

Conbextra Deep Pour



Shrinkage compensated cementitious precision grout for deep pour applications

Uses

Conbextra Deep Pour is a free flow precision grout for grouting gap applications ranging from 125 mm up to a maximum of 500 mm deep. Conbextra Deep Pour is formulated to minimise segregation and bleeding for deep grout pours.

Advantages

- Unique non-metallic dual expansion system compensates for shrinkage in both the plastic and hardened states.
- Excellent initial flow and flow retention.
- High ultimate strength and low permeability ensure durability of the hardened grout.
- Hydrogen-free gaseous expansion.
- Chloride free.
- Suitable for pumping or pouring over a large range of application consistencies and temperatures.

Standards compliance

Conbextra Deep Pour conforms fully to U.S. Corps of Engineers Specification for non-shrink grout CRD-C621-82A and ASTM C1107-91 (Type C).

Description

Conbextra Deep Pour, shrinkage compensated cementitious precision grout, is supplied as a ready to use dry powder. The addition of a controlled amount of clean water produces a free-flowing precision grout for gap thicknesses up to 500 mm. In addition the low water requirement ensures high early strength and long term durability.

Conbextra Deep Pour is a blend of Portland cements, graded fillers and chemical additives which impart controlled expansion in both the plastic and hardened states. The filler grading minimises segregation and bleeding over a wide range of application consistencies.

Maximum filler aggregate size contained in Conbextra Deep Pour is 8 mm.

Technical support

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

Properties

The following results were obtained at a water : powder ratio of 0.133 (flowable consistency) and a temperature of 23°C:

Test method for	Typical result
Compressive strength	
BS1881 : part 116 1983	10 MPa @ 1 day 42 MPa @ 7 days 60 MPa @ 28 days
Flexural strength	
BS 4551 1980:	5 MPa @ 7 days 7.5 MPa @ 28 days
Setting time	
BS 4550 part 3 1978:	
Initial set:	6.5 hours
Final set:	9.0 hours
Time for expansion	
Plastic state:	Start 15 minutes Finish initial set
Hardened state:	Start initial set Finish up to 28 days
Fresh wet density:	Approximately 2200 kg/m ³ depending on actual consistency used.
Expansion characteristics:	An expansion of up to 2% when measured according to ASTM C 827 overcomes plastic settlement in the unset material. Longer term expansion in the hardened state is designed to comply with the requirements of ASTM C 1107-91 to compensate for drying shrinkage.
Bond strength:	
(BS6319 Pt 14: 1984)	
Slant / shear- substrate presoaked, no bonding aid:	54 MPa @ 28 days (monolithic failure)



Specification clauses

Performance specification

All precision grouting (specify details and areas of application) must be carried out with a pre-packaged cement based product, which is non-metallic and chloride-free.

It shall be mixed with clean water to the required consistency and not exhibit bleed or segregation.

A volumetric expansion of up to 2% shall occur while the grout is in a plastic state by means of a gaseous, hydrogen-free system. The grout must also be compensated for shrinkage in the hardened state.

The compressive strength of the grout must exceed 35 N/mm² at 7 days and 55 N/mm² at 28 days.

Note: Long narrow grouting section should be avoided where possible and pours arranged to achieve a length : minimum thickness ratio of not more than 20 : 1.

The grout shall fully conform to the requirements of US Army Corps of Engineers Specification for non-shrink grout CRD-C621-82A or ASTM C 1107-91.

The storage, handling and placement of the grout must be in strict accordance with the manufacturer's instructions.

Supplier specification

All precision grouting (specify details and areas of application) must be carried out using Conbextra Deep Pour manufactured by Parchem and used in accordance with the manufacturer's data sheet.

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. Particular care should be 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 minimum gap for pouring Conbextra Deep Pour is 25 mm. The formwork should be constructed to be leakproof as Conbextra Deep Pour 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.

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 150 mm on the pouring side and 50 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 50 kg a slow speed drill fitted with a high shear paddle is suitable. 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.

The selected water content should be accurately measured into the mixer. Slowly add the total contents of the Conbextra Deep Pour bag, mix continuously for 5 minutes, ensuring a smooth, even consistency is obtained.

Consistency of mixed grout

To achieve the consistencies which are defined in CRD-C621-82A, the amount of clean water that is added to a 20 kg at 20°C is:

	20 kg
Flowable:	2.4 - 2.8 L

Maximum flow distance (mm) at 20°C

Grout consistency	Gap depth mm	100 mm head	250 mm head
Flowable:	30	1500	3000
	40	220	3000+
	50	3000	3000+

Placing

Place the grout within 15 minutes of mixing to gain the full benefit of the expansion process.

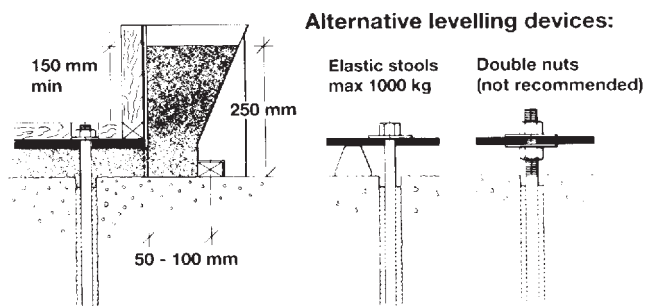
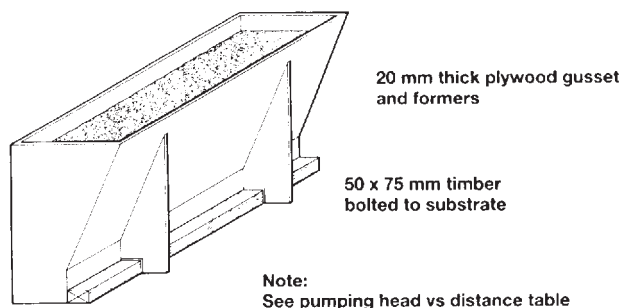
Conbextra Deep Pour can be placed in thicknesses up to 500 mm in a single pour.

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

Continuous grout flow is essential.

Figure 2: Typical hopper system

Removable hopper: For larger pours the grout may be hand placed or pumped into a removable hopper (trough).



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 Deep Pour 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 curing membrane, continuous application of water and/or wet hessian.

Cleaning

Conbextra Deep Pour 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 grout consistency should be flowable and the formwork should be maintained 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 the mixed grout should be stored in the shade. Cool water (below 20°C) should be used for mixing the grout.



Estimating

Supply

Conbextra Deep Pour is supplied in 20 kg moisture resistant bags.

Yield

Allowance should be made for wastage when estimating quantities required. The approximate yields are:

Flowable Consistency

	20 kg
Litres / bag:	10.0
kg / m ³ :	2200
No bags / m ³ :	100

Storage

Conbextra Deep Pour 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.

Precautions

Health and safety

Conbextra Deep Pour 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 or contact a Poisons Information Centre - phone 13 11 26 – **do not** induce vomiting.

Material Safety Data Sheets are available from your local Parchem sales office. Read MSDS, data sheet and label carefully before first use of any product.

Fire

Conbextra Deep Pour is non-flammable.

Additional information

For further details about the use and selection of grouts refer to the Fosroc Information Module entitled "Precision Grouting in the Construction Industry".

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