Fosroc® Conbextra® C

constuctive solutions

High flow, dual shrinkage compensated, precision cementitious grout

Uses

General grouting of gaps from 10mm to 100mm, where high flow is required along with dual shrinkage compensation (previously Class A/Class C). Applications include grouting of:

- Baseplates and soleplates of machines
- Structural steel column baseplates
- Voids between precast concrete and infilling blockwork

Advantages

- Dual expansion system compensates for shrinkage in both the plastic and hardened states
- High ultimate strength and low permeability ensure the durability of the hardened grout
- Can be dry packed/rammed, trowelled, flowed and pumped
- Hydrogen free gas expansion
- Prepackaged material overcomes potential on-site mixing variations
- No metallic iron content to cause rusting
- RCS (Respirable Crystalline Silica) Hazard Free*
- Non-shrink - according to ASTM C1107:2020

Description

General purpose shrinkage compensated, non-shrink cementitious grout, is supplied as a ready to use dry powder. The addition of a controlled amount of clean water produces a flowing shrinkage compensated grout for gap thicknesses from 10mm up to 100mm.

Conbextra C is a blend of Portland cement, specially graded fillers and additives which impart controlled expansion in the plastic and hardened state whilst minimising water demand. The low water demand ensures high early strength. The graded filler is designed to assist uniform mixing and produce a consistent, flowable grout.

*Conbextra C is classified not hazardous for RCS in accordance with Australian Inventory of Industrial Chemicals; contains <0.1% RCS.

Maximum aggregate size for pumping is 0.3mm.

In applications where the maximum flow properties and flow retention times are required, Conbextra HF should be considered.

Standards Compliance

AS 1478.2-2005 Appendix E : Test for Early Volume Change.

AS 1478.2-2005 Table 4.1.2.2 : Test for Consistency.

Properties

Test Method	Standard	Result			
Compressive Strength (MPa):	AS 1478.2:2005	Consistency	1 Day	7 Days	28 Days
		Stiff	45	60	70
		Plastic	35	50	60
		Flowable	25	45	55
Flexural Strength (Modulus of Rupture)	AS 1012.11 - 2000	1 Day 7 Days 28 Days	5.0 MPa 9.5 MPa 9.6 MPa		
Indirect Tensile Strength	AS 1012.10.2000	1 Day 7 Days 28 Days	2.7 MPa 4.4 MPa 4.8 MPa		
Fresh Wet Density	ASTM C185:2020	2100 kg/m^3 - depending on consistency used			
Alkali reactive particles	Rapid Mortar Bar Test (RTA T363)	Non-reactive			
Flow Characteristics	AS 1478.2:2005	400 - 600mm (Flow Trough)			
Minimum Thickness **Maximum Thickness**		10mm 100mm			

The typical properties given above are derived from laboratory testing at 23^{0}C. Test results obtained will vary if carried out to an alternative standard or sample dimensions are used. Guidelines for sampling grout on site for compressive strength testing is available on the Fosroc website.

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Test Results to ASTM Specification C1107: 2020

Test Method	Standard	Result	
Flow Consistency:	ASTM C939:2016a	>145%	
Setting Time:	ASTM C953:2017	Initial: Final:	300 mins 360 mins
Volume Change at Early Age (Final setting) %:	ASTM C827:2016	+0.40	
Volume Change of Hardened Grout (moist cured) %:	ASTM C1090:2015	1 day 3 days 7 days 28 days 28 day + 28 days in air	+0.01 +0.02 +0.02 +0.03 +0.01
Compressive Strength (N/mm²):	ASTM C109:2020b	1 day 3 days 7 days 28 days	23.3 38.0 45.1 56.2

Note: All tests were carried out at 25°C ± 2°C until the age of the test. All above test results are independent third party results. Copies of these test results are available on request. The tests were carried out at a water addition rate of 3.6L per 20kg. Guidelines for sampling grout on site for compressive strength testing is available on the Fosroc website.

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. For maximum bond, surfaces should be abraded or roughened, preferably by mechanical means such as needle gun, grit blasting, grinding. Bolt holes or fixing pockets must be blown clean of any dirt or debris. These may need to be grouted beforehand.

Base plate

It is essential that this is clean and free from oil, grease, scale, paint or coating of any kind. 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. This can be achieved by using foam rubber strip or construction silicone sealant beneath the constructed formwork and between joints.

The formwork should include outlets for pre-soaking.

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. It is advisable where practical to have no gap at the flank sides.

Pre-soaking

Pre-soaking the formed grouting area with clean water helps to ensure good adhesion of the grout at the interface of the concrete foundation and improves the flow of the grout during the installation. The area should be filled with clean water for a **minimum 2 hours** before the grouting takes place.

Immediately before grouting takes place, any free water should be removed by draining or vacuum.

Particular care should be taken to blow out any bolt holes and pockets.

Mixing

A forced-action mixer is essential. Mix for 3 to 5 minutes at a slow speed (400/500rpm) in a suitably sized drum using appropriate equipment such as a 140mm helical mixing paddle fitted to a heavy-duty 1600W mixer.

The selected water content should be accurately measured into the mixing bucket. While mixing, slowly add the total contents of the Conbextra C bag, mix continuously for 3 to 5 minutes, ensuring a smooth, even consistency is obtained. Aways add the powder to the water.

Required Consistency	Litres of water added per 20kg bag	Yield - litres of mixed material
Stiff	2.6 - 3.4	**10.4**
Plastic	3.4 - 3.6	**10.7**
Flowable	3.6 - 3.9	**10.8**

Mixing larger volumes

Larger quantities will require a high shear vane mixer. Do not use a colloidal impeller mixer.

To enable the grouting operation to be carried out continuously, it is essential that sufficient mixing capacity and labour are available. The use of a grout holding tank with provision to gently agitate the grout may be required.

Mixing part bags

It is recommended that full bags be mixed, however for applications where smaller quantities of product are required, experienced applicators may elect to mix half bags by weighing out (the correct quantity of product) and mixing with half the recommended quantity of water. In doing so the contractor accepts the risk of any off-ratio mixing. Agitate the dry product before weighing out to minimise any segregation. Reliable scales should be used to weigh out individual components.

Placing

At 23°C place the grout within 20 minutes of mixing to gain full benefit of the expansion process.

Conbextra C can be placed in thicknesses from 10mm up to 100mm in a single pour when used as an underplate grout. Where the grouting gap beneath the base plate exceeds the maximum thickness allowed, then the grout can filled / bulked out with Conbextra Grout Aggregate* to minimise exotherm heat build up. Alternatively Conbextra Deep Pour is available for pours up to 500mm thick.

Filling/bulking out of the grout should not exceed a ratio of 2:1 (grout:aggregate by weight). Please refer to the Conbextra Grout Aggregate TDS for more guidance on bulking out of cement based grouts.

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

Continuous grout flow is essential. Sufficient grout must be prepared before starting. The time taken to pour a batch must be regulated to the time to prepare the next one.

Pouring should be from one side of the void to eliminate any air or pre-soaking water becoming trapped under the baseplate. It is advisable to pour 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.

Flow properties of mixed grout

The flow distances given below in (mm) are intended as a guide. Actual flow distances will vary depending on site conditions:

Gap Depth (mm)	Flowable 100mm head (mm)	Flowable 250mm head (mm)
10	320	1080
20	850	2300
30	1350	2700
40	2000	2700+
50	2700	2700+

Pumping

Where large volumes have to be placed Conbextra C may be pumped. A heavy duty diaphragm pump is recommended for this purpose. Screw feed and piston pumps may also be suitable. Maximum aggregate size for pumping is 0.3mm. Ensure the selected pump is capable of pumping this size aggregate.

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 continuous application of water and/or wet hessian.

Cleaning

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

Limitations

Low temperature working

When the air or contact surface temperatures are 5°C or below on a falling thermometer, grouting should be postponed.

For ambient temperatures below 10°C the formwork should be kept in place for at least 36 hours.

Normal precautions for winter working with cementitious materials should then be adopted.

High temperature working

At ambient temperatures above 35°C cool water (below 20°C) should be used for mixing the grout prior to placement.

Supply

Conbextra C is supplied in 20kg moisture resistant plastic bags.

Conbextra C 20kg:	FC501040-20KG

Yield

Consistency (AS 1478.2-2005 Table 4.1.2.2)	Yield (Litres of mixed material)
Stiff	10.4
Plastic	10.7
Flowable	10.8

Storage

Conbextra C has a shelf life of 36 months from date of manufacture if kept in the original, unopened bags. Refer to the manufacture date indicated on the packaging. Do not use if there are lumps in the product, or a loss of workability (requiring more water to be added) is experienced.

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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