

# Fosroc® Conbextra GP

## General purpose, high flow, Class A shrinkage compensated grout - (gaps 10 mm to 100 mm thickness)

### Uses

Conbextra GP is used for general purpose grouting where it is essential to eliminate shrinkage when completely filling voids or grouting between a base plate and substrate, e.g. the grouting of a stanchion base plate. It can also be used for anchoring a wide range of fixings such as masts and anchor bolts.

### Advantages

- High ultimate strength and low permeability ensure the durability of the hardened grout
- Gaseous expansion system compensates for shrinkage and settlement in the plastic state
- Can be dry packed, rammed, trowelled, poured and pumped
- Pre-packaged material overcomes potential on-site mixing variations
- Develops high early strength without the use of chlorides
- No metallic iron content to cause staining

### Description

Conbextra GP, a general purpose shrinkage compensated 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 10 mm up to 100 mm.

Conbextra GP is a blend of Portland cement, graded fillers and chemical additives which impart controlled expansion in the plastic 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 grout. Maximum aggregate size for pumping is 0.7 mm.

### Standards compliance

AS 1478.2-2005 Appendix E Early Volume Change

AS1478.2-2005 Table 4.1.2.2 Consistency

### Technical support

Parchem offers a comprehensive range of high quality, high performance construction products. In addition, Parchem offers technical support and on-site advice to specifiers, end-users and contractors.

### Specification clauses

#### Supplier specification

All grouting where shown on the drawing must be carried out using Conbextra GP manufactured by Parchem and used in accordance with the manufacturer's data sheet.

#### Performance specification

To the nominated area(s) (specify details and areas of application), grouting must be carried out using a pre-packaged, chloride free, dry powder blend of cements, graded fillers and chemical additives.

It is to be mixed with clean water to the required consistency. The plastic grout must not bleed or segregate. The storage, handling and placement of the grout must be in strict accordance with the manufacturer's instructions.

A positive volumetric expansion of 1-3% shall occur while the grout is plastic by means of a gaseous system.

It shall exhibit Flow Characteristics when tested to AS 1478.2.2005 of 10 - 30 seconds using the flow cone procedure.

The compressive strength of the grout must exceed 45MPa at 7 days and 65MPa at 28 days when used at a flowable consistency.

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## Properties

Test Method	Standard	Result				
<b>Compressive Strength</b>	AS 1478.2:2005	Consistency	Water Addition	1 Day	7 Days	28 Days
		Stiff	2.9-3.6	34	50	75
		Plastic	3.6-3.8	33	45	70
		Flowable	3.8-4.0	32	43	65
		Fluid	4.0-4.1	30	40	60
<b>Bond Strength by Pull Off</b>	EN 1542:1999	2.6MPa				
<b>Chloride ion Content</b>	EN 1015-17:2000	0.004%				
<b>Fire Rating</b>	EN 13687-1:2002	Class A1 Non-Combustible				
<b>Flexural Strength (Modulus of Rupture)</b>	AS 1012.11 - 2000	1 Day 7 Days 28 Days	4.4 MPa 8.7 MPa 13.6 MPa			
<b>Indirect Tensile Strength</b>	AS 1012.10.2000	1 Day 7 Days 28 Days	3.5 MPa 5.6 MPa 6.1 MPa			
<b>Setting Time</b>	AS 1012.18:1996	5.5 hours - initial set 7.5 hours - final set				
<b>Fresh Wet Density</b>		2200 kg/m <sup>3</sup> - depending on consistency used				
<b>Alkali reactive particles</b>	Rapid Mortar Bar Test (RTA T363)	Non-reactive				
<b>Flow Characteristics</b>	AS 1478.2:2005	25-30 seconds (Flow Cone)				
<b>Minimum Thickness</b>		10 mm				
<b>Maximum Thickness</b>		100 mm				

Clarification of property values: The typical properties given above are derived from laboratory testing. Compressive strengths stated above were measured using cube samples. Test results obtained will vary if carried out to an alternative standard or sample dimensions are used.

Note: Compressive strengths stated were measured at bottom end water, eg., the 28 day strength of 65 MPa for flowable consistency was obtained at a water addition of 3.8 litres water per 20kg bag of Conbextra GP.

## Test Results to ASTM Specification C1107: 2001

Test Method	Standard	Result	
<b>Flow Consistency</b>	ASTM C1437:2007	144%	
<b>Setting Time</b>	ASTM C191:2008	Initial: Final:	4.75 hours 5.25 hours
<b>Plastic Volume Change</b>	ASTM C1090:2010	+0.55%	
<b>Hardened Volume Change</b>	ASTM:C827:2010	1 day 3 days 14 days 28 days 56 days	0.08% 0.08% 0.08% 0.07% 0.04%
<b>Compressive Strength</b>	ASTM C109:2011b	1 day 3 days 7 days 28 days	37.8 MPa 55.2 MPa 60.3 MPa 68.6 MPa

Note: All tests were carried out at 25oC ± 2oC 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 3.8L per 20kg.

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## Consistency 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)	Fluid 100mm head (mm)	Fluid 250mm head (mm)
10	320	1080	800	2200
20	850	2300	1700	2700
30	1350	2700	2700	2700+
40	2000	2700+	2700+	2700+
50	2700	2700+	2700+	2700+

## 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 with particular care being taken to blow out all bolt holes and pockets.

#### 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. This can be achieved by using foam rubber strip or Construction Silicone 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 pre-soaking.

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

## Mixing and Placing

### Mixing

For best results a mechanically powered grout mixer should be used. When quantities up to 40 kg are used, a slow speed drill fitted with a high shear mixer with a minimum 1200W and between 300-650 rpm. The Protocol MXP 1602 E mixer (product code: TT-621941) or equivalent is recommended with the Protocol HS2 140 x 600 M14 Helical mixing paddle (product code: TT-614217) or equivalent.

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, following correct mixing, may be required.

### Placing

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

Conbextra GP can be placed in thicknesses from 10 mm up to 100 mm 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 be filled / bulked out with Conbextra Grout Aggregate to minimise exotherm heat build up. Alternatively Conbextra Deep pour is available for pours up to 500 mm thick.

Filling/bulking out of the grout should not exceed a ratio of 1:1. 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

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shortest distance of travel. The grout head must be maintained at all times so that a continuous grout front is achieved.

Please refer to the Conbextra Cementitious Grouts Application Guide for further information. This is available from the website or your local Parchem branch.

## Pumping

Where large volumes have to be placed Conbextra GP may be pumped. The maximum aggregate size in Conbextra GP is 0.7 mm, only use pumps 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, continuous application of water and/or wet hessian.

## Cleaning

Conbextra GP 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, warm water (30 - 40°C ) is recommended to accelerate strength development.

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.

## Important notice

A Safety Data Sheet (SDS) and Technical Data Sheet (TDS) are available from the Parchem website or upon request from the nearest Parchem sales office. 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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## Estimating

### Supply

201020 - Conbextra GP and 202021 - Conbextra Grout Aggregate are available in 20kg moisture resistant bags.

### Yield

Allowance should be made for wastage when estimating quantities required. The approximate yield of a 20kg bag for different consistencies is:

Consistency (AS 1478.2 - 2005 Table 4.1.2.2)	Yield (Litres of mixed material)
Stiff	10.6
Plastic	10.7
Flowable	10.8
Fluid	10.9

### Storage

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.



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