EmO Grout HF xtra

Non- shrink, high strength, highly fluid, hydrogen free, cementitious precision grout

Uses

EmO Grout HF xtra is used for free flow precision grouting in a wide range of heavy duty applications, such as:

- Machine base plates
- Bridge bearings
- Gas or steam turbines
- Crane rails
- Anchor bolts and rods
- Generators, presses, milling machines
- Column bases
- Precast elements

Advantages

- Non-shrink
- Unique non-metallic dual expansion system
- Excellent initial flow and flow retention
- High early strength facilitates rapid installation and early operation of plant
- 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

EmO Grout HF xtra meets or exceeds the test requirements of ASTMC 1107.

Suitable for use in contact with potable water

Description

EmO Grout HF xtra is supplied as a ready to use pre bagged dry powder. The addition of a controlled amount of clean water produces a free-flowing precision grout for gap thickness from 10 to 150 mm. in addition the low water requirement ensures high early strength and long term durability.

EmO Grout HF xtra is a blend of Portland cements, graded fillers and chemical additives which imparts controlled expansion in both the plastic and hardened states. The filler grading minimizes segregation and bleeding over a wide range of application consistencies.

Technical support

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

Typical properties

The following results were obtained at a water : powder ratio of 0.132

Test Method	**Typical Result**
Compressive Strength	
(BS 1881 Pt. 116:1983)	: > 40 N/mm^2 at 1 day
	:> 65 N/mm^2 at 7 days
	: 80 N/mm^2 at 28 days
Flow	
(ASTM C 1437-01)	: Greater than 150%
Bleed (ASTM C 940)	: Nil
Setting time	
(ASTM C 191-01a)	
Initial Set	: 8 -9 hours @ 25^{0}c
Final Set	: 12 hours @ 25^{0}c
Fresh wet density	
(BS 1881:107:1983)	: Approx. 2,200 kg/m^3

Expansion characteristics: up to 1% in accordance with ASTM C 940:98a

Chloride Permeability	
(ASTM C 1202:19)	: Very Low

Instructions for use

Preparation

Concrete 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 and fixing pockets must be blown clean of any dirt or debris.

Pre-soaking

For a minimum of 12 hours prior to grouting, the area of cleaned substrate 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 spots

Leveling 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 leak proof as EmO Grout HF xtra is a free flowing grout. This can be achieved by using a foam rubber strip or mastic sealant beneath the constructed formwork and between joints. In some cases it is practical to use

sacrificial semi dry sand and cement formwork. The form work should include outlets for the pre-soaking water.

Unrestrained surface area

This must be kept to a minimum. Generally the gap width between the perimeter formwork and the plate edge should not exceed 75mm on the pouring side and 25 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 60 kg a slow speed drill fitted with a mixing paddle should be used. Larger quantities will require a high shear vane mixer.

It is essential that machine mixing capacity and labor 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.

Consistency of mixed grout

Flow able : 3.3 liters for 25 kg bag

Fluid : 3.5 liters for 25 kg bag

The selected water content should be accurately measured in to the mixer. Slowly add the total contents of the EmO Grout HF xtra bag; mix continuously for 5 minutes, ensuring a smooth, even consistency is obtained.

Placing

At 25^0c, place the grout within 15 minutes of mixing to gain the full benefit of the expansion process.

EmO Grout HF xtra can be placed in thickness up to 175 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. Sufficient grout must be available prior to starting and the time taken 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 mainatained at all times so that a continuous grout front is achieved.

Curing

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

High temperature working

For temperatures above 35^0c, the following guidelines are adopted

- Store unmixed material in a cool environment, avoiding exposure to direct sun light
- Water below 20^0c should be used for mixing the grout prior to placement

- Try to eliminate application during the hottest times of the day and direct sunlight
- Keep equipment cool, arranging shade protection if necessary.
- Make sufficient material, plant and labor available to ensure that application is a continuous process

Estimating

Supply

EmO Grout HF xtra : 25 kg bags

Yield : 13.5 liters/ 25 kg

Storage

Shelf life

All products have a shelf life of 12 months if kept in a dry store in the original, unopened bags or packs.

Storage conditions

Store in dry conditions in the original, unopened bags or packs. If stored at high temperatures and/or high humidity conditions, the shelf life may be reduced to 4 to 6 months.

Precautions

Health and safety

EmO Grout HF xtra 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 provides 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 — do not induce vomiting.

Fire

EmO Grout HF xtra is non-flammable. For further information, refer to the Product Safety Data Sheet.

Additional information

ELMRR manufactures a wide range of products specifically designed for the repair and refurbishment of damaged reinforced concrete. This includes hand-placed and spray grade repair mortars, fluid micro-concretes, chemical resistant epoxy mortars and a comprehensive package of protective coatings. In addition, a wide range of complementary products is available. This includes joint sealants, waterproofing membranes, High quality precision grouts, anchoring and specialised flooring materials.

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