# ELMIERE CABLE GROUT XTRA

Pre-bagged, non-shrink cement based grout admixture for post tensioned cables

**Uses**

For pumped or free flow grouting, it can be used in wide range of applications:

Post tensioned cable ducts

Pre stressed cable ducts

Slip form silo tendon ducts

**Advantages**

- Expansion system compensates for shrinkage and settlement in the plastic state
- Develops high early strength without the use of chlorides
- High ultimate strength and low permeability ensure the durability of the hardened grout
- Compatible with ordinary Portland cements

**Description**

ELMIERE Cable Grout XTRA is supplied as a dry powder requiring only the addition of a controlled amount of clean water and cement to produce a free flowing non-shrink grout.

ELMIERE Cable Grout is an all fines admixture containing expansive cements and additives which impart controlled expansion in the plastic state whilst minimizing water demand. The material is designed to allow uniform mixing, and eliminates unwanted segregations and bleeding.

**Specification**

All grouting, where shown on the drawing, must be carried out with a grout admixture which is iron-free and chloride-free. It shall we mixed with clean water and cement to the required consistency. The plastic grout must not bleed or segregate.

A positive volumetric expansion of up to 4% shall occur.

The compressive strength of the grout must exceed 44 N/mm$^2$ at 7 days and 60 N/mm$^2$ at 28 days

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

**Supplier specifications**

All grouting where shown on the drawing must be carried out using ELMIERE Cable Grout XTRA manufactured by ELMRR and used in accordance with the manufacture's current data sheet

**Properties**

The following properties were achieved using OPC cement at a 0.36w/c ratio

Compressive Strength

BS 8110 part 1 1985 : 24 N/mm$^2$ @ 1 day

44 N/ mm$^2$ @ 3 days

60 N/ mm$^2$ @ 7 days

85 N/mm$^2$ @ 28 days

Fresh wet density: Approximately 2000kg/m$^3$

Depending on actual Consistency used

| | | |
|---|---|---|
| Chloride content | : | Nil to BS5075 |
| Expansion | : | 4% +ve |

**Instructions for use**

**Preparation**

Several hours prior to grouting, the area should be flooded with fresh water. Immediately before grouting takes place any free water should be removed

All cable ducts must be thoroughly cleaned. Those ducts formed without metal sheaths should be finished with water after which all surplus water must be removed. Cable anchorages should be sealed before the duct grouting is carried out.

**Mixing and placing application**

**Mixing**

For best result a mechanically powered grout mixture should be used. When quantities of up to 60 kg are used, a low speed drill fitted with a high shear mixer is suitable. Larger quantities will require a high shear vane mixer.

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

32 to 42 liters of clean water and 100 kg of cement are required to be added per 6 kg bag to achieve the correct consistency

The water should be accurately measured in to the mixer. The total contents of the ELMIERE Cable Grout XTRA bag should be slowly added with the cement and continuous mixing should take place for 5 minutes. This will ensure that the grout has a smooth even consistency.

Place the grout within 20 minutes of mixing

**Curing**

Any exposed areas should be thoroughly cured. This should be done by the use of EmO Cure curing membrane.

**Cleaning**

ELMIERE Cable Grout XTRA should be removed from tools and equipment with clean water immediately after use. Cured material can be removed mechanically.

**Sampling procedure**

All sampling procedures for ELMIERE Cable grout XTRA are to be conducted within the confines of a temperature controlled laboratory. The reactive agents within ELMIERE Cable grout XTRA do not permit site sampling and transport. The procedure for sampling is to be as follows:

1. A full and unopened bag of ELMIERE Cable Grout XTRA to be selected from the batch allocated for site use and dispatched to the testing laboratory.
2. The ELMIERE Cable Grout XTRA shall be mixed in the laboratory following the instructions listed on the product data sheet.
3. All sampling shall be conducted using 50 mm cube moulds, any other size is not permissible.
4. When mixed, the ELMIERE Cable grout XTRA shall be poured in to 50 mm cube moulds, treated with release agent, in two lifts of 25 mm

each with a 60 second interval between pours. The ELMIERE Cable Grout XTRA shall not be tamped, but gentle tapping of the cube mold is permitted to promote the release of air.

5. Fill three 50 mm cube molds with the ELMIERE Cable Grout XTRA for each curing time interval specified. Mold filling should be completed within 15 minutes of the end of the mixing cycle. The filled molds should be stacked three high on top of each other to provide conditions of restraint. The top mould should be restrained either with a weighted metal plate or an empty cube mold.
6. The cube should be stored at a 20 $^0$ c+_ 2 $^0$c temperature for 24 hours in the laboratory. After 24 hours the cubes are to be demolded and placed in water curing tank maintained at a 20 $^0$c +_ 2 $^0$c temperature. The cubes are then to be cured in accordance with BS 1881.
7. Cubes are to be crushed in calibrated compression testing apparatus with a rate of loading not exceeding 180 KN per minute. Types of cube fracture are to be recorded. Three cubes are to be crushed for each curing time interval specified. Results are to be calculated and issued as an average.

**Limitations**

**High temperature working**

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

- Store unmixed material in a cool environment, avoiding exposure to direct sun light
- Water below 20$^0$c 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**

ELMIERE CABLE GROUT XTRA : 12 kg bags

Yield: Approx. 68 liters when mixed with 100 kg cement and 34 liters of water

**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**

ELMIERE Cable Grout 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**

ELMIERE Cable Grout 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.

**Product Manufactured By:**

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