Expangrout* TS150

CONSTRUCTION CHEMISTRY

Non-shrink cementitious aggregate filled precision grout for large thickness grouting

Uses

Expangrout* TS150 is an exceptionally high strength grout designed for large thickness grouting 40 - 150 mm, in single pour, suitable for pockets, turbines, compressor base plates for reciprocating machines, also suitable for:

- Bridge bearing pad
- Large pours 40 - 150 mm, and can also be used for more than 150 mm thickness with reinforcement
- Crane rails, generators, milling machines
- Columns base, anchor bolts, pockets.
- Precast elements
- High early and ultimate compressive strengths

Advantages

- Non-shrink and non-metallic duel expansion system compensate both pre & post shrinkage.
- High compressive strength
- Low permeability, ensure durability of hardened grout Excellent flow and flow retention
- High early strength facilities rapid installation and early operation of plants.
- Hydrogen free gaseous expansion
- Chloride free
- Suitable for pumping or pouring over a large range of application consistencies and temperatures.

Description

Expangrout* TS150 is a ready to use dry powder supplied in 20kg bag Expangrout* TS150 is specially design for high strength and large volume grouting.

The addition of a controlled amount of clean water produces a free-flowing grout with high early and ultimate strengths as well as long term durability, suitable for use in section thicknesses 40mm to 150mm. thicker sections can be achieved with reinforcement, contact local Fospak office for assistance.

Standard compliance

Expangrout* TS150 is formulated to comply with ASTM C1107 Grade C, ASTM C940-98

Specification

Performance specification

All grouting where shown on the drawing must be carried out with a pre-packaged cement based product which is chloride-free.

It shall be mixed with clean water to the required consistency. The plastic grout must not bleed or segregate.

A positive volumetric expansion shall occur while the grout is in plastic consistency.

The compressive strength of the grout must exceed 55 N/mm² at 7 days and 70 N/mm² at 28 days.

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

Supplier specification

All grouting where shown on the drawing must be carried out using Expangrout* TS150 manufactured by Fospak and used in accordance with the manufacturers data sheet.

Chemical and temperature resistance

Dense and watertight properties of grout does not allow environmental aggressive chemicals & oil to penetrate in grout, grout resist high ambient temperature upto 400°C

Properties

The following results were obtained at water : powder ratio of 0.12 & 0.14 and temperature of 25°C.

Compressive strength @ 12% & 14% Water

BS 1881 part 116 1983	:	48 & 34 N/mm² @ 1 day
	:	53 & 50 N/mm² @ 3 days
	:	65 & 60 N/mm² @ 7 days
	:	84 & 75 N/mm² @ 28 days

Expansion ASTM C940-98a	: Controlled positive expansion
Total chloride ion content (as % of mass of cement)	: <0.10%
Rapid chloride permeability AASHTO T277	: Low
Water permeability DIN 1048 Pt. 5:1991	: 2 - 3 mm

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Instruction 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 4 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 high 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. 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 sacrificial semi-dry sand and cement formwork. The formwork should include outlets for pre-soaking.

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 75 mm on the pouring side and 25 mm on the opposite side. It is advisable where practical to have no gap at the flank sides.

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 Mixing Paddle should be used. 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.

Consistency of grout mix

The quantity of clean water required to be added to a 20 kg bag to achieve flowable consistency is given below.

Water	: 2.40 - 2.80 liters
Water Temperature	: 20 - 25°C

The selected water content should be accurately measured into the mixer. The total contents of the Expangrout*TS150 bag should be slowly added and continuous mixing should take place for 5 minutes. This will ensure that the grout has a smooth even consistency.

Placing

At 25°C place the grout within 15 minutes of mixing to gain full benefit of the expansion process.

Expangrout*TS150 can be placed in thicknesses up to 150 mm in a single pour when used as an under plate or pockets grouting. For thicker sections more than 150 mm can be used with reinforcement, or with the addition of aggregate to minimise exotherm.
Trial must be conducted at site to determin flow of grout & compressive strength, the properties of a bulked grout will differ from those published in this data sheet, please contact local office for assistance.

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 taken 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 base plate. 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.

Where large volumes have to be placed Expangrout* TS150 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 Expancure* curing membrane, or continuous application of water and/or wet hessian.

Cleaning

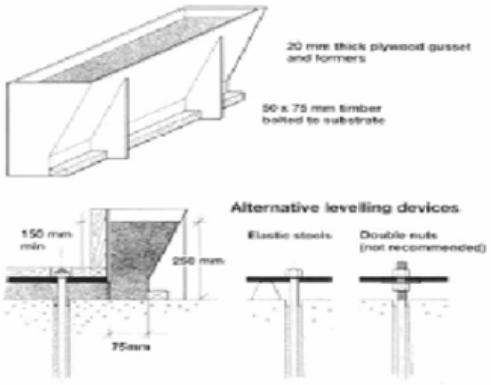
Expangrout*TS150 should be removed from tools and equipment with clean water immediately after use. Cured material can be removed mechanically, or with Expanchem Acid Etch*.

Sampling procedure

Cementitious grouts cannot be tested as concrete. Special sampling procedure are required refer to your local Fospak office for further details.

Typical hopper system

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



High temperature working

It is suggested that, for temperatures above 35°C, the following guidelines are adopted as good working practice:

(i) Store unmixed material in a cool (preferably temperature controlled) environment, avoiding exposure to direct sunlight.

(ii) Keep equipment cool, arranging shade protection if necessary. It is especially important to keep cool those surfaces of the equipment which will come into direct contact with the material itself.

(iii) Try to eliminate application during the hottest times of the day and in direct sunlight.

(iv) Make sufficient material, plant and labour available to ensure that application is a continuous process.

(v) Water (below 20°C) should be used for mixing the grout prior to placement.

Limitations

Grouts should not be placed in any unrestrained situation, i.e. base plate plinths, etc. Failure to comply may lead to crack development in the grout.

Estimating

Supply

Expangrout* TS150	: 20 kg bags

Yield

Flowable	: 10.30 liters
Fluid	: 10.60 liters

Note:- Allowance should be made for wastage when estimating quantities required.

Storage

Expangrout*TS150 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 will be reduced.

Precautions

Health and safety

Expangrout*TS150 is alkaline and should not come into contact with skin and eyes. Avoid inhalation of dust during mixing. Gloves, goggles and dust mask should be worn. If contact with skin occurs, wash with water. Splashes to eyes should be washed immediately with plenty of clean water and medical advice sought.

Fire

Expangrout* TS150 is non-flammable.

*** Denotes the trademark registered.**

REGIONAL SALES OFFICES IN PAKISTAN:

Fospak (Pvt) Ltd.
Head Office
702, Business Avenue,
Block-6, PECHS., Shahra-e-Faisal,
Karachi, Pakistan.
Tel # +92-21-34528477, 34529859
Fax # +92-21-34522436
Email : info.khi@fospak.com.pk

Lahore Sales Office
2nd Floor Sarwar Shaheed Plaza,
Cavalry Ground,
Main Boulevard, Lahore Cantt,
Lahore, Pakistan.
Tel # +92-42-36675773
Fax # +92-42-36675838
Email : info.lhr@fospak.com.pk

Rawalpindi Sales Office
1st Floor,
Al-Harmain Plaza,
Main Murree Road,
Rawalpindi, Pakistan.
Tel # +92-51-4575746
Fax # +92-51-9290590
Email : info.isb@fospak.com.pk

Important note