                | 0,68     | 1,39     |
| Edge distance                                                                                                                    |               |                         |      |                     |          |          |
| R 30 to 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 to R 120                                                                                                                    |               | S <sub>cr,fi</sub>      | [mm] | 4 x h <sub>ef</sub> |          |          |
| Concrete pry-out failure                                                                                                         |               |                         |      |                     |          |          |
| R 30 to R 120                                                                                                                    |               | k                       | [-]  | 1,0                 |          |          |
| In wet concrete, the embedment depth must be increased by at least 30 mm.                                                        |               |                         |      |                     |          |          |

<sup>1)</sup> 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 of  $\gamma_F = 1.0$  for load actions.

<sup>2)</sup> These values apply without influence of the spacing and edge distances.

### 03 TOGE TSM MULTIGROUND **NEW**

# INSTALLATION INSTRUCTIONS

## Installation instructions



- 1** Create drill hole with hammerdrill or hollow drill bit.
- 2** Clean the borehole thoroughly.
- 3** Screw in TOGE TSM Multiground with impact screwdriver or wrench.
- 4** Screw must be screwed in flush with the surface of the concrete. The attachment part is fastened with a standard metric screw or threaded rod. The tightening torque of the metric thread must be observed.

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## **NEW**

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

### **Design Software:**

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

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## 04 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 absorption

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








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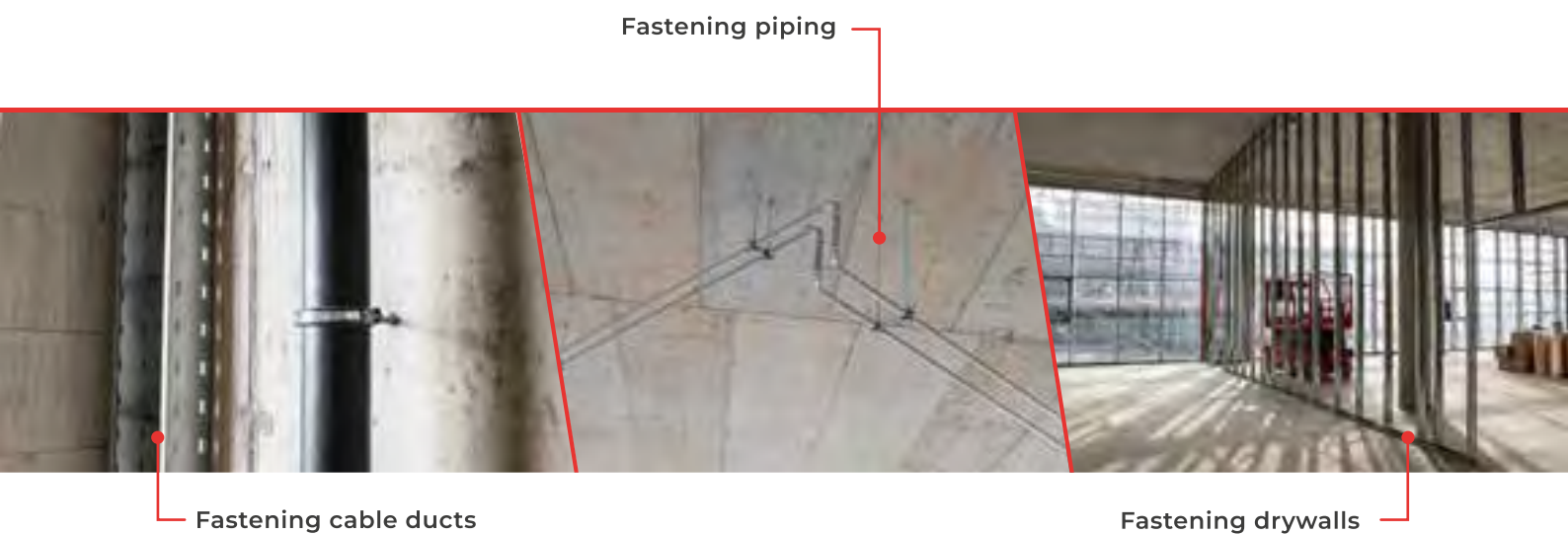
For example, to view the approvals in detail  
you only need one click. Feel free to try it out!

## 04 TOGE TSM L

# HEADSHAPES AND MATERIALS

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

## Application examples



## 04 TOGE TSM L

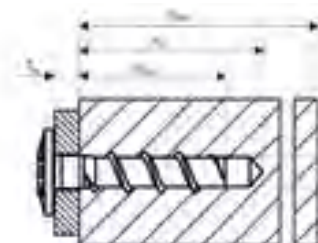
# STEEL – ZINC PLATED

Version with panhead  
and multipoint drive



**Size**  
6

**Head-Ø**  
14,0 mm



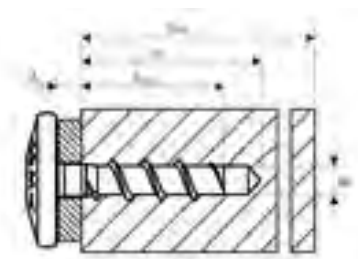
| Item nr.    | Designation          | Depth of drill hole<br>$h_{1,1}$ | Embedment depth<br>of anchor<br>$h_{nom,1}$ | Max. thickness<br>of fixture<br>$t_{fix,1}$ | Packing Unit |
|-------------|----------------------|----------------------------------|---------------------------------------------|---------------------------------------------|--------------|
| 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

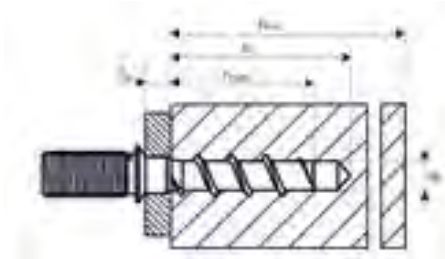


| Item nr.    | Designation        | Depth of drill hole<br>$h_{1,1} / h_{1,2}$ |       | Embedment depth<br>of anchor<br>$h_{nom,1} / h_{nom,2}$ |       | Max. thickness<br>of fixture<br>$t_{fix,1} / t_{fix,2}$ |      | Packing Unit |
|-------------|--------------------|--------------------------------------------|-------|---------------------------------------------------------|-------|---------------------------------------------------------|------|--------------|
| 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          |

## 04 TOGE TSM L

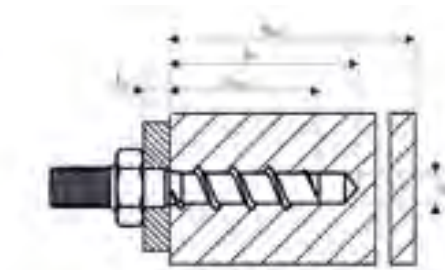
# STEEL – ZINC PLATED

Version with metric connection  
thread M8



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

## 04 TOGE TSM L

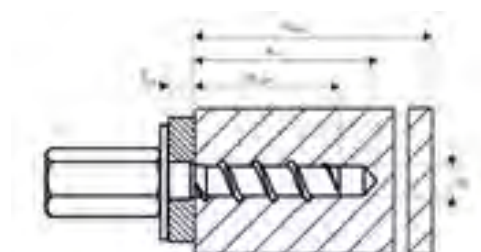
# STEEL – ZINC PLATED

Version with metric female thread  
M8/M10



**Size**  
6

**Washer-Ø**  
25,0 mm



| Item nr.    | Designation           | Depth of drill hole<br>$h_{1,1} / h_{1,2}$ |       | Embedment depth<br>of anchor<br>$h_{nom,1} / h_{nom,2}$ |       | Max. thickness<br>of fixture<br>$t_{fix,1} / t_{fix,2}$ |      | Packing Unit |
|-------------|-----------------------|--------------------------------------------|-------|---------------------------------------------------------|-------|---------------------------------------------------------|------|--------------|
| 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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## 04 TOGE TSM L

# TECHNICAL CHARACTERISTICS

### Single fastening without fire exposure, Steel

| Screw size TSM L                                               |                    |      | 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                 |
| Effective anchorage depth                                      | h <sub>ef</sub>    | [mm] | 19                 | 27                 |
| Diameter of clearance hole in the fixture                      | d <sub>f</sub> max | [mm] | 8                  |                    |
| Approved tension load in cracked concrete <sup>1) 2)</sup>     | N <sub>zul</sub>   | [kN] | 0,4                | 1,0                |
| Approved shear load in cracked concrete <sup>1) 2)</sup>       | V <sub>zul</sub>   | [kN] | 1,4                | 2,3                |
| Approved tension load in non-cracked concrete <sup>1) 2)</sup> | N <sub>zul</sub>   | [kN] | 1,0                | 1,9                |
| Approved shear load in non-cracked concrete <sup>1) 2)</sup>   | V <sub>zul</sub>   | [kN] | 1,9                | 3,3                |
| Permissible bending moment                                     | 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 Basements thickness                                    | h <sub>min</sub>   | [mm] | 80                 |                    |
| Installation torque (with metric connection thread)            | T <sub>inst</sub>  | [Nm] | 10                 |                    |

<sup>1)</sup> For the determination of the approved loads, the partial safety factor from the approval  $\gamma_M = 1.5$  was taken into account for material resistance and a partial safety factor  $\gamma_F = 1.4$  for load actions.

<sup>2)</sup> These values apply without influence of the spacing and edge distances.

## 04 TOGE TSM L

# TECHNICAL CHARACTERISTICS

### Single fastening under fire exposure, Steel

| Screw size TSM L                                                                                                                 |               |                         | 6                  |                     |      |
|----------------------------------------------------------------------------------------------------------------------------------|---------------|-------------------------|--------------------|---------------------|------|
| Nominal embedment depth                                                                                                          |               | h <sub>nom</sub> [mm]   | h <sub>nom,1</sub> | h <sub>nom,2</sub>  |      |
|                                                                                                                                  |               |                         | 25                 | 35                  |      |
| Permissible load under tensile and shear use (F <sub>zul,fi</sub> = N <sub>zul,fi</sub> = V <sub>zul,fi</sub> ) <sup>1) 2)</sup> |               |                         |                    |                     |      |
| Fire resistance class                                                                                                            |               |                         |                    |                     |      |
| R 30                                                                                                                             | Approved load | 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 to 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 to R 120                                                                                                                    |               | S <sub>cr,fi</sub>      | [mm]               | 4 x h <sub>ef</sub> |      |
| Concrete pry-out failure                                                                                                         |               |                         |                    |                     |      |
| R 30 to R 120                                                                                                                    |               | k                       | [-]                | 1,0                 |      |
| In wet concrete, the embedment depth must be increased by at least 30 mm.                                                        |               |                         |                    |                     |      |

<sup>1)</sup> For the determination of the approved loads, the partial safety factor from the approval  $\gamma_M = 1.0$  was taken into account for material resistance and a partial safety factor  $\gamma_F = 1.0$  for load actions.

<sup>2)</sup> These values apply without influence of the spacing and edge distances.



## 04 TOGE TSM L

# INSTALLATION INSTRUCTIONS

---

### Installation instructions

---



- 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

---

We are celebrating!

# THE FASTENING EXPERTS



## SECURE FASTENING SINCE 1964

- 1964**  


**Company Foundation**  

The master carpenter Anton Gerhard invents the window frame dowel in Nuremberg and applies for a patent. The ingenious product is initially produced exclusively for HILTI. TOGE Dübel is born.
- 1996**  


**We are launching our first concrete screw**  

Since 1994, TOGE has been dedicated to the development of a self-tapping concrete screw. This was launched on the market in 1996. This makes us one of the pioneers of concrete screwing technology. Specialisation in this product range since 1997.
- 1997**  


**Steel Innovation Award 1997**  

TOGE wins 3rd prize in the category 'Innovative Steel Products' with the self-tapping concrete screw.
- 2005**  


**First ETA approval is granted**  

TOGE receives the first ETA approval for its own concrete screw in sizes 8 - 14, thus offering even greater safety.
- 2014**  


**TOGE becomes part of the Würth Group**  

As a consistent step towards the future and innovation, we have been part of the Würth Group and a strong network since 2014.
- 2021**  


**Expansion of the company building**  

TOGE is building a new administration building, a new production hall and a dedicated dowel laboratory for our Research & Development department.
- 2022**  


**New corporate design and new website**  

As part of the website relaunch, TOGE's brand identity is also being fundamentally revised and modernised. From now on, the core competence - The Fastening Experts - will be integrated into the logo as a claim. The new website also includes a virtual showroom.
- 2022**  


**New premises for research & development**  

Our research and development department will have a second home at the Reinhold Würth Innovation Centre CURIO in Künzelsau. As part of a 250-strong team, TOGE is working here on the future of fastening technology.

05 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**

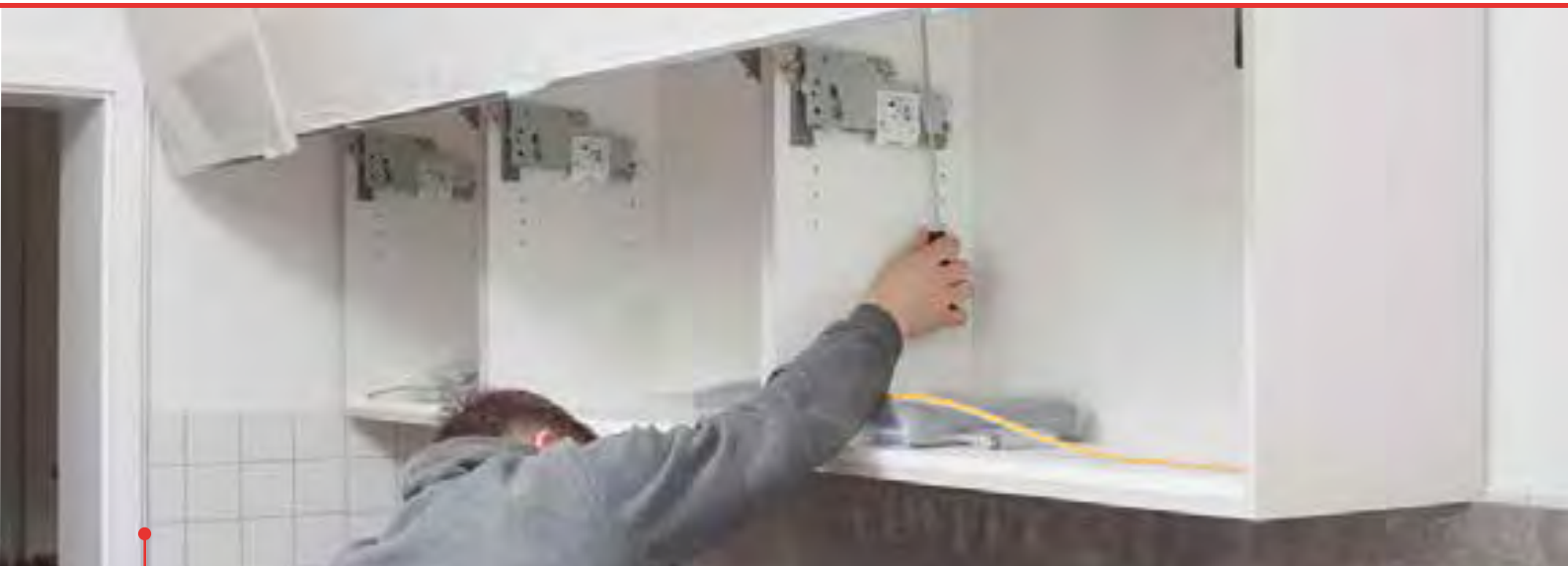
For example, to view the approvals in detail you only need one click. Feel free to try it out!

05 TOGE TSM PB

# HEADSHAPES AND MATERIALS

|                                                                                   |                                                   | Steel<br>zinc-plated | Steel, zinc<br>flake-coated | Stainless steel<br>A4 |
|-----------------------------------------------------------------------------------|---------------------------------------------------|----------------------|-----------------------------|-----------------------|
|  | <b>hexagonal head</b><br>and pressed<br>on washer | ✓                    |                             |                       |
|  | <b>countersunk head</b><br>and multipoint drive   | ✓                    |                             |                       |
|  | <b>panhead</b> and<br>multipoint drive            | ✓                    |                             |                       |

## Application examples



Fastening wall cabinets

## 05 TOGE TSM PB

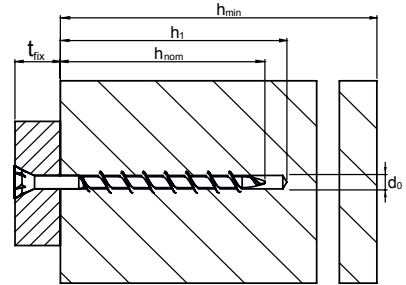
# STEEL – ZINC PLATED

Version with hexagonal head  
and pressed on washer



**Size**  
10

**Washer-Ø**  
16,0 mm



| Item nr.    | Designation        | Embedment depth<br>of anchor<br>$h_{nom}$ | Max. thickness<br>of fixture<br>$t_{fix}$ | 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<br>of anchor<br>$h_{nom}$ | Max. thickness<br>of fixture<br>$t_{fix}$ | 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          |

## 05 TOGE TSM PB

# STEEL – ZINC PLATED

Version with panhead  
and multipoint drive



**Size**  
8

**Head-Ø**  
12,0 mm

| Item nr.    | Designation            | Embedment depth<br>of anchor<br>$h_{nom}$ | Max. thickness<br>of fixture<br>$t_{fix}$ | 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          |



**Do you need support?**  
**We will be happy to advise you!**

Call us: +49 911 659 68-43

## 05 TOGE TSM PB

# TECHNICAL CHARACTERISTICS

### Single fastening without fire exposure, Steel

| Screw size TSM PB                                 |                |      | 8    | 10   |
|---------------------------------------------------|----------------|------|------|------|
| Nominal diameter of drill bit                     | $d_o$          | [mm] | 0/4  | 0/4  |
| Depth of drill hole                               | $\geq h_i$     | [mm] | 0/40 | 0/50 |
| Nominal embedment depth                           | $\geq h_{nom}$ | [mm] | 80   | 100  |
| Recommended load for PP2 -0,50 <sup>1) 2)</sup>   | $F_{empt.}$    | [kN] | 0,34 | 0,47 |
| Recommended load for PP4 -0,65 <sup>1) 2)</sup>   | $F_{empt.}$    | [kN] | 0,68 | 0,92 |
| Recommended load for PP6 -0,80 <sup>1) 2)</sup>   | $F_{empt.}$    | [kN] | 0,99 | x    |
| Recommended load for PP3,3 -0,60 <sup>1) 2)</sup> | $F_{empt.}$    | [kN] | x    | 0,94 |
| Recommended load for PP4,4 -0,70 <sup>1) 2)</sup> | $F_{empt.}$    | [kN] | x    | 0,90 |
| Diameter of clearing hole in the fixture          | d              | [mm] | 9,0  | 10,0 |
| Installation torque                               | $T_{inst.}$    | [Nm] | 8    | 12   |

<sup>1)</sup> To determine the permissible load, the partial safety factor from the approval  $\gamma_M = 1.0$  was taken into account on the resistance side and a partial safety factor  $\gamma_F = 1.4$  on the action side. a partial safety factor  $\gamma_F = 1.4$  was taken into account.

<sup>2)</sup> These values apply without influence of the spacing and edge distances.



### Private Label – our service for retailers

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

### SIDE NOTE

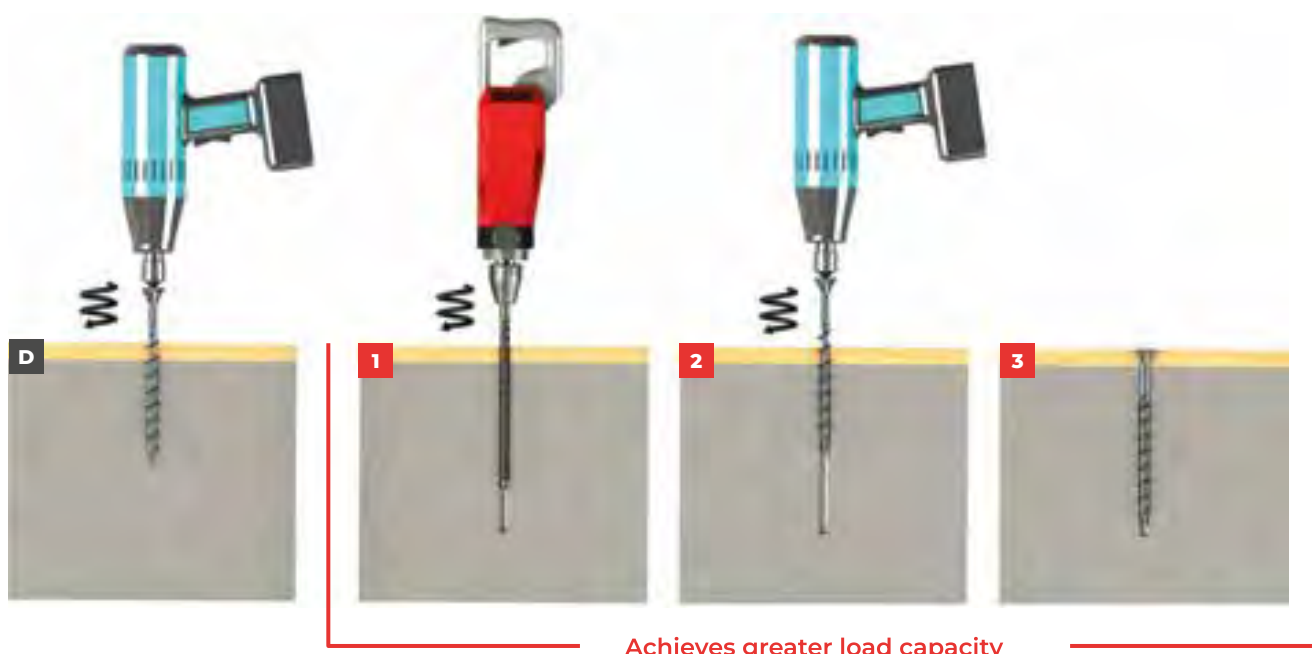


05 TOGE TSM PB

# 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.

## 06 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.














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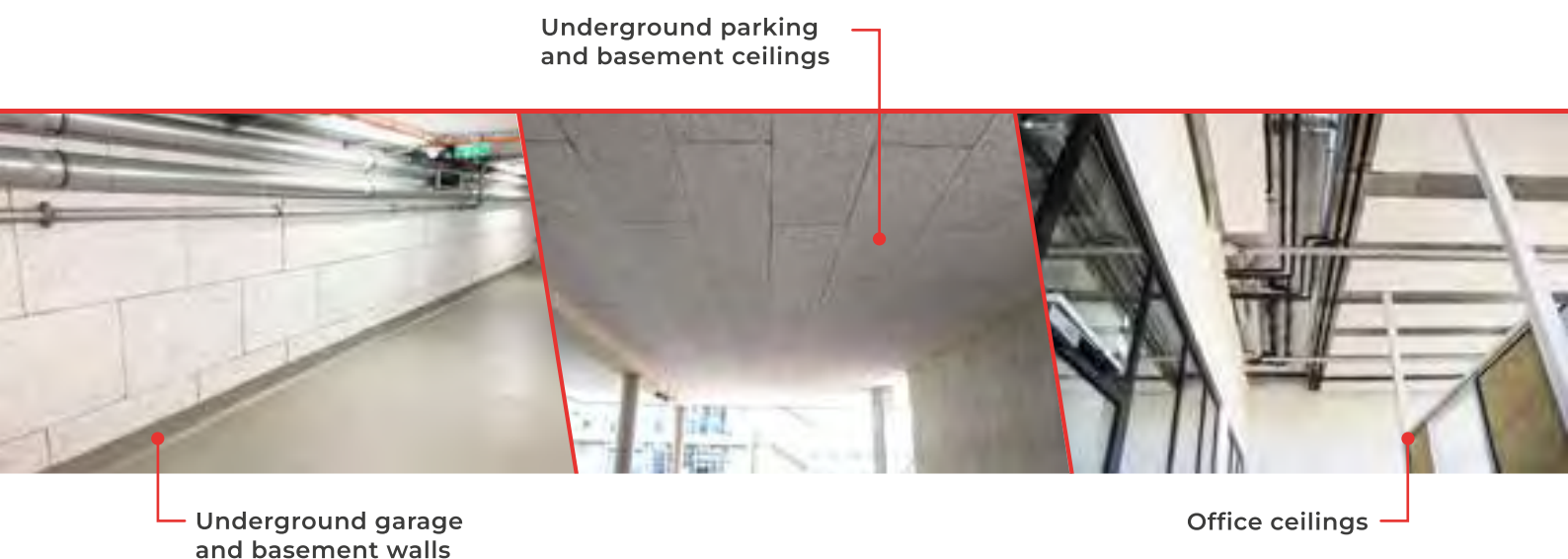
For example, to view the approvals in detail  
you only need one click. Feel free to try it out!

## 06 TOGE TIS

# HEADSHAPES AND MATERIALS

|                                                                                    |                                   | Steel<br>zinc-plated                                                              | Steel, zinc<br>flake-coated                                                         | Stainless steel<br>A4 |
|------------------------------------------------------------------------------------|-----------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-----------------------|
|   | <b>Cover cap</b><br>white         |  |  |                       |
|   | <b>Cover cap</b><br>BEIGE         |  |  |                       |
|   | <b>Cover cap</b><br>grey          |  |  |                       |
|  | <b>Additional disc</b><br>Ø 80 mm |  |                                                                                     |                       |

## Application examples



## 06 TOGE TIS

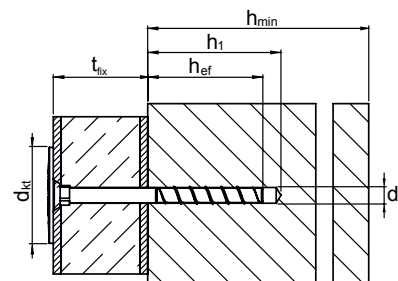
# STEEL – ZINC PLATED

Version with cover cap made of polyethylene Ø37 mm in white



**Size**  
6

**Head-Ø**  
37,0 mm



| Item nr.    | Designation   | Depth of drill hole<br>$h_{i,1} / h_{i,2}$ | Embedment depth<br>of anchor<br>$h_{nom,1} / h_{nom,2}$ | Max. thickness<br>of fixture<br>$t_{fix,1} / t_{fix,2}$ | 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          |

## 06 TOGE TIS

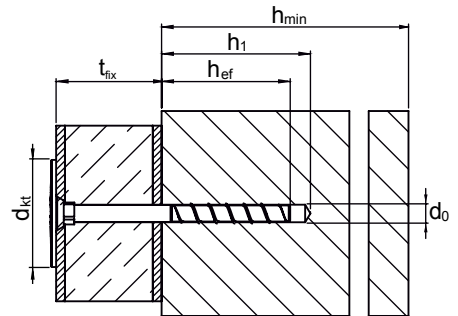
# STEEL – ZINC PLATED

Version with cover cap made of polyethylene Ø37 mm in beige



**Size**  
6

**Head-Ø**  
37,0 mm



| Item nr.    | Designation   | Depth of drill hole<br>$h_{1,1} / h_{1,2}$ | Embedment depth<br>of anchor<br>$h_{nom,1} / h_{nom,2}$ | Max. thickness<br>of fixture<br>$t_{fix,1} / t_{fix,2}$ | 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          |

## 06 TOGE TIS

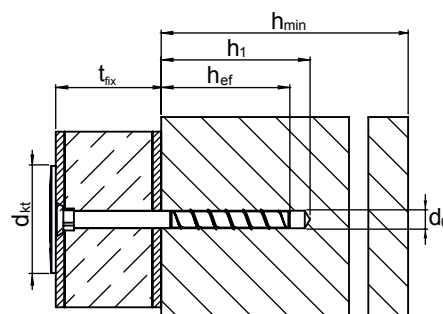
# STEEL – ZINC PLATED

Version with cover cap made of polyethylene Ø37 mm in grey



**Size**  
6

**Head-Ø**  
37,0 mm



| Item nr.    | Designation  | Depth of drill hole<br>$h_{t1} / h_{t2}$ | Embedment depth<br>of anchor<br>$h_{nom,1} / h_{nom,2}$ | Max. thickness<br>of fixture<br>$t_{fix,1} / t_{fix,2}$ | 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          |



## 06 TOGE TIS

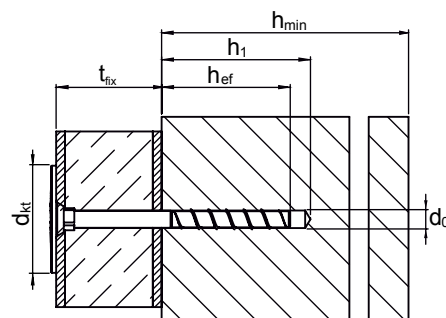
# TOGE-KORR: STEEL – ZINC-FLAKE COATED

Version with cover cap made of polyethylene Ø37 mm in white



**Size**  
6

**Head-Ø**  
37,0 mm



| Item nr.    | Designation        | Depth of drill hole<br>$h_{1,1} / h_{1,2}$ | Embedment depth<br>of anchor<br>$h_{nom,1} / h_{nom,2}$ | Max. thickness<br>of fixture<br>$t_{fix,1} / t_{fix,2}$ | 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          |

## 06 TOGE TIS

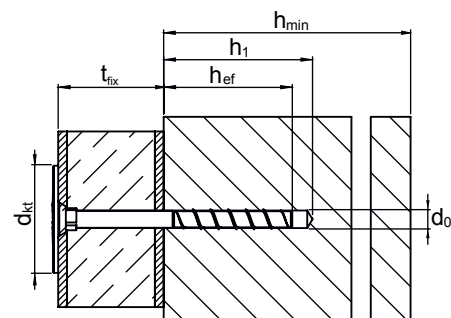
# TOGE-KORR: STEEL – ZINC-FLAKE COATED

Version with cover cap made of polyethylene Ø37 mm in beige



**Size**  
6

**Head-Ø**  
37,0 mm



| Item nr.    | Designation        | Depth of drill hole<br>$h_{1,1} / h_{1,2}$ | Embedment depth<br>of anchor<br>$h_{nom,1} / h_{nom,2}$ | Max. thickness<br>of fixture<br>$t_{fix,1} / t_{fix,2}$ | 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          |

## 06 TOGE TIS

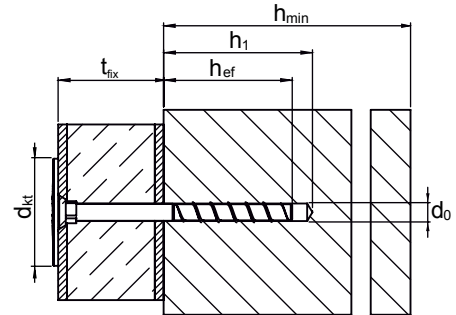
# TOGE-KORR: STEEL – ZINC-FLAKE COATED

Version with cover cap made of polyethylene Ø37 mm in grey



**Size**  
6

**Head-Ø**  
37,0 mm



| Item nr.    | Designation       | Depth of drill hole<br>$h_{1,1} / h_{1,2}$ | Embedment depth<br>of anchor<br>$h_{nom,1} / h_{nom,2}$ | Max. thickness<br>of fixture<br>$t_{fix,1} / t_{fix,2}$ | 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          |

## 06 TOGE TIS

# 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>f</sub> max | [mm] | 8                                |                    |
| Permissible tension load in cracked concrete <sup>2) 3)</sup>   | N <sub>zul</sub>   | [kN] | 0,4                              | 1,0                |
| Permissible shear load in cracked concrete <sup>2) 3)</sup>     | V <sub>zul</sub>   | [kN] | 1,4                              | 2,3                |
| Permissible tension load in uncracked concrete <sup>2) 3)</sup> | N <sub>zul</sub>   | [kN] | 1,0                              | 1,9                |
| Permissible shear load in uncracked concrete <sup>2) 3)</sup>   | V <sub>zul</sub>   | [kN] | 1,9                              | 3,3                |
| Permissible bending moment                                      | M <sub>zul</sub>   | [kN] | 6,3                              |                    |
| Minimum egde distance                                           | C <sub>min</sub>   | [mm] | 30                               |                    |
| Minimum spacing                                                 | S <sub>min</sub>   | [mm] | 30                               |                    |
| Minimum Basements thickness                                     | h <sub>min</sub>   | [mm] | 80                               |                    |

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>f</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 egde distance                                                | C <sub>min</sub>   | [mm] | 30                 |                    |
| Minimum spacing                                                      | S <sub>min</sub>   | [mm] | 30                 |                    |
| Minimum base material thickness                                      | 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 γ<sub>M</sub> = 1.5 as well a partial safety factor for load actions γ<sub>F</sub> = 1.4 were considered for determining the load.

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

<sup>4)</sup> The partial safety factor for load actions γ<sub>F</sub> = 1.35 was considered for determining the load.

## 06 TOGE TIS

# 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 <sub>zul,fi</sub> = N <sub>zul,fi</sub> = V <sub>zul,fi</sub> ) <sup>2) 3)</sup> |               |                         |      |                                  |                    |
| Fire resistance class                                                                                                         |               |                         |      |                                  |                    |
| R 30                                                                                                                          | Approved load | 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                              |                    |
| In wet concrete, the embedment 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 a partial safety factor for load actions  $\gamma_F = 1.0$  were considered for determining the load.

<sup>3)</sup> The specified values apply regardless of center and edge distances.

## 06 TOGE TIS

# TECHNICAL CHARACTERISTICS

### 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 <sub>zul,fi</sub> = N <sub>zul,fi</sub> = V <sub>zul,fi</sub> ) <sup>1) 2)</sup> |               |                         |      |                    |                    |
| Fire resistance class                                                                                                         |               |                         |      |                    |                    |
| R 30                                                                                                                          | Approved load | 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                |                    |

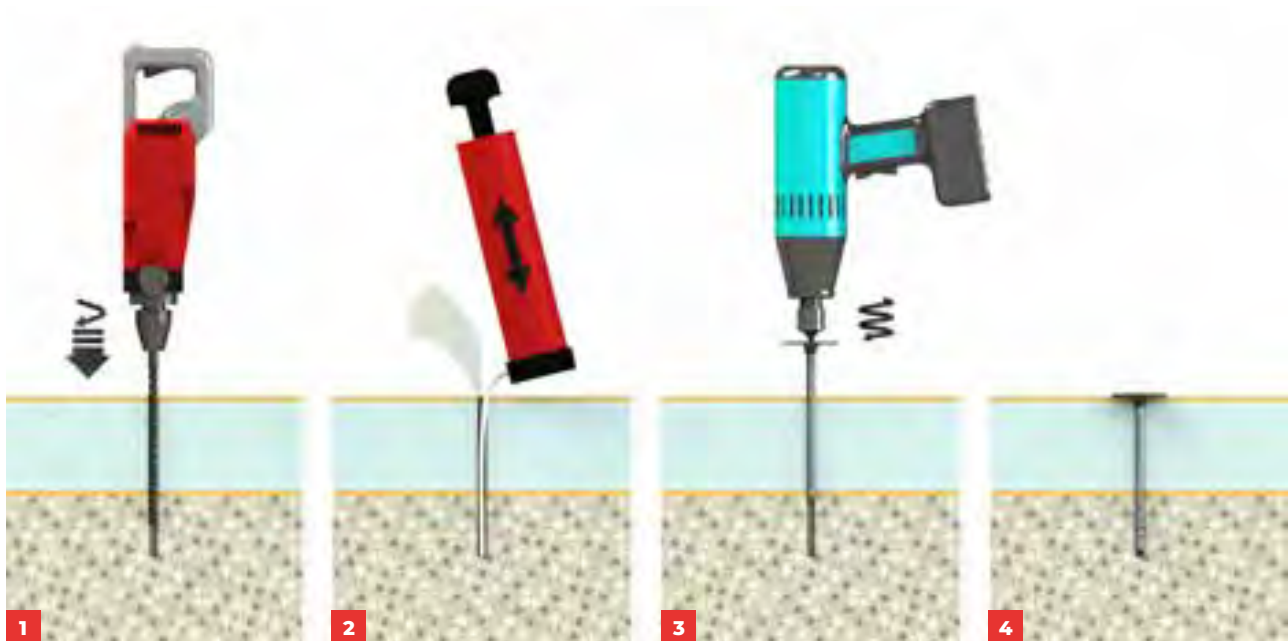
<sup>1)</sup> The partial safety factor for material resistance from the approval  $\gamma_M = 1.0$  as well a partial safety factor for load actions  $\gamma_F = 1.0$  were considered for determining the load.

<sup>2)</sup> The specified values apply regardless of center and edge distances.

## 06 TOGE TIS

# INSTALLATION INSTRUCTIONS

### Installation instructions



- 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**



Discover now!

# **FASTENING SOLUTIONS FOR STRUCTURAL ENGINEERING**

**Fastening of scaffolding  
and formwork in the  
renovation area**



**Bridge cap anchor DB Railway  
(new cap construction or  
existing caps)**



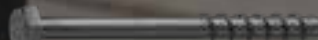
**Fastening of noise barriers  
DB Railway**



**Bridge cap anchor road  
bridges (new cap construction  
or existing caps)**



**Shear-Connector**



**Fastening railings  
and contact protection  
DB Railway**



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**07** 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.















**Scan the QR code and go  
directly to the product page**

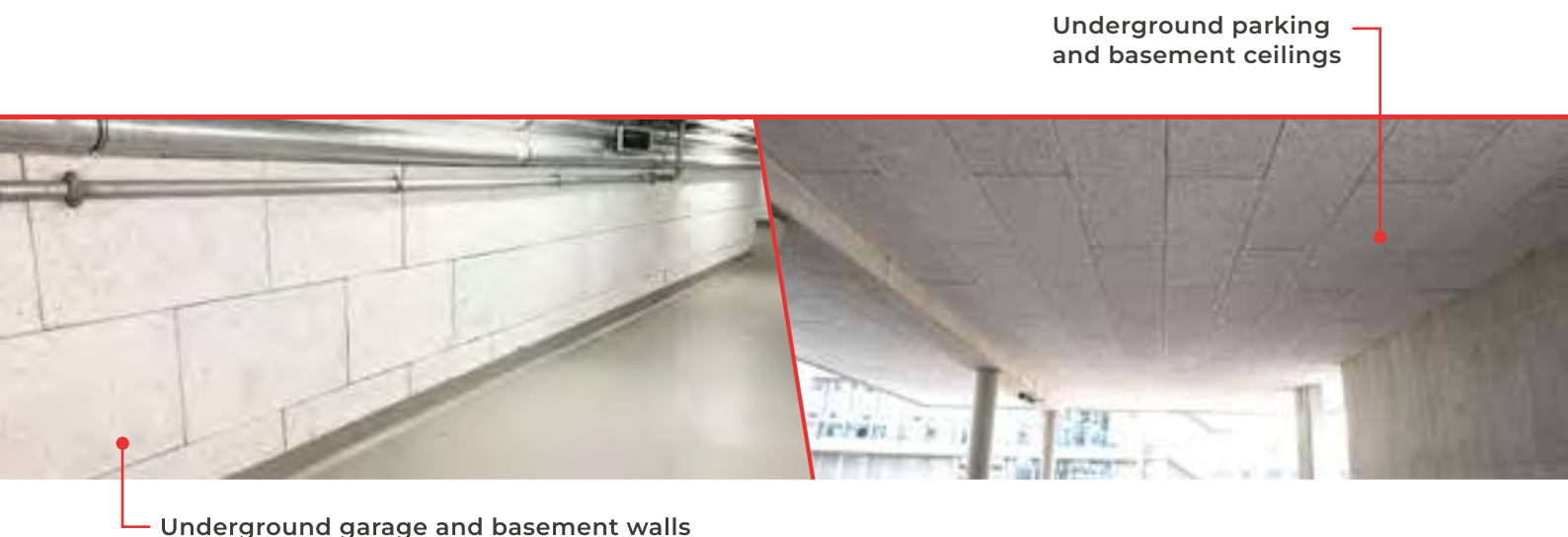
For example, to view the approvals in detail  
you only need one click. Feel free to try it out!

07 TOGE TID

# HEADSHAPES AND MATERIALS

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

## Application examples



## 07 TOGE TID

# STEEL – ZINC PLATED

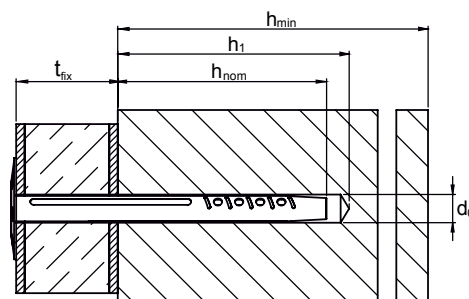
Version without cover cap

Head Ø35 mm



**Size**  
8

**Head-Ø**  
35,0 mm



| Item nr.    | Designation | Depth of drill hole<br>$h_0$ | Embedment depth<br>of anchor<br>$h_{nom}$ | Max. thickness<br>of fixture<br>$t_{fix}$ | 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

## 07 TOGE TID

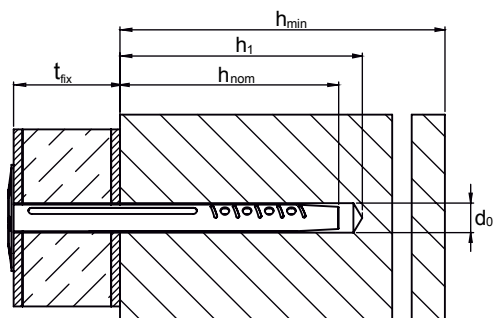
# STEEL – ZINC PLATED

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



**Size**  
8

**Head-Ø**  
54,0 mm



| Item nr.    | Designation | Depth of drill hole<br>$h_o$ | Embedment depth<br>of anchor<br>$h_{nom}$ | Max. thickness<br>of fixture<br>$t_{fix}$ | 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          |

## 07 TOGE TID

# STAINLESS STEEL – A2

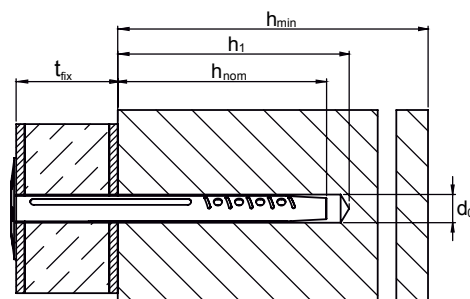
Version without cover cap

Head Ø35 mm



**Size**  
8

**Head-Ø**  
35,0 mm



| Item nr.    | Designation | Depth of drill hole<br>$h_0$ | Embedment depth<br>of anchor<br>$h_{nom}$ | Max. thickness<br>of fixture<br>$t_{fix}$ | 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          |
| 031 063 120 | 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



## 07 TOGE TID

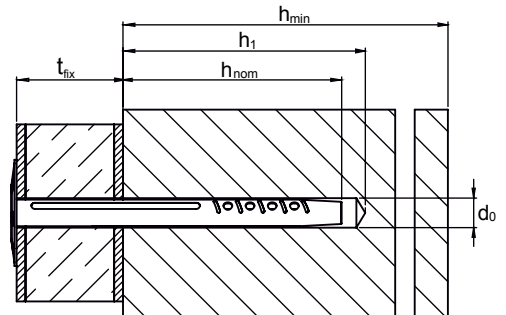
# STAINLESS STEEL – A2

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



**Size**  
8

**Head-Ø**  
54,0 mm



| Item nr.    | Designation | Depth of drill hole<br>$h_o$ | Embedment depth<br>of anchor<br>$h_{nom}$ | Max. thickness<br>of fixture<br>$t_{fix}$ | 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



TIDR T

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

## 07 TOGE TID

# TECHNICAL CHARACTERISTICS

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

| Insulating anchor TID                                           |                |      |      |
|-----------------------------------------------------------------|----------------|------|------|
| Nominal diameter of drill bit                                   | $d_o$          | [mm] | 8    |
| Depth of drill hole                                             | $h_o \geq$     | [mm] | 45   |
| Embedment depth of anchor                                       | $h_{nom} \geq$ | [mm] | 40   |
| Approved load in cracked and non-cracked concrete <sup>1)</sup> | $N_{zul}$      | [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 ( $F_{zul,fi} = N_{zul,fi} = V_{zul,fi}$ ) <sup>2)</sup> |               |                   |      |      |
| Fire resistance class                                                                              |               |                   |      |      |
| R 30                                                                                               | Approved load | $F_{zul,fi\ 30}$  | [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  |

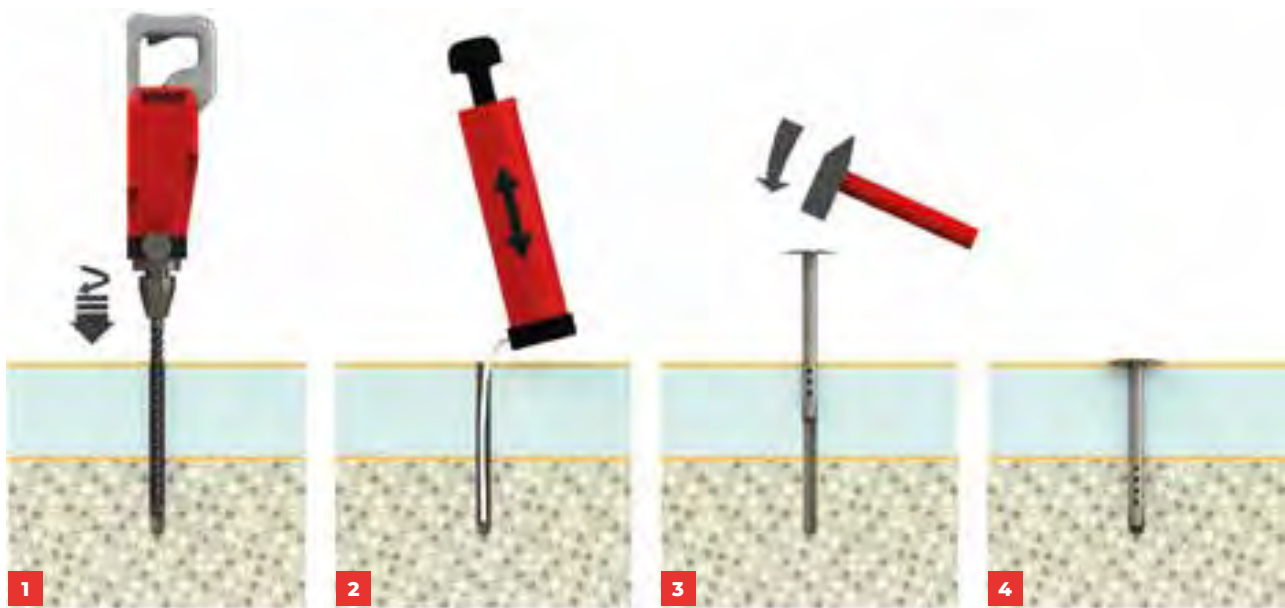
<sup>1)</sup> The partial safety factor for material resistance from the approval  $\gamma_M = 1.5$  as well a partial safety factor for load actions  $\gamma_F = 1.4$  were considered for determining the load.

<sup>2)</sup> 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.

## 07 TOGE TID

# INSTALLATION INSTRUCTIONS

### Installation instructions



- 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

Our fastening solutions

# **MADE IN GERMANY: COMPLETELY DESIGNED AND MANUFACTURED IN GERMANY**

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**LEADING IN THE  
DEVELOPMENT  
OF CONCRETE  
SCREWS**



**UNIQUE  
PRODUCT RANGE  
OF CONCRETE  
SCREWS**



**60 YEARS  
OF EXPERIENCE  
AS FASTENING  
EXPERTS**



**OUR  
QUALITY:  
MADE IN  
GERMANY**

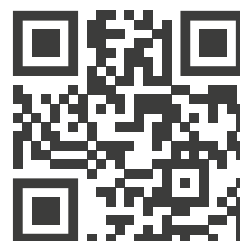
## German precision and variety

---

We have been a leader in the development of concrete screws for over 30 years and are one of the pioneers in this field. As a specialised manufacturer, we offer a unique product range with over 600 different concrete screws. With 60 years of experience as fastening experts, we stand for experience, innovative spirit and reliability since 1964. Our quality is "Made in Germany": All our products are in-house developments and are largely produced at our site in Nuremberg.

## TO WEBSITE

---



**toge.de/en/**

08 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!

08 TOGE TSM A

# HEADSHAPES AND MATERIALS

Steel  
zinc-plated

Steel,  
anti-corrosion  
coated

Stainless steel  
A4



**TSM A**



\*



**Composite mortar  
and accessories**

\* according to corrosivity  
category C5-I agent with  
premium coating  
**TOGE KORR**

## Application examples

Fastening of  
e-charging points

Fastening passive restraint  
systems and traffic signs



Fastening of impact  
protection systems

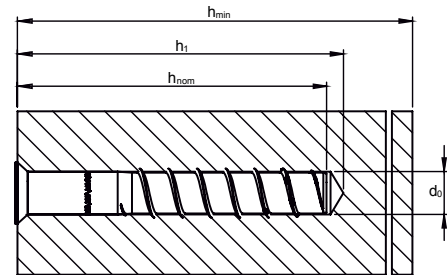
Fastening of enclosures  
for shopping trolleys

Fastening of  
speed bumps

## 08 TOGE TSM A

# STEEL – ANTI-CORROSION COATED

Version with female thread  
IM 10 or IM 16



| Item nr.    | Designation                      | Bore Ø | Depth of drill hole<br>$h_o$ | Embedment depth of anchor<br>$h_{nom}$ | 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 | Reduzierstück M16/M12            |        |                              |                                        | 25           |
| 500 000 015 | Reduzierstück M16/M10            |        |                              |                                        | 25           |
| 500 000 002 | Einschraubwerkzeug SW12          |        |                              |                                        | 1            |

# COMPOSITE MORTAR ATA 2004C

Chemical special mortar  
Pure epoxy, suitable for asphalt screws



| Item nr.    | Designation                            | Packing Unit |
|-------------|----------------------------------------|--------------|
| 222 222 019 | Cartridge for 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            |

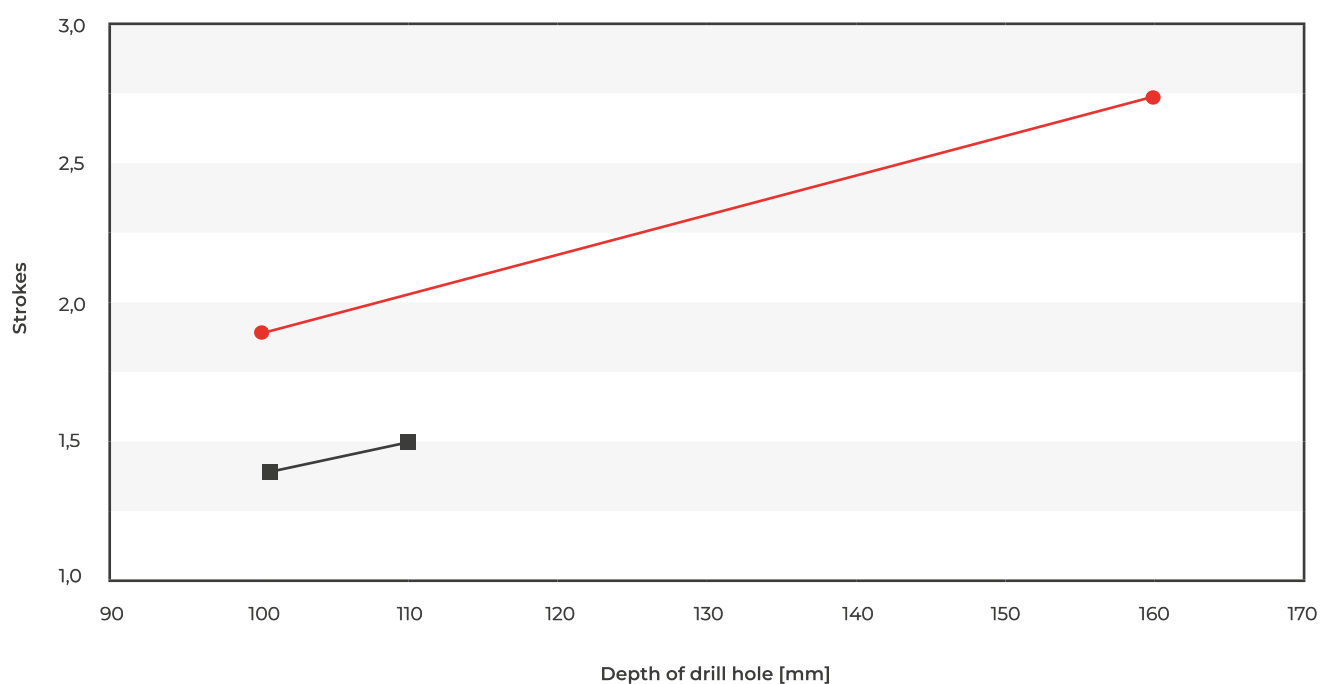
## 08 TOGE TSM A

# COMPOSITE MORTAR ATA 2004C

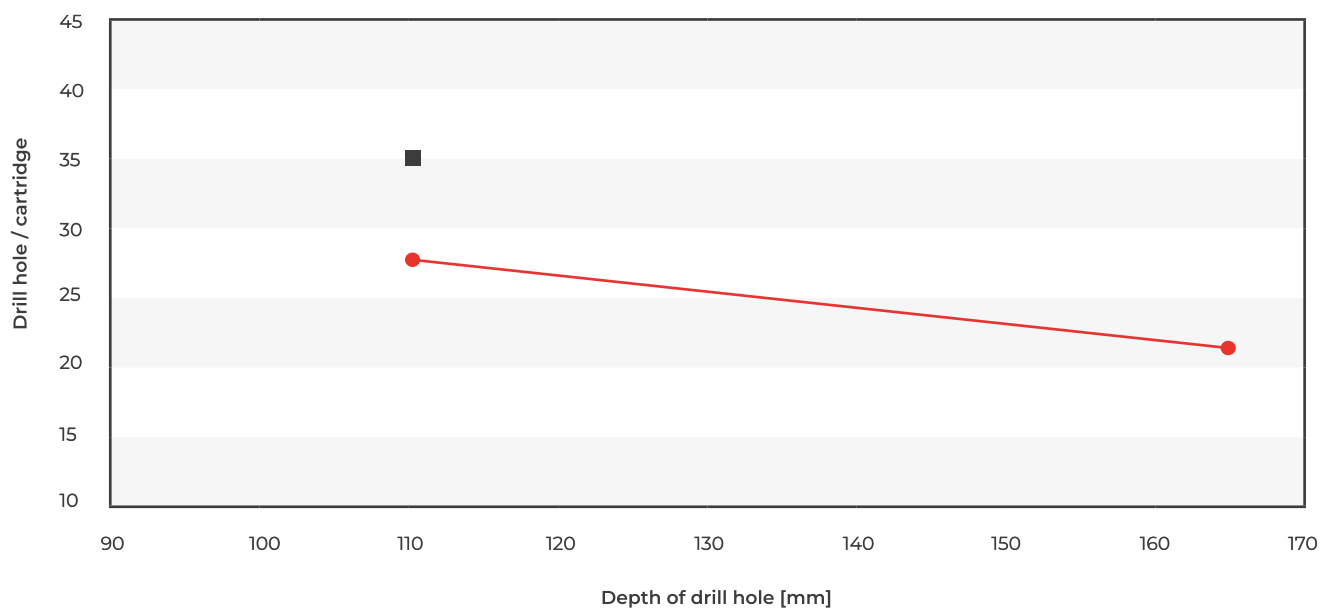
Strokes ATA 2004C/  
Depth of drill hole and Ø

● Ø 22

■ Ø 16



Cartridge coverage  
ATA 2004C





## 08 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 <sub>0</sub>     | [mm] | 16        | 22        | 22        |
| Depth of drill hole           | h <sub>i</sub> min | [mm] | 110       | 110       | 165       |
| Minimum thickness of member   | h <sub>min</sub> ≥ | [mm] | 150       | 150       | 200       |
| Nominal embedment depth       | h <sub>nom</sub>   | [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       |                    |      | 35        | 27        | 21        |
| Maximum shock load            | F                  | [kN] | 40        | 50        | 80        |

## 08 TOGE TSM A

# INSTALLATION INSTRUCTIONS

## Installation instructions



- 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.

## 08 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.

## 08 TOGE TSM A

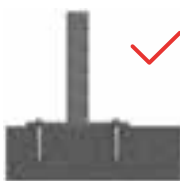
# INSTALLATION INSTRUCTIONS

## Operating principle of anchoring



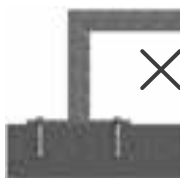
### 5. Large surface

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**

**09 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.






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

09 TOGE TSM Adhesive screw anchor

# HEADSHAPES AND MATERIALS

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

## Application examples

Fastening heavy duty shelving



Fastening railings

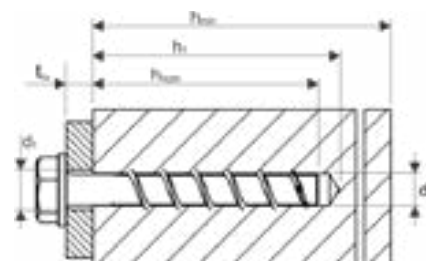
## 09 TOGE TSM Adhesive screw anchor

# 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  |



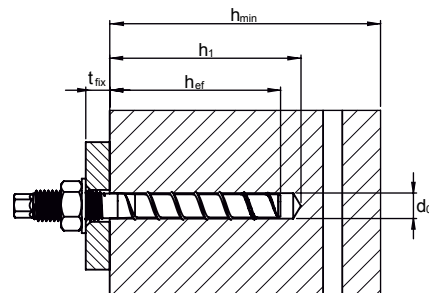
| Item nr.    | Designation     | Depth of drill hole<br>$h_0$ | Embedment depth<br>of anchor<br>$h_{nom}$ | Max. thickness<br>of fixture<br>$t_{fix}$ | Packing Unit |
|-------------|-----------------|------------------------------|-------------------------------------------|-------------------------------------------|--------------|
| 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           |



09 TOGE TSM Adhesive screw anchor

# STEEL – ZINC PLATED

Version with metric connection  
thread M12



| Item nr.    | Designation           | Depth of drill hole<br>$h_o$ | Embedment depth of anchor<br>$h_{ef}$ | Max. thickness of fixture<br>$t_{fix}$ | Packing Unit |
|-------------|-----------------------|------------------------------|---------------------------------------|----------------------------------------|--------------|
| 366 010 120 | TSM 10x120 M12x20 SW9 | $\geq 80$ mm                 | $\geq 80$ 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

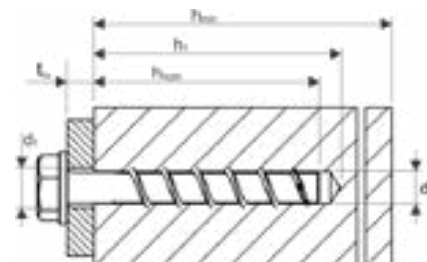
## 09 TOGE TSM Adhesive screw anchor

# STEEL – ZINC FLAKE-COATED

Version with hexagon head  
and pressed on washer



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

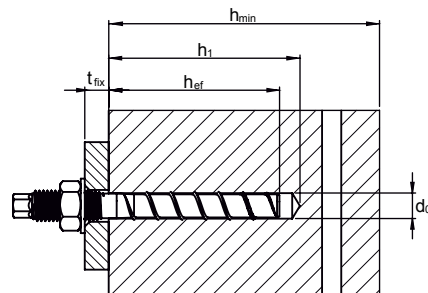


| Item nr.    | Designation         | Depth of drill hole<br>$h_o$ | Embedment depth of anchor<br>$h_{nom}$ | Max. thickness of fixture<br>$t_{fix}$ | Packing Unit |
|-------------|---------------------|------------------------------|----------------------------------------|----------------------------------------|--------------|
| 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           |

## 09 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 | $\geq 80$ mm              | $\geq 80$ mm                        | 5 - 34 mm                           | 50           |
| 866 010 160 | TSM 10x160 M12x55 SW9 A4 | $\geq 80$ mm              | $\geq 80$ 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            |

## 09 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 |

## 09 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     |            |
|----------------------------------------------------------------|------------|----------|------------|------------|------------|------------|------------|------------|------------|------------|
| 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        |
| 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 <sup>1) 2)</sup>     | $N_{zul}$  | [kN]     | 14,0       | 18,9       | 18,9       | 18,9       | 24,3       | 28,7       | 24,3       | 30,1       |
| Approved shear load in cracked concrete <sup>1) 2)</sup>       | $V_{zul}$  | [kN]     | 19,4       | 19,4       | 19,4       | 24,0       | 24,0       | 24,0       | 32,0       | 32,0       |
| Approved tension load in non-cracked concrete <sup>1) 2)</sup> | $N_{zul}$  | [kN]     | 18,9       | 18,9       | 18,9       | 27,0       | 28,7       | 28,7       | 32,1       | 32,1       |
| Approved shear load in non-cracked concrete <sup>1) 2)</sup>   | $V_{zul}$  | [kN]     | 19,4       | 19,4       | 19,4       | 24,0       | 24,0       | 24,0       | 32,0       | 32,0       |
| Permissible bending moment                                     | $M_{zul}$  | [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 Basements 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        |            |

<sup>1)</sup> For the determination of the allowable load, the partial safety factor from the approval  $\gamma_M = 1.4$  was taken into account for material resistance and a partial safety factor  $\gamma_F = 1.4$  for load actions.

<sup>2)</sup> These values apply without the influence of the spacing and edge distances.

## 09 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 <sub>ef</sub> [mm]    | h <sub>ef,1</sub>            | h <sub>ef,2</sub> | h <sub>ef,3</sub> | h <sub>ef,1</sub> | h <sub>ef,2</sub> | h <sub>ef,3</sub> | h <sub>ef,1</sub> | h <sub>ef,2</sub> |  |
|                                                                                                                               |                         | 90                           | 120               | 280               | 110               | 130               | 150               | 130               | 150               |  |
| Permissible load under tensile and shear use (F <sub>zul</sub> = N <sub>zul,fi</sub> = V <sub>zul,fi</sub> ) <sup>1) 2)</sup> |                         |                              |                   |                   |                   |                   |                   |                   |                   |  |
| Fire resistance class                                                                                                         |                         |                              |                   |                   |                   |                   |                   |                   |                   |  |
| R30                                                                                                                           | Approved load           | F <sub>zul, fi30</sub> [kN]  | 4,4               |                   |                   | 6,2               |                   |                   | 7,6               |  |
| R60                                                                                                                           |                         | F <sub>zul, fi60</sub> [kN]  | 3,3               |                   |                   | 5,8               |                   |                   | 7,6               |  |
| R90                                                                                                                           |                         | F <sub>zul, fi90</sub> [kN]  | 2,3               |                   |                   | 4,2               |                   |                   | 5,9               |  |
| R120                                                                                                                          |                         | F <sub>zul, fi120</sub> [kN] | 1,7               |                   |                   | 3,4               |                   |                   | 4,8               |  |
| R30                                                                                                                           |                         | M <sub>zul, fi30</sub> [kN]  | 5,9               |                   |                   | 12,3              |                   |                   | 20,4              |  |
| R60                                                                                                                           |                         | M <sub>zul, fi60</sub> [kN]  | 4,5               |                   |                   | 9,7               |                   |                   | 15,9              |  |
| R90                                                                                                                           |                         | M <sub>zul, fi90</sub> [kN]  | 3,0               |                   |                   | 7,0               |                   |                   | 11,6              |  |
| R120                                                                                                                          |                         | M <sub>zul, fi120</sub> [kN] | 2,3               |                   |                   | 5,7               |                   |                   | 9,4               |  |
| Edge distance                                                                                                                 |                         |                              |                   |                   |                   |                   |                   |                   |                   |  |
| R30 to R120                                                                                                                   | 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                                                                                                                       |                         |                              |                   |                   |                   |                   |                   |                   |                   |  |
| R30 to R120                                                                                                                   | S <sub>cr,fi</sub> [mm] | 4 x h <sub>ef</sub>          |                   |                   |                   |                   |                   |                   |                   |  |
| Concrete pry-out failure                                                                                                      |                         |                              |                   |                   |                   |                   |                   |                   |                   |  |
| R30 to R120                                                                                                                   | k [-]                   | 2,0                          |                   |                   |                   |                   |                   |                   |                   |  |
| In wet concrete the embedment depth must be increased by at least 30 mm.                                                      |                         |                              |                   |                   |                   |                   |                   |                   |                   |  |

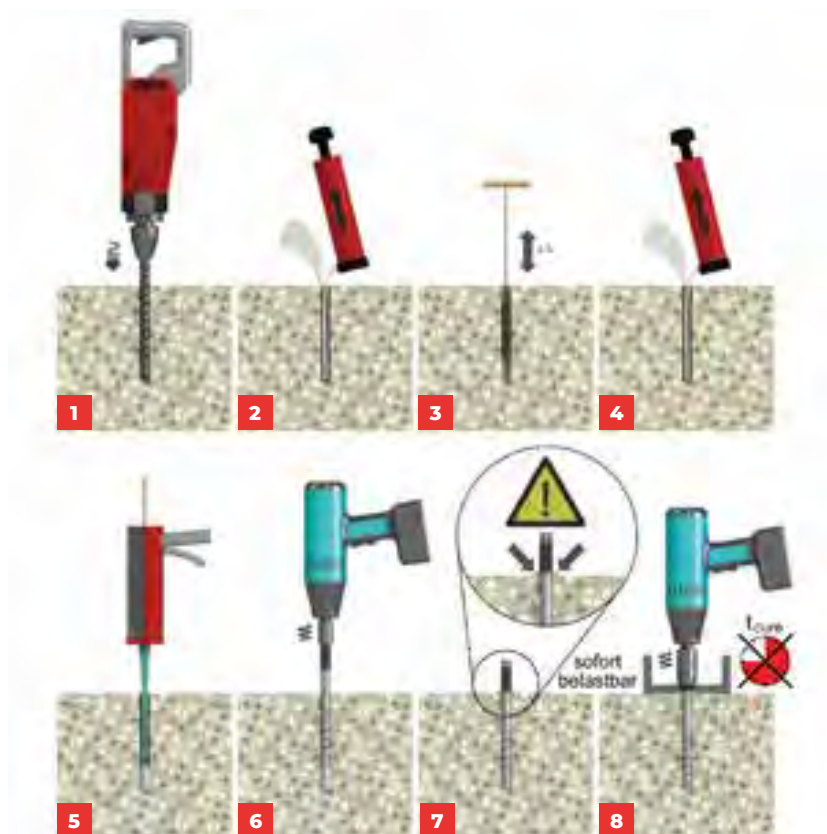
<sup>1)</sup> For the determination of the allowable load, the partial safety factor from the approval  $\gamma_M = 1.0$  was taken into account for material resistance and a partial safety factor  $\gamma_F = 1.0$  for load actions.

<sup>2)</sup> These values apply without the influence of the spacing and edge distances.

## 09 TOGE TSM Adhesive screw anchor

# INSTALLATION INSTRUCTIONS

### Installation instructions



- 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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10 TOGE TSM B

# TOGE TSM B

Adhesive screw anchor  
for fastening crash barriers

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## 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

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- ✓ 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**

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

## 10 TOGE TSM B

# HEADSHAPES AND MATERIALS

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

\* with high quality coating  
**TOGE KORR**

## Application examples



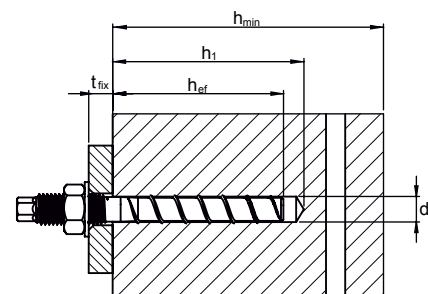
Fastening of crash barrier systems

## 10 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 | Scheibe TSM B 50x18x4, feuerverzinkt |        |                           |                                     |                                     | 100          |
| 202 014 161 | Mutter M16, feuerverzinkt            |        |                           |                                     |                                     | 50           |
| 202 016 181 | Mutter M18, feuerverzinkt            |        |                           |                                     |                                     | 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            |

## 10 TOGE TSM B

# COMPOSITE MORTAR CF-T 300V

Processing instructions  
composite mortar

| Temp.<br>in ground | Processing time | Min. curing time in dry<br>borehole | Min. curing time in wet<br>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<br>[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 |

## 10 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   |            |            |
|----------------------------------------------------------------|------------|----------|------------|------------|------------|------------|------------|------------|
| Nominal 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                                  | $d_0$      | [mm]     | 12         |            |            | 14         |            |            |
| Depth of drill hole                                            | $h_0$      | 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 <sup>1) 2)</sup>     | $N_{zul}$  | [kN]     | 16,4       | 19,0       | 22,9       | 18,9       | 24,3       | 33,2       |
| Approved shear load in cracked concrete <sup>1) 2)</sup>       | $V_{zul}$  | [kN]     | 16,4       | 19,0       | 22,9       | 18,9       | 24,3       | 33,2       |
| Approved tension load in non-cracked concrete <sup>1) 2)</sup> | $N_{zul}$  | [kN]     | 23,4       | 27,0       | 32,1       | 27,0       | 34,7       | 39,2       |
| Approved shear load in non-cracked concrete <sup>1) 2)</sup>   | $V_{zul}$  | [kN]     | 23,4       | 27,0       | 32,7       | 27,0       | 34,7       | 47,4       |
| Permissible bending moment                                     | $M_{zul}$  | [kN]     | 114,3      |            |            | 141,1      |            |            |
| Minimum edge distance                                          | $c_{min}$  | [mm]     | 60         |            |            | 70         |            |            |
| Minimum spacing                                                | $s_{min}$  | [mm]     | 60         |            |            | 70         |            |            |
| Minimum Basements 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        |            |            |

<sup>1)</sup> 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.

<sup>2)</sup> These values apply without influence of the spacing and edge distances.

## 10 TOGE TSM B

# 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 ( $F_{zul} = N_{zul,fl} = V_{zul,fl}$ ) <sup>1) 2)</sup> |               |                       |                   |            |            |            |            |            |
| Fire resistance class                                                                              |               |                       |                   |            |            |            |            |            |
| R30                                                                                                | Approved load | $F_{zul, fl30}$ [kN]  | 9,8               |            |            | 13,9       |            |            |
| R60                                                                                                |               | $F_{zul, fl60}$ [kN]  | 8,1               |            |            | 11,0       |            |            |
| R90                                                                                                |               | $F_{zul, fl90}$ [kN]  | 5,9               |            |            | 8,0        |            |            |
| R120                                                                                               |               | $F_{zul, fl120}$ [kN] | 4,8               |            |            | 6,5        |            |            |
| R30                                                                                                |               | $M_{zul, fl30}$ [kN]  | 18,8              |            |            | 30,9       |            |            |
| R60                                                                                                |               | $M_{zul, fl60}$ [kN]  | 15,6              |            |            | 24,4       |            |            |
| R90                                                                                                |               | $M_{zul, fl90}$ [kN]  | 11,3              |            |            | 17,8       |            |            |
| R120                                                                                               |               | $M_{zul, fl120}$ [kN] | 9,2               |            |            | 14,4       |            |            |
| Edge distance                                                                                      |               |                       |                   |            |            |            |            |            |
| R30 bis R120                                                                                       |               | $C_{cr,fl}$ [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                                                                                       |               | $S_{cr,fl}$ [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.                                  |               |                       |                   |            |            |            |            |            |

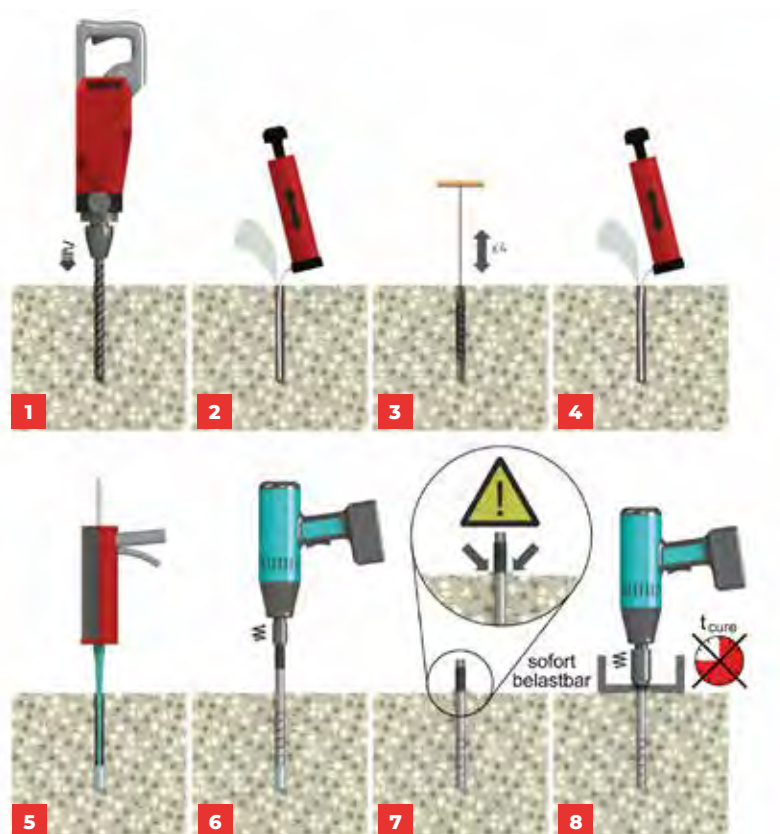
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# INSTALLATION INSTRUCTIONS

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