

# Conbextra AT



constructive solutions

## Non-shrink high performance cementitious

### grout

#### Uses

Conbextra AT is a high strength grout designed for grouting beneath bridge bearings, parapet posts, flanged lighting columns and other grouting applications.

#### Advantages

- Non-shrink
- High early and ultimate compressive strengths
- Good flow
- Low permeability ensures durability
- Can be poured or pumped

#### Standards compliance

Conbextra AT fully conforms to ASTM C1107-91.

#### Description

Conbextra AT is a ready to use dry powder supplied in 20kg bags. Conbextra AT has been formulated specifically for grouting of bridge bearings and parapet post base plates.

The addition of a controlled amount of clean water produces a free-flowing grout with high early and ultimate strengths as well as long term durability, suitable for use in section thicknesses 10mm to 100mm. Thicker sections can be achieved by incorporating clean, dry 10mm aggregate, consult Fosroc for further details.

#### Specification

##### Supplier specification

All grouting must be carried out using Conbextra AT non-shrink cementitious grout manufactured by Fosroc. Storage, mixing, placing and curing shall be in accordance with the suppliers current technical data sheet.

##### Performance specification

All high strength grouting (specify details and areas of application) must be carried out with a pre-packaged cement based product which is mixed with a measured amount of water at a water:powder ratio of 0.15. The compressive strength of the grout must exceed 40 N/mm<sup>2</sup> @ 24 hours, 65 N/mm<sup>2</sup> @ 7 days and 80 N/mm<sup>2</sup> @ 28 days.

#### Properties

The following results were obtained at a water:powder ratio of 0.15 and 20°C temperature.

<i>Test method</i>	<i>Typical result</i>
<b>Compressive strength</b>	
<i>BS 1881: part 116 1983</i>	: 45 N/mm <sup>2</sup> @ 24 hours 55 N/mm <sup>2</sup> @ 3 days 70 N/mm <sup>2</sup> @ 7 days 90 N/mm <sup>2</sup> @ 28 days
<b>Tensile strength</b>	
<i>BS 6319 Pt. 7:1983</i>	: 2.5 N/mm <sup>2</sup> @ 3 days 3.5 N/mm <sup>2</sup> @ 7 days 4.0 N/mm <sup>2</sup> @ 28 days
<b>Flexural strength</b>	
<i>BS 6319 Pt. 3:1983</i>	: 7.0 N/mm <sup>2</sup> @ 3 days 9.5 N/mm <sup>2</sup> @ 7 days 12.5 N/mm <sup>2</sup> @ 28 days
<b>Volume change % (Positive expansion)</b>	
<i>ASTM C827</i>	: < 2%
<b>Slant shear strength</b>	
<i>BS 6319 Pt. 4:1983</i>	: 60 N/mm <sup>2</sup>
<b>Pull off strength</b>	
<i>BS 1881 Pt. 207</i>	: 2.9 N/mm <sup>2</sup>
<b>Rapid Chloride Permeability</b>	
<i>AASHTO T277:1993</i>	: very low
<b>Water permeability</b>	
<i>DIN 1048 Pt. 5:1991</i>	: 3 mm
<b>Initial surface absorption BS 1881</b>	
<i>Pt. 208:8.1.3.1:1996 (2 hrs)</i>	: Nil

#### Instructions for use

##### Preparation

###### Concrete surfaces

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 to a sound base. Bolt holes and 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 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 all bolt holes and pockets.

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## **Bearing plate/parapet post baseplate**

It is essential that this area 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 AT is a free flowing grout. This can be achieved by using foam rubber strip or mastic sealant 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.

### *Unrestrained surface area*

This must be kept to a minimum. Generally the gap width between the perimeter formwork and the plate edge should not exceed 75 mm on the pouring side and 25 mm on the opposite side. There should be no gap at the flank sides.

## **Mixing**

For best results a mechanically powered grout mixer should be used. For quantities up to 20 kg use a slow speed drill fitted with a Fosroc Mixing Paddle (MR3). 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.

## **Water addition**

Add 3.0 litres of water to each 20 kg bag of Conbextra AT to produce a fluid grout.

The water should be accurately measured into the mixer. Slowly add the total contents of the Conbextra AT bag, mix continuously at high speed for 5 minutes, ensuring a smooth, even consistency is obtained.

**Note:** For the first two to three minutes of mixing the mixture will be of a stiff consistency.

## **Placing**

Immediately prior to placement, the mixed grout should be briefly agitated to release any surface tension. Place the grout within 15 minutes of mixing to gain the full benefit of the expansion process. Conbextra AT can be placed in thicknesses up to 100 mm in a single pour.

For thicker sections (above 100mm) it will be necessary to fill out Conbextra AT with a well graded 10mm, silt free aggregate to minimise exotherm. If bulking with aggregate is used the ratio shall not exceed 1:1. Contact Fosroc for details of pre-bagged supply. The properties of a bulked grout will differ from those published in this data sheet.

Any bolt pockets must be grouted prior to grouting between the substrate and the base plate. Continuous grout flow during the grouting operation is essential.

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.

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 AT may be pumped. A heavy duty diaphragm pump is recommended for this purpose. Screw feed and piston pumps may also be suitable.

## **Curing**

On completion of the grouting operation, exposed areas should be thoroughly cured. This should be done by the use of Concure\*<sup>†</sup> curing membrane, or continuous application of water and/or wet hessian.

## **Cleaning**

Conbextra AT should be removed from tools and equipment with clean water immediately after use. Cured material can be removed mechanically, or with Fosroc Acid Etch\*<sup>†</sup>.

## **Sampling procedure**

Cementitious grouts cannot be tested as concrete. Special sampling procedure are required refer to your local Fosroc office for further details.

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## **High temperature working**

It is suggested that, for temperatures above 35°C, the following guidelines are adopted as good working practice:

- (i) Store unmixed material in a cool (preferably temperature controlled) environment, avoiding exposure to direct sunlight.
- (ii) Keep equipment cool, arranging shade protection if necessary. It is especially important to keep cool those surfaces of the equipment which will come into direct contact with the material itself.
- (iii) Try to eliminate application during the hottest times of the day and in direct sunlight.
- (iv) Make sufficient material, plant and labour available to ensure that application is a continuous process.
- (v) Water (below 20°C) should be used for mixing with the grout prior to placement.

## **Limitations**

- Grouts should not be placed in any unrestricted situation, i.e. base plate plinths, etc. Failure to comply may lead to crack development in the grout.

## **Technical support**

Fosroc offers a comprehensive technical support service to specifiers, end users and contractors. It is also able to offer on-site technical assistance, an AutoCAD facility and dedicated specification assistance in locations all over the world.

## **Estimating**

### **Supply**

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<i>Conbextra AT</i>	: 20 kg bags
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### **Yield**

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<i>Conbextra AT</i>	: 10.0 litre/bag
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## **Storage**

Conbextra AT 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 will be reduced.

## **Precautions**

### **Health and safety**

Conbextra AT contains cement powders which, when mixed or become damp, release alkalis which can be harmful to the skin. During use, avoid inhalation of dust and contact with skin and eyes.

Wear suitable protective clothing, gloves, eye protection and respiratory protective equipment. The use of barrier creams provide additional skin protection.

In case of contact with skin, rinse with plenty of clean water, then cleanse with soap and water. In case of contact with eyes rinse immediately with plenty of clean water and seek medical advice. If swallowed, seek medical attention immediately - **do not** induce vomiting.

### **Fire**

Conbextra AT is non-flammable.

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## Additional Information

Fosroc manufactures a wide range of complementary products which include :

- waterproofing membranes & waterstops
- joint sealants & filler boards
- cementitious & epoxy grouts
- specialised flooring materials

Fosroc additionally offers a comprehensive package of products specifically designed for the repair and refurbishment of damaged concrete. Fosroc's 'Systematic Approach' to concrete repair features the following :

- hand-placed repair mortars
- spray grade repair mortars
- fluid micro-concretes
- chemically resistant epoxy mortars
- anti-carbonation/anti-chloride protective coatings
- chemical and abrasion resistant coatings

For further information on any of the above, please consult your local Fosroc office - as below.

\* Denotes the trademark of Fosroc International Limited

† See separate data sheet



### Important note

Fosroc products are guaranteed against defective materials and manufacture and are sold subject to its standard Conditions for the Supply of Goods and Service. All Fosroc datasheets are updated on a regular basis. It is the user's responsibility to obtain the latest version

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