



# Expangrout\* EP

## Epoxy resin free flow grout

### Uses

A range of free flow grouts for use in situation where heavy static or dynamic loads are encountered. The gap between a base plate and substrate will need to be filled in such applications as reciprocating machinery, testing equipments, heavy cranes and transporter rails, high speed turbines, centrifuges and drop forges.

Also for use in conditions where chemical spillage may be encountered. Typical situations could be met in steel work, refineries, electroplating works and chemical plants.

Expangrout EP300 is especially suitable where extended working time and /or low exotherm properties are required e.g. for large volume pours, deep gaps or high ambient temperature.

### Advantages

- Low creep characteristics under sustained loading
- Excellent durability, high compressive, flexural and tensile strengths ensure a long working life
- Resistant to repetitive dynamic loads.
- Cost effective, high early strength gain promotes minimum downtime and early commissioning of plants.
- Excellent chemical resistant.
- Fast, convenient installation with early strength gain.
- Non-shrink and hence ensure complete surface contact and bond.

### Description

Expangrout\* EP range of epoxy resin based products is designed for assisted and free-flow grouting of gape from 0.25 mm to 300 mm four grades of products are available

**Expangrout\* EP10** for grouting and injection of gaps ranging from 0.25 mm to 10 mm.

**Expangrout\* EP40** for grouting and injection of gaps ranging from 10 mm to 40 mm.

**Expangrout\* EP65** for grouting gaps ranging from 35 mm to 65 mm.

**Expangrout\* EP300** is a low exotherm material which is particularly suitable where long working time is needed, for large gaps upto 300 mm or for grouting at high ambient temperature upto 55 °C

### Properties

Test method	Typical results			
	EP10	EP40	EP65	EP300
<b>Density (kg/m<sup>3</sup>)</b>	1060	1950	2000	1950
<b>Compressive strength</b>				
<b>N/mm<sup>2</sup> ASTM C579</b>				
<b>1 day</b>	55	82	86	57
<b>3 days</b>	68	91	91	--
<b>7 days</b>	77	97	99	91
<b>28 days</b>	--	103	103	105
<b>Tensile strength</b>				
<b>N/mm<sup>2</sup> ASTM C307</b>				
<b>7 days</b>	30	17	15	16
<b>Flexural strength</b>				
<b>N/mm<sup>2</sup> ASTM C580</b>				
<b>7 days</b>	55	34	25	29
<b>Modulus of elasticity</b>				
<b>N/mm<sup>2</sup> ASTM C580</b>				
<b>7 days</b>	16	14.50	15	14
<b>Linear shrinkage (%)</b>				
<b>ASTM C531</b>				
<b>7 days</b>	--	0.094	0.080	0.101
<b>Linear coefficient of Thermal expansion 10-6 (mm/mm°C)</b>				
<b>ASTM C531</b>				
	--	43	42	45
<b>Linear shrinkage of Cured material</b>				
<b>ASTM D2566</b>				
	--	0.0002	0.0002	0.0002
<b>Gel time at 38°C (minutes)</b>				
<b>ASTM D2471</b>				
	--	75	80	120
<b>Peak exothermic Temperature at 32°C</b>				
<b>ASTM D2471</b>				
	--	40	37	34
<b>Water absorption (%)</b>				
<b>ASTM C413</b>				
	--	0.20	0.14	0.17



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### Pot life

Ambient temperature affects the time for which bulk material will remain fluid. Typical values in minutes are enclosed.

Temperature	20°C	30°C	40°C
EP10	60	30	15
EP40	100	90	35
EP65	100	90	35
EP300	240	90	90

For application outside the above temperature ranges please contact your local Expanchem office.

### Technical support

Expanchem Fospak provides a technical advisory service for on-site assistance and advice on admixture selection, evaluation trials and dispensing equipment.

### 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.

#### 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.

### 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 20 kg are used, a slow speed drill fitted with Mixing Paddle should be used. To enable the grouting operation to be carried out continuously, it is essential that sufficient mixing capacity and labour are available.

### Placing

The mixed grout should be poured steadily from one side only to eliminate the entrapment of air.

Continuous grout flow is essential.

Sufficient grout must be available prior to starting. The time taken to pour a batch should be regulated to the time taken to prepare the next batch.

### Flow characteristics

The maximum distance of flow is governed by the gap thickness, the head of grout applied and the ambient temperature.

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.

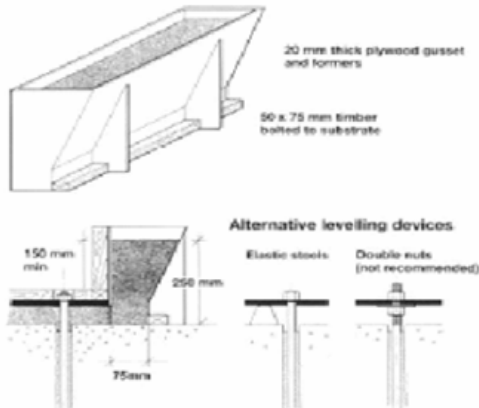
Pouring should be from one side of the void to eliminate any air. It is advisable to pour the grout across the shortest distance of travel. The grout head must be maintained at all times so that a continuous grout front is achieved.



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## 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.

## Cleaning

Expangrout\* EP should be removed from tools and equipment with Expanchem Solvent 102 immediately after use. Cured material can be removed mechanically.

## Estimating

### Supply

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Expangrout\* EP10 : 1 & 5 liter pack

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Expangrout EP40, 65,300 : 20 Kg. pack

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

## Storage

Expangrout\* EP has a shelf life of 12 months if kept in a dry store in sealed packing. If stored in high temperature locations the shelf life will be reduced.

## 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.

For all products except EP300, grouting may be carried out without special precaution at ambient temperatures from 5°C to 25°C.

For EP300, at temperatures below 20°C the cure rate may be slow, but will go to completion provided the temperature remains above 5°C

## Precaution

### Fire

Expanchem Solvent 102 is flammable. In the event of fire extinguish with CO<sub>2</sub> or foam.

## Health and safety

Expangrout\* EP contains resin, which may cause sensitization by skin contact. Avoid contact with skin and eyes and inhalation of vapours. Wear suitable protective clothing, gloves and eye/face protection. Barrier cream provide additional skin protection. Should accidental skin contact occur, remove immediately with a resin removing cream, followed by soap and water. Do not use solvent. In case of contact with eyes, rinse immediately with plenty of clean water and seek medical advice, do not induce vomiting.



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\* Denotes the trademark registered.

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