**SmartGrout MHF**

**High-Tolerance Non-Shrink Grout**

SmartGrout MHF is a high-flow metallic grout. It is designed for use in applications requiring high tolerance, high strength and high flowability. SmartGrout MHF is formulated as a metallic aggregate system with a special binder for positive expansion. It is highly flowable without sacrificing strength or performance capabilities and provides consistent and exacting performance in critical grouting operations.

**FIELDS OF APPLICATION**
- Grouting for heavy duty service conditions
- Grouting of machinery subjected to vibrations
- Structural support

**BENEFITS**
- Reinforced with metallic aggregate
- Highly flowable for easy field use
- High strength for maximum load bearing
- High tolerance (with min. positive expansion)
- Non-bleeding and non-segregation

**TECHNICAL DATA (under laboratory conditions)**

<table>
<thead>
<tr>
<th>PROPERTY</th>
<th>TYPICAL RESULTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flow Consistency (ASTM C227: 95)</td>
<td>50% Increase</td>
</tr>
<tr>
<td>After 5 drops</td>
<td></td>
</tr>
<tr>
<td>Compressive Strength (ASTM C109: 92)</td>
<td></td>
</tr>
<tr>
<td>@ 1 day</td>
<td>25 N/mm²</td>
</tr>
<tr>
<td>@ 3 days</td>
<td>40 N/mm²</td>
</tr>
<tr>
<td>@ 7 days</td>
<td>50 N/mm²</td>
</tr>
<tr>
<td>@ 28 days</td>
<td>65 N/mm²</td>
</tr>
<tr>
<td>Volume Change (ASTM C1090: 93)</td>
<td></td>
</tr>
<tr>
<td>@ 1 day</td>
<td>0.03%</td>
</tr>
<tr>
<td>@ 3 days</td>
<td>0.03%</td>
</tr>
<tr>
<td>@ 7 days</td>
<td>0.03%</td>
</tr>
<tr>
<td>@ 28 days</td>
<td>0.03%</td>
</tr>
<tr>
<td>Flexural Strength (ASTM C348: 95)</td>
<td></td>
</tr>
<tr>
<td>@ 3 days</td>
<td>5.0 N/mm²</td>
</tr>
<tr>
<td>@ 7 days</td>
<td>8.0 N/mm²</td>
</tr>
<tr>
<td>@ 28 days</td>
<td>9.0 N/mm²</td>
</tr>
<tr>
<td>Split Tensile Strength (ASTM C496: 95) @ 28 days</td>
<td>4.0 N/mm²</td>
</tr>
<tr>
<td>Setting Time @ 25°C (ASTM C 953: 87)</td>
<td></td>
</tr>
<tr>
<td>Initial Set</td>
<td>3 - 4 hours</td>
</tr>
<tr>
<td>Final Set</td>
<td>4 - 6 hours</td>
</tr>
</tbody>
</table>

- Tested at flowable consistency (4.25 litres of water to 25 kg of powder)
- Tested at water/powder ratio of 0.13

**SURFACE PREPARATION**

- Surfaces to be grouted should be clean, free from rust, laitance, grease and oil.
- Defective concrete surfaces must be cut back to a sound base.
- Bolt holes or fixing pockets must be blown clean of any dirt or debris.

**Pre-soaking**
- Several hours prior to grouting, the cleaned substrate should be flooded with fresh water.
- Immediately before grouting takes place, any free water should be removed. Particular care should be taken to blow out water in all bolt holes and pockets.

**Base plate**
- Base plate must be cleaned from oil, grease or scale.
- Air pressure relief holes should be provided to allow venting of any isolated high spots.

**Formwork**
- A head box (a form sloped at 45° angle) should be built on the placement side of the installation. Allow a minimum clearance of 50 mm for entry and 150 mm minimum grout head.
- On the other side, allow 25 mm horizontal clearance and 25 mm vertical above the bottom of the base.
- The formwork should include outlets for the presoaking water to be removed.
- Forms should be strong and leakproof, properly braced and oiled to retain the grout and provide relief holes if needed.

**DISCLAIMER**

All information was prepared carefully, using current references available to us. Information provided is to the best of our knowledge and belief, accurate and reliable as of the date indicated. However, no representation, warranty or guarantee is made as to its accuracy, reliability or completeness. It is the user's responsibility to satisfy himself/herself as to the suitability and completeness of information provided here for their intended use. We do not accept liability for any loss or damage that may occur from the use of this information.
MIXING

- **SmartGrout MHF** should be mixed in a mechanically powered mixer. For quantities up to 50 kg, a slow speed drill fitted with a high shear paddle is suitable. Large quantities will require a high shear vane mixer. Do not use a colloidal impeller mixer.
- Place the specified amount of water in the mixer.
- Slowly add all the **SmartGrout MHF** from the bag into the revolving mixer and mix for 5 minutes until a smooth, even mix is achieved.
- Never use **SmartGrout MHF** with any admixtures or fluidifiers.
- Do not mix large amounts of grout if it cannot be placed quickly. Grout should be placed within 15 minutes after mixing to gain full benefit from the expansion process. Do not add extra water to the mix.

PLACING

- Place **SmartGrout MHF** quickly and continuously. Placing should be from one side of the void to prevent air or pre-soaking water being trapped.
- A grout head must be maintained at all times so that a continuous grout front is achieved. It is advisable to use hopper for this purpose.
- The flow distance is based on gap width and fluid head. Longer flow distances can be obtained with a larger gap width and a larger grout head.
- Cold weather may cause premature freezing of **SmartGrout MHF**. Do not use **SmartGrout MHF** in cold weather unless proper cold weather grouting procedures are employed.
- If strong winds, low humidity or hot weather conditions are present, precautions must be taken to prevent rapid moisture loss from the grout.

CURING & TREATMENT

- All exposed areas should be thoroughly cured after the placement of the grout is completed.
- This should be done by continuous application of water and/or wet hessian until the grout shoulders are ready to be finished.
- After finishing has been completed, all exposed grout should be coated with a quality-curing compound or by continuous application of water and/or wet hessian.
- In cold weather, prevent grout from freezing until a minimum compressive strength of 25 N/mm² is reached.

COVERAGE / YIELD

When mixed with 4.25 litre of water, each 25 kg bag of **SmartGrout MHF** will produce about 11.5 litres of grout.

PRECAUTIONS

- Avoid eye and skin contact as the product is alkaline.
- Gloves, goggles and dust mask should be worn.
- Avoid inhalation of dust during mixing.
- Wash thoroughly after handling.
- In case of eye contact, flush with plenty of water. Seek medical help immediately.

PACKAGING & STORAGE

**SmartGrout MHF** is supplied in 25 kg bags and has a shelf life of 12 months if stored in a cool and dry place in sealed packing with sheltered protection from rain and sunlight.

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