

# Solvere Recommendations

## For use of TOGE Female TSM A 100 x 16, I.M. 10mm Ø Self-tapping Anchor for Asphalt and/or Concrete



German Engineering & Classic Design gives superior performance and fast installation in virtually all ground conditions.

There is no waiting or curing time necessary with this Fixing Product.

Once installed, the Traffic Safety product can be attached immediately at full torque to these fixings.

Small drill dimensions mean less drilling time, with large pull-out resistance.

The following are some useful installation tips and information:

1. Poor Quality Asphalt:

The Toge Fixing TSM A 16x100, I.M.10 works well in porous and older asphalt. The resin has the consistency of honey. It penetrates all air spaces and bonds the steel to the stone and bitumen of the asphalt. Extra resin is used in such porous asphalt, but the overall effect is a more powerful attachment.

2. Asphalt layer over Concrete:

This Toge fixing works successfully where a thin asphalt layer sits over concrete. The Fixing will successfully bond to both asphalt and concrete.

3. Thin Asphalt layer, e.g. Car Park standard of 75mm:

The Toge fixing also works effectively where the layer of asphalt is thin, say 55-100mm, and the fixing penetrates through to good base course material(s) underneath. In this case, you will use up to three times the standard amount of resin, but there will be effective anchoring of the fixing.

4. Same Fixing for Concrete:

This Toge fixing works effectively, quickly and easily in concrete as a retrofit to a finished concrete surface.

## 5. Testing & Accreditation

- a) The Toge fixing has been installed in Asphalt and successfully tested at the M.I.R.A. facility for use with the Pudsey Diamond retroreflective self righting bollard (Visaboll) under B.S. EN 12767:2000 in a 100kph impact.
- b) The same fixing in solid (male) configuration has achieved a European Technical Approval for use in concrete. Test results from the “Deutsches Institute fur BauTechnik” are available on the link [Technical Approval Z.21.1-1709] from the web-site [www.toge-road.de](http://www.toge-road.de). Some information is presented in German on this website. English translations of key elements, along with other items of information, are available from [info@solvere.ie](mailto:info@solvere.ie).

## Key Site Requirements

1. Identify & Locate exact position for unit
2. Ensure Site Safety (including underground services check) and appropriate Traffic Management
3. Identify the construction elements in the fixing zone; asphalt; asphalt over concrete; concrete unreinforced; reinforced concrete; Thin Layer (50-100mm) Asphalt; Other.
4.
  - i. Asphalt > 100-120mm Depth: Drill a 16mm Ø hole to a depth of just over 100mm. Use a plastic or wooden template to hold the pattern of holes at appropriate orientation and spacing. Use a 2-bit, not a cruciform 4-bit, tool for drilling asphalt. Using compressed air or vacuum, clean the hole of all loose material and water. Insert a standard single squeeze of recommended asphalt resin. Slowly insert the self-threaded fixing which exerts hydraulic pressure on the resin to occupy all vacant air-pockets and spaces. Ensure a bead of resin extrudes out under the collar when doing the final half turn. If no resin is visible, immediately unscrew the fixing out of the

- hole (turn anti-clockwise) add further resin and repeat the tightening/fixing process.
- ii. Exactly similar procedure to 4(i) above for Asphalt over concrete
  - iii. Unreinforced concrete. Similar process to 4(i) and 4(ii) above. Recommend a change of resin to bond more particularly with concrete – Chemofast. Also, to verify before installation the integrity of the concrete as this will determine the performance of the fixing and hence the product.
  - iv. Reinforced Concrete. Similar to 4(iii) above, but may require diamond tipped core-drilling equipment to cut the steel. Toge self tapping fixings have been demonstrated to perform better in pull-out resistance/tension when the drill holes have been core-drilled as distinct from being formed using a standard impact drill. This is due to the greater integrity of the side walls of the drill hole.
  - v. Thin layer Asphalt should be evaluated prior to fixing. Where appropriate, standard drilling through the surface asphalt layer into the compacted base construction material underneath is followed by cleaning, insertion of larger volumes of resin and then fixing the TOGE anchor in position, remembering that the resin must extrude visibly on the final tightening of the screw.
  - vi. OTHER: Paved Surface Areas are not suitable for this product, as a general rule, without previous site preparation, e.g. concrete pad.

This process is NOT Appropriate in the following circumstances:

- a) If organic or very fine, non-structural, inorganic material such as running sand is visible in the drilling depth.
- b) If the base material is of large dimensions resulting in the use/loss of large volumes of resin when installing the fixings due to large air pockets.
- c) If the drilling depth shows no problems, but a surface inspection shows visibly poor formation and/or foundations, demonstrated by significant cracking, undulations, presence of moss or lichens, unstable weight-carrying capability, etc.

For further information, please contact [info@solvere.ie](mailto:info@solvere.ie) or  
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