Fosroc®
Conbextra® BB92

constructive solutions

Ultra-high performance grout specifically designed for structural grouted connections for wind turbine foundations and oil and gas installations

Uses

- Structural grouted connections for onshore wind turbine foundations and non-structural offshore foundation connections.
- Segmental concrete wind towers

Advantages

- Non-shrink
- High flexural strength and modulus of elasticity without the addition of fibres, enhancing the flow characteristics of the grout.
- Quick return to service and removal of temporary supports due to high early strength build-up, even at low temperatures.
- High fatigue resistance
- Suitable for pumping or pouring over a large range of applications.
- No segregation or bleeding to ensure consistent final physical performance and to prevent pump blockages.

Description

Conbextra BB92 is supplied as a ready to use dry powder. The addition of a controlled amount of clean water produces a free-flowing precision grout. Suitable for gap depths in the range of 10 to 150mm.

Standards compliance

CE 0099	
Conbextra BB92	
Fosroc Euco, S.A., Gasteiz Bidea, 11 48213 Izurtza - Bizkaia	
12	
M1148406 EN 1504-6:2006 Anchoring products	
Pull off strength	displacement ≤ 0,6 mm for a 75 KN load
Chloride ion content	≤ 0,05%
Reaction to fire	Class A1
Dangerous substances	Complies with 5.3

Properties

The following properties were obtained at a temperature of 20°C, unless otherwise stated. The typical properties given below are derived from laboratory testing. Results derived from field applied samples may vary.

Test method	Typical result @ 0.12 w/p ratio
Final set: (EN196-3:1996):	<5 hours
Expansion:	0-1 %
Slump flow: (EN12350-8):	>700mm
Flow trough: (EN13395-2):	>450 mm
Brass cone flow:	240 - 280mm
Density of fresh mixture:	2.25 - 2.35kg/m³
Flexural strength: (EN196-1:2005)	>7.5 N/mm² @ 1 day >11 N/mm² @ 7 days >13 N/mm² @ 28 days

Low Temperature Results (EN196 -1 :2005)			
Age	**Test**	**2°C**	**5°C**
1 Day	Compressive	>5 N/mm²	>13 N/mm²
	Flexural	>1 N/mm²	>3 N/mm²
3 Day	Compressive	>60 N/mm²	>70 N/mm²
	Flexural	>10 N/mm²	>11 N/mm²
7 Day	Compressive	>70 N/mm²	>80 N/mm²
	Flexural	>13 N/mm²	>13 N/mm²

Compressive Strength 20°C (EN 12190) (75mm cubes - EN12390-3		
	Pumpable 0.10 w/p ratio	Flowable 0.12 w/p ratio
1 Day	>70 N/mm²	>60 N/mm²
7 Day	>90 N/mm²	>80 N/mm²
28 Day	>100 N/mm²	>90 N/mm²

Granulometry:	0-2 mm
Water/powder ratio:	0.10-0.12(2.5-3.0l/25kg)
Gap depth:	10-150* mm

*For larger gap depths contact Fosroc Technical Dept.

Guidelines for sampling grout on site for compressive strength testing are available on the Fosroc website.

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Internal Test Data

Test Items	Standard/method	Specification
Static Modulus of Elasticity	EN 13412 Prism 4 x 4 x 16 cm	≥ 41 GPa
Bond strength on concrete	EN1542, dollies dia 5cm	≥ 2 MPa
Fatigue resistance	GTS91008 cylinder 6×12 cm	> that predicted by CEB-FIP Model Code 1990 and the DNV-OS-C502 Guidline for a concrete of the same compressive strength
Chloride ion content	EN 1015-17	≤0.05 %
Resistance to carbonation	EN 13295	dk ≤ reference concrete (MC0.45)
Capillary absorption	EN 13057	≤ 0.5 $kg.m^{-2}.h^{-0.5}$
Thermal compatibility Freeze / thaw cycling	EN 13687-1 dollies dia 5cm	After 50 cycles, bond strength ≥ 2 Mpa

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 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 area of cleaned foundation should be flooded with fresh water. Immediately before grouting takes place, any free water should be removed. Pay special attention to the bolt holes or fixing pockets.

Formwork

The formwork should be constructed to be leakproof as Conbextra BB92 is a free flowing grout. This can be achieved by sealing all joints very well.

In some cases it is practical to use a mortar 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 150mm on the pouring side and 50mm 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 50kg a slow speed mixer fitted with a high shear paddle is suitable. Larger quantities will require a high shear vane mixer.

Place the required quantity of clean water (2.5-3.0 litres per 25kg bag) into the mixing vessel for each bag to be used. Add the contents slowly to the mixer. Mix continuously for 5 minutes, ensuring a smooth, even consistency is obtained. Note that during the first 2 or 3 minutes consistency will appear drier.

Placing

Conbextra BB92 can be placed in thicknesses up to 150mm in a single pour.

Any bolt pockets must be filled with grout or resin prior to grouting between the substrate and the base plate. Continuous grout flow 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 presoaking water. The grout head must be maintained at all times so that a continuous grout front is achieved.

For large volumes Conbextra BB92 can be pumped.

Curing

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

Cleaning

Conbextra BB92 should be removed from tools and equipment with clean water immediately after use. Cured material can be removed mechanically,

Limitations

Conbextra BB92 should not be used at temperatures below -5ºC or above 40ºC.The substrate must be free of ice. When the air or contact surface temperatures are 5 °C or below, it is recommended to use hot water(30-40°C) to accelerate strength development.

At temperatures higher than 35 °C the mixed grout should be stored in the shade. Cool water (below 20 °C) should be used for mixing the grout

Conbextra BB92 should not be exposed to moving water or rainfall during application and prior to the final set.

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Supply

Conbextra BB92 25kg (MTO*):	FC524478-25KG
*Made to Order:	Min. order qty. 800 x 25kg
Lead time:	90 days

Yield

Each 25kg bag of Conbextra BB92 will yield approx.12.0 litres of grout.

Storage

Conbextra BB92 has a shelf life of 12 months from date of manufacture. Do not use if there are lumps in the product, or a loss of workability (requiring more water to be added) is experienced.

Storage conditions

Store in dry conditions in the original, unopened packaging. If stored at high temperatures and/or high humidity conditions the shelf life may be reduced.

Precautions

Health and safety

Conbextra BB92 is alkaline and should not come in contact with skin and eyes. Avoid inhalation of dust during mixing.

Gloves, goggles and dust mask should be worn. If contact with skin occurs, wash with water. Splashes to eyes should be washed immediately with plenty of clean water and medical advice sought. Do not induce vomiting.

Fire

Conbextra BB92 is not flammable.

For further information, please refer to the Safety Data Sheet of the product.

Important notice

A Safety Data Sheet (SDS) is available from the Fosroc website. Read the SDS and TDS carefully prior to use as application or performance data may change from time to time. In emergency, contact any Poisons Information Centre (phone 13 11 26 within Australia) or a doctor for advice.

Product disclaimer

This Technical Data Sheet (TDS) summarises our best knowledge of the product, including how to use and apply the product based on the information available at the time. You should read this TDS carefully and consider the information in the context of how the product will be used, including in conjunction with any other product and the type of surfaces to, and the manner in which, the product will be applied. Our responsibility for products sold is subject to our standard terms and conditions of sale. Parchem does not accept any liability either directly or indirectly for any losses suffered in connection with the use or application of the product whether or not in accordance with any advice, specification, recommendation or information given by it.

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Parchem Construction Supplies Pty Ltd
1956 Dandenong Rd Clayton VIC 3168
Ph: 1800 812 864
www.fosroc.com.au ABN 80 069 961 968

Distributed in New Zealand by: Concrete Plus Ltd
150 Hutt Park Road Gracefield Ph: 0800 657 156
www.fosroc.co.nz NZBN 9429033691282