

# 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 penetra-  
tion and frost damage in winter.



### Flush with surface

Surface flush installation, also suitable for tem-  
porary installation.

## Approval

### Base Materials

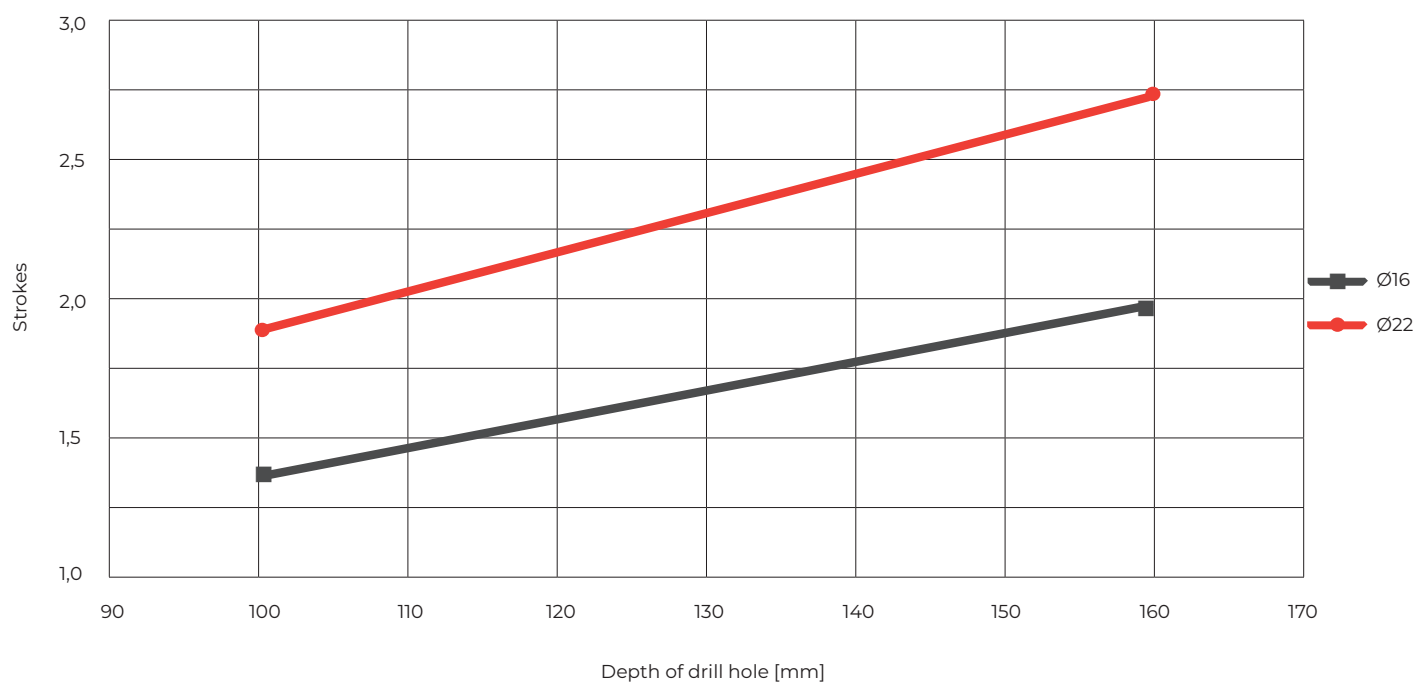
Application in all common asphalt types.



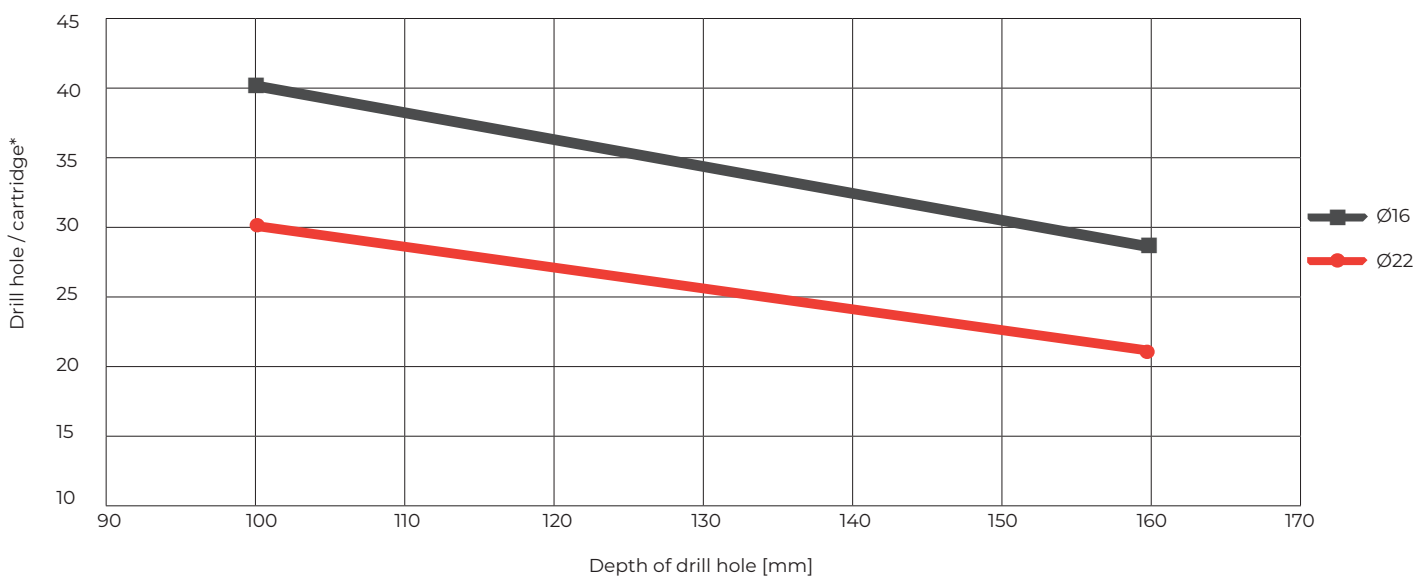
## Processing instructions composite mortar

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
40° C	8 min	4 h

### Strokes ATA 2004C / Depth of drill hole and Ø



### Cartridge coverage ATA 2004C



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

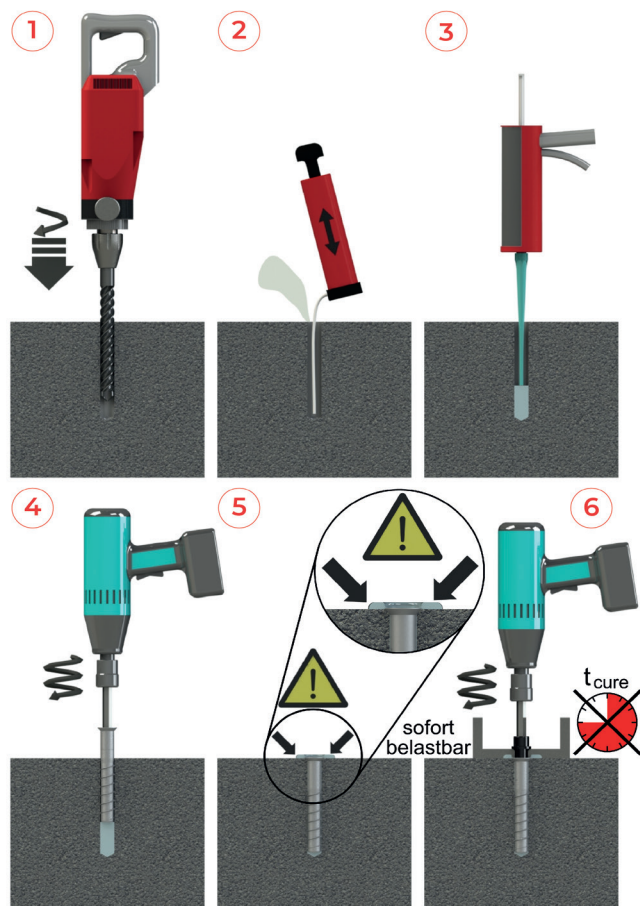
## Without fire exposure, steel

Screw size TSM A			16 x 100	22 x 100	22 x 155
Drill bit diameter	$d_b$	[mm]	16	22	22
Depth of drill hole	$h_{\min}$	[mm]	110	110	165
Minimum thickness of member	$h_{\min} \geq$	[mm]	150	150	200
Embedment depth of anchor	$h_{\text{nom}}$	[mm]	100	100	155
Fastening screw used			M 10 x 30	M 16 x 40	M 16 x 40
Strokes ATA 2004			1 bis 2	1 bis 2	2 bis 3
Cartridge is sufficient			21	15	10
Maximum shock load	F	[kN]	40	50	80

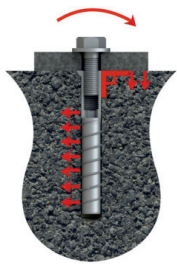
## Installation Instructions

### Installation

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



## Operating principle of anchoring



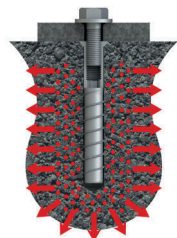
### 1. The 90°-Principle

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.



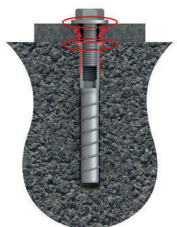
### 2. The Undercut

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.



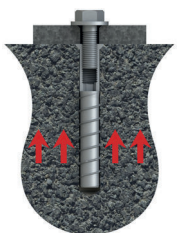
### 3. The chemical mortar

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.



### 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.

