

Ultra-high performance cement based grout

Uses

- Wind turbine connections

Advantages

- High flexural strength and modulus of elasticity without the addition of fibres, enhancing the flow characteristics of the grout.
- Rapid development of strength enables removal of temporary forms and supports even at low temperatures.
- Very high ultimate compressive strength.
- Fatigue resistance ensures durability.
- 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.
- Unique cement chemistry controls heat of hydration enables both thin and thick sections to be cast.
- High workability retention, facilitates casting of large sections.
- Positive expansion after casting.

Description

Conbextra TA is a ready to use cementitious grout, formulated for grouting the structural transition pieces of on-shore wind turbine foundations. Suitable for gap depths in the range of 50 to 250mm.

Standards compliance

Conbextra TA complies with EN1504-6:2006.

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.

General properties

Test method	Typical result @ 0.08 w/p ratio
Granulometry:	0 - 4mm
Gap depth*:	50 - 250mm
Application temperatures:	From 2 to 35°C
Exposure classes (EN 200,1)	X0, XC4, XD3, X53, XF3, XA2, WF

(a) For high temperatures, the water/powder ratio can be increased up to 0.085.

Fresh wet properties

Test method	Typical result @ 0.08 w/p ratio
Final set: (EN196-3:1996):	<6 hours
Expansion:	0-1 %
Air content (EN 1015-7):	≤ 4%
Slump flow: (EN12350-8):	>700mm
Initial flow through (EN 13395-2) ⁽¹⁾ :	> 750 mm Class f3 in accordance with DfStB
Flow retention ⁽¹⁾ :	min. 650 mm after 30 min of production

⁽¹⁾w/p ratio: 0.085

Mechanical properties

Test method	Typical result @ 0.08 w/p ratio
Static modulus of elasticity:	40 GPa
Flexural strength: (EN196-1:1996)	7 N/mm ² @ 1 day 12 N/mm ² @ 7 days 16 N/mm ² @ 28 days
Compressive strength (150 mm cubes: EN 12390-3):	60 N/mm ² @ 1 day 85 N/mm ² @ 7 days 115 N/mm ² @ 28 days
(40x40x160 mm prisms: EN 12190):	30 N/mm ² @ 1 day 100 N/mm ² @ 7 days 120 N/mm ² @ 28 days
Tensile splitting strength (EN 12390-6):	≥9 N/mm ²
Shrinkage classification:	SKVM0

*For larger gap depths contact Fosroc Technical Dept.

Fatigue test

Fatigue tested to Model Code 1990 and 2010 S-N curves.

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.

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Formwork

The formwork should be constructed to be leakproof as Conbextra TA 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.

Mixing

For best results a mechanically powered grout mixer should be used. For quantities up to 50 kg 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 (maximum 2.125 litres per 25kg bag) into the mixing vessel for each bag to be used. Add the contents slowly to the mixer. Mix continuously for 6 to 7 minutes, ensuring a smooth, even consistency is obtained. Note that during the first 2 or 3 minutes consistency will appear drier.

Placing

Conbextra TA can be placed in thicknesses up to 250 mm 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 TA should be pumped.

In that case, it is necessary the prior lubrication of all the equipment by means of a cementitious slurry made of two parts of cement and one of water, in the sufficient quantity to ensure that all the circuit in contact with the mortar stays lubricated.

Lubrication should be done at the same level of the equipment location.

The pumping of the grout should be done immediately after the lubrication, refusing the initial slurry used in the lubrication.

Curing

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

Cleaning

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

Limitations

Conbextra TA should not be used at temperatures below 0°C or above 40°C. 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.

When grouting at temperatures below 2°C or above 35°C, contact the Fosroc Technical Department.

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

It should only be used by experienced and qualified applicators.

Supply

Conbextra TA 25kg:	FC524476-25KG
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Yield

Each 25 kg bag of Conbextra TA will yield approx. 10.2 litres of grout.

Allowance should be made for wastage when estimating quantities of Conbextra TA required.

Storage

Conbextra TA 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.

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 TA 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 TA is not flammable.

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

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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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