Conbextra GP Technical Data Sheet

Specification notes

Product: Conbextra GP

Supplier:

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...for technical, specification & application advice;

or

...for more information on our other repair, maintenance, engineering and construction specialist products.
High-flow, non-shrink, cementitious grout conforming to the requirements of BS EN 1504-3 Class R4 and BS EN 1504-6: Anchoring of reinforcing steel bar.

Uses
Conbextra GP is used for free flow, non-shrink, cementitious grouting of gap thicknesses 10 to 75 mm. Recommended applications include:
- Stanchion baseplates
- Joints between pre-cast concrete panels
- Grouting applications where pouring access is restricted
- Anchoring of reinforcing steel bars
- Installation of tie bars
- Trowelling consistency can be used for bedding and in lieu of dry packs

Advantages
- Non-shrink
- High strength
- Chloride free
- Can be used at flowable or trowelable consistency

Description
Conbextra GP is supplied as a ready to use dry powder. The addition of a controlled amount of clean water produces a free-flowing grout for gap thicknesses up to 75mm. The low water requirement ensures high early strength and long-term durability.

Conbextra GP is a blend of Portland cements, graded fillers and chemical additives. The filler grading produces a highly flowable grout which will not segregate or bleed.

Specification clause
The grout shall be Conbextra GP a pre bagged single component cementitious material which conforms with the requirements of BS EN 1504-3 class R4 and BS EN 1504-6.

It shall be mixed with clean water to the required consistency and not exhibit bleed or segregation

A volumetric expansion of up to 1% shall occur while the grout is in a plastic state by means of a gaseous system.

The compressive strength of the grout shall exceed 40 MPa at 7 days and 60 MPa at 28 days.

The storage, handling and placement of the grout must be in strict accordance with the manufacturer’s instructions.

Standards compliance
Conbextra GP complies with classification R4 according to BS EN 1504-3.

Conbextra GP complies with the requirements of BS EN 1504-6: Anchoring of reinforcing steel bar.

## Properties

The following results were obtained at a water: powder ratio of 0.18 and a temperature of 20°C unless otherwise stated.

<table>
<thead>
<tr>
<th>Test method</th>
<th>Standard</th>
<th>EN 1504 requirement</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>Compressive Strength</td>
<td>EN 12190:1999</td>
<td>Class R4 ≥45 MPa</td>
<td>@ 1 Day 15 MPa @ 7 Days 45 MPa @ 28 Days 65MPa</td>
</tr>
<tr>
<td>Bond strength by pull off:</td>
<td>EN 1542:1999</td>
<td>Class R4 ≥2.0 MPa</td>
<td>2.6 MPa</td>
</tr>
<tr>
<td>Chloride ion content:</td>
<td>EN 1015-17:2000</td>
<td>Class R4 ≤ 0.05 %</td>
<td>0.02%</td>
</tr>
<tr>
<td>Freeze thaw cycling:</td>
<td>EN 13687-1:2002</td>
<td>Class R4 ≥ 2.0 MPa</td>
<td>2.3 MPa</td>
</tr>
<tr>
<td>Resistance to carbonation d</td>
<td>EN 13295:2005</td>
<td>Class R4 ≤ ref concrete</td>
<td>Conforms</td>
</tr>
<tr>
<td>Elastic Modulus in Compression</td>
<td>EN 13412</td>
<td>Class R4 ≥ 20 GPa</td>
<td>22.1 GPa @ 28 days</td>
</tr>
<tr>
<td>Testing of anchoring products by pull out method</td>
<td>EN 1881</td>
<td>@ 75 KN load ≤ 0.6 mm</td>
<td>0.49 mm Dry Test 0.44 mm Wet Test</td>
</tr>
<tr>
<td>Fire rating</td>
<td>EN 1504-3 cl.5.5</td>
<td>-</td>
<td>Class A1 Non-Combustible</td>
</tr>
<tr>
<td>Flexural strength</td>
<td>BS 6319 Pt 3:1990</td>
<td>-</td>
<td>10.0 MPa @ 28 days</td>
</tr>
<tr>
<td>Setting time</td>
<td>BS 4551 Pt14:1980</td>
<td>-</td>
<td>Initial set: 6 hours</td>
</tr>
<tr>
<td>Fresh wet density</td>
<td>-</td>
<td>-</td>
<td>Nominally 2080 kg/m³</td>
</tr>
<tr>
<td>Alkali reactive particles</td>
<td>Method TI-B 52</td>
<td>-</td>
<td>≥ 1.0 vol %</td>
</tr>
<tr>
<td>Time for expansion</td>
<td>-</td>
<td>-</td>
<td>Start :15 minutes Finish : 2 hours</td>
</tr>
<tr>
<td>Grout consistency / Water addition</td>
<td>-</td>
<td>-</td>
<td>Flowable: 4.0 - 4.5 litres water / 25kg bag Trowellable: 3.4 - 3.6 litres water / 25kg bag</td>
</tr>
<tr>
<td>Minimum thickness</td>
<td>-</td>
<td>-</td>
<td>10mm</td>
</tr>
<tr>
<td>Maximum thickness</td>
<td>-</td>
<td>-</td>
<td>75mm</td>
</tr>
</tbody>
</table>

**Clarification of property values:** The typical properties given above are derived from laboratory testing. Results derived from field applied samples may vary.
Fosroc® Conbextra GP

Application instructions

Preparation

Foundation surface
The substrate surface must be free from oil, grease or any loosely adherent material. If the concrete surface is defective or has laitance, it must be cut back/scabbed to a sound base. Bolt holes or fixing pockets must be blown clean of any dirt or debris.

Pre-soaking
For a minimum of 2 hours prior to grouting, the area of cleaned foundation 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 all bolt holes and pockets. Where water soaking is impossible contact Fosroc Technical Service.

Base plate
It is essential that this is clean and free from oil, grease or scale. Air pressure relief holes should be provided to allow venting of any isolated high spots.

Levelling shims
If these are to be removed after the grout has hardened, they should be treated with a thin layer of grease.

Formwork
The formwork should be constructed to be leakproof as Conbextra GP is a free-flowing grout. This can be achieved by using foam rubber strip or Silicone Sealant 33HM beneath the constructed formwork and between joints.

In some cases it is practical to use a sacrificial semi-dry sand and cement formwork. The formwork should include outlets for the pre-soaking water.

The unrestrained surface area of the grout must be kept to a minimum. Generally the gap width between the perimeter formwork and the plate edge should not exceed 150 mm on the pouring side and 50 mm on the opposite side. There should be no gap at the flank sides.

Mixing
Water addition: Flowable: 4.0 - 4.5 litres per 25Kg bag
Trowelable: 3.4 - 3.6 litres per 25Kg bag

For mixing quantities up to 50 kg a Bosch (or equivalent) 1150 watt, 280 to 640 rpm, 110 volt drill, fitted with a Conbextra Mixing Paddle (MR3) is suitable.

For best results a mechanically powered grout mixer should be used. Larger quantities will require a high shear vane mixer. Do not use a colloidal impeller mixer.

It is essential that machine mixing capacity and labour availability is adequate to enable the grouting operation to be carried out continuously. This may require the use of a holding tank with provision for gentle agitation to maintain fluidity.

Prior to the first mix the vessel should be wetted and drained. The selected water content should be accurately measured into the mixer. Slowly add the total contents of the Conbextra GP bag, mix continuously for 5 minutes, ensuring a smooth, even consistency is obtained.

Placing
Place the grout within 20 minutes of mixing to gain the full benefit of the expansion process.

Conbextra GP can be placed in thicknesses up to 75 mm in a single pour.

For thicker sections use Conbextra TS grout.

Any bolt pockets must be grouted prior to grouting between the substrate and the base plate.

Continuous grout flow is essential.

Example of a typical hopper system:

1 Conbextra GP or Lokfix* (first stage))
2 Conbextra GP poured or pumped into removable hopper (second stage)

* Also available from Fosroc.*

Sufficient grout must be available prior to starting and the time taken to pour a batch must be regulated to the time taken to prepare the next one.

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The mixed grout should be poured only from one side of the void to eliminate the entrapment of air or surplus pre-soaking water. This is best achieved by pouring the grout across the shortest distance of travel. The grout head must be maintained at all times so that a continuous grout front is achieved.

Where large volumes have to be placed Conbextra GP may be pumped. Screw feed and piston pumps are suitable for this purpose.

When the Conbextra GP has reached trowelable consistency, the unrestrained portion should be cut back to the baseplate/bearing plate.

Curing
On completion of the grouting operation, exposed areas should be thoroughly cured with Concure WB curing membrane, continuous application of water and/or wet hessian.

Anchoring applications
Holes should be drilled with a rotary percussive air flush drill and deformed bars should be used. Diamond cored holes should be roughened or under-reamed. The holes should be prewetted for a minimum of 2 hours prior to grouting. Remove water before grouting.

The mixed grout should be poured into the hole and the bar pushed through the grout.

Cleaning
Conbextra GP should be removed from tools and equipment with clean water immediately after use. Cured material can be removed mechanically, or with Fosroc Acid Etch.

Estimating
Supply
Conbextra GP is supplied in 25 kg bags.

Yield
Allowance should be made for wastage when estimating quantities required. The approximate yield per 25 kg bag for different consistencies is:

<table>
<thead>
<tr>
<th>Consistency</th>
<th>Trowelable</th>
<th>Flowable</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yield</td>
<td>12 litres</td>
<td>13.25 litres</td>
</tr>
</tbody>
</table>

Limitations

Low temperature working
When the air or contact surface temperatures are 5°C or below on a falling thermometer, warm water (30°C to 40°C) is recommended to accelerate strength development. Substrates should be free from ice.

For ambient temperatures below 10°C the grout consistency should be flowable and the formwork should be maintained in place for at least 36 hours.

Normal precautions for winter working with cementitious materials should then be adopted, specifically protecting the grout from freezing in the first 48 hours after placing.

High temperature working
At ambient temperatures above 35°C the mixed grout should be stored in the shade. Cool water (below 20°C) should be used for mixing the grout.

Storage
Store unopened bags in cool dry internal conditions. Conbextra GP has a shelf life of 12 months if kept in a dry store in sealed bags. If stored in high temperature and high humidity locations the shelf life may be reduced to less than 6 months. Conbextra GP is not supplied in waterproof packaging; individually or palletised.

Precautions

Health and safety
For further information refer to appropriate Product Safety Data Sheet available at www.fosroc.com

Fire
Conbextra GP is non-flammable.

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