fischer epoxy mortar
FIS EM Plus

The powerful mortar for injection rebar connection and cracked concrete

NEW

Optimized formulation for even more power in concrete.
Assessment for seismic applications.
An epoxy based mortar

The epoxy resin based injection mortar has an extremely high bonding strength and excellent adhesive properties.

- For top performance, even at shallow embedment depth for cost-effective fixing with maximum safety.
- Suitable for hammer, pneumatic and diamond-drilled holes for maximum flexibility on the construction site.
- Can also be used underwater for an optimal solution.

**Static mixer**

Exteded static mixer for safe mixture of the mortar and simple filling of the hole, improving efficiency.

### ADVANTAGES

- High bond strengths and minor mortar shrinkage allow maximum load application in cracked and no-cracked concrete, even with large threaded rod diameters
- Variable anchorage depths from 4x to 20x the threaded rod diameter allow for ideal adaptation to the load to be applied, and ensure an optimised installation time and use of materials.
- FIS EM Plus is also approved for diamond-drilled and water-filled drill holes, thus ensuring more flexibility on the construction site.
- The wide range of approved steel types allows for use in all corrosion resistance classes and offers the best possible application safety.

### FUNCTIONING

- The injection system, comprising the epoxy resin mortar FIS EM Plus combined with the FIS A threaded rod, is suitable for pre-positioned and push-through installation.
- Resin and harder are stored in two separate chambers and are not mixed and activated until extrusion through the injection capsule in the static mixer.
- The mortar is injected bubble-free from the drill hole base.
- The mortar bonds the entire surface of the anchor rod with the drill hole wall and seals of the drill hole.
- The anchor rod is set manually by lightly rotating it until it reaches the drill hole base.
- During push-through installation, the annular gap between the anchor rod and attachment is filled with FIS EM Plus.

### BUILDING MATERIALS

- Approved for anchorings in:
  - Concrete C20/25 to C50/60, cracked and non-cracked
  - Natural stone with dense structure

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**Processing and curing times**

<table>
<thead>
<tr>
<th>System temperature (°C)</th>
<th>-5/+1</th>
<th>0/+6</th>
<th>+5/+8</th>
<th>+10/+19</th>
<th>+20/+29</th>
<th>+30/+40</th>
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</thead>
<tbody>
<tr>
<td>Maximum processing time (minutes)</td>
<td>180</td>
<td>150</td>
<td>120</td>
<td>30</td>
<td>14</td>
<td>7</td>
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<tr>
<td>Minimum curing time 1) (hours)</td>
<td>200</td>
<td>90</td>
<td>40</td>
<td>18</td>
<td>10</td>
<td>5</td>
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1) In damp concrete and water-filled drill holes, the curing time is to be doubled.
2) Not covered by ETA
The powerful injection mortar for rebar connection and cracked concrete
Compatible anchor and connector

**Your advantages at a glance**

- The optimised formulation of the epoxy mortar FIS EM Plus leads to improved load values in cracked and non-cracked concrete
- The mortar can be used for rebar connections from diameter 8 to 40 mm
- With the threaded rod FIS A the loads to be introduced can be designed variably by selecting the anchorage depth.
- Temporary and detachable fixing points are possible with the internal threaded anchor RG MI
- FIS EM Plus is to be processed for use on site even at low temperatures down to 0°C (outside of the evaluation even down to -5°C)
- The mortar is approved for diamond-drilled and water-filled drill holes as well as seismic applications in performance categories C1, C2 and thus offer safety under extreme conditions.
### Permissible loads of single anchor in normal concrete of strength class C20/25 (~B25) 0.8

<table>
<thead>
<tr>
<th>Type</th>
<th>Material</th>
<th>Min. effective load (kN)</th>
<th>Min. edge distance (mm)</th>
<th>Minimum spacing while reducing permissible load (mm)</th>
<th>Minimum edge distance (mm)</th>
<th>Effective concrete thickness (mm)</th>
<th>Permissible load (kN)</th>
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<td>FIS A / FTR/S M25</td>
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For the design the complete assessment ETA-17/0979 has to be considered.  

1) The partial safety factor for material resistance as regulated in the ETA-17/0979 as well as a partial safety for load actions of γ_{Ed} = 1.4 are considered.  
As a single anchor counts e.g. an anchor with a spacing ≥3 h_{eff} and an edge distance ≥1.5 h_{eff}. Accurate data see ETA-17/0979 .

2) Also valid for anchor rod RG M in the same property class.

3) For higher concrete strength classes up to C50/60 higher permissible loads may be possible.

4) Drill method hammer drilling resp. hollow drilling. For further allowable drill methods and application.

5) For combinations of tensile loads and shear for shear loads with lever arm (bending moments).

6) Minimum possible axial spacings resp. edge distance while reducing the permissible load.

7) The given loads refer to the European Technical Assessment ETA-17/0979, issue date 06/04/2018

Design of the loads according to FprEN 1992-4:2017 and TR 055 (for static resp quasi-static loads)

A reinforcement in the concrete to prevent splitting is required. The width of the cracks has to be limited under consideration of the splitting forces at w/k~ 0.3 mm