



# Lapkon G5

## Cementitious Free flow, high strength, non-shrink grout

Lapkon G5 is a precision grout which is essentially withstand static and dynamic loads. Typical applications would be the grouting of base plates of turbines, compressors, boiler feed pumps, Precast Building projects etc., It can also be used for anchoring a wide range of fixings. These include masts, anchor bolts and fence posts. Lapkon G5 is supplied as a ready to use dry powder. The addition of a controlled amount of clean water produces a free flowing, non-shrink grout for gap thicknesses up to 100mm. Lapkon G5 is a blend of Portland cement, graded fillers and chemical additives which impart controlled expansion in the plastic state whilst minimizing water demand. The low water demand ensures high early strength. The graded fillers are designed to assist uniform mixing and produce a consistent grout.

### Product features and advantages

- Gaseous expansion system compensates for plastic shrinkage and settlement in plastic state
- No metallic iron content to cause staining.
- Pre-packed material overcomes onsite batching variations
- Develops high early strength without the use of chlorides
- High ultimate strength ensure the durability of the hardened grout
- Free flow ensures high level of contact with load bearing area

### Technical Specification

Compressive strength : (BS 1881 - Part 116: 1983)

Age (days)	Compressive strength (N/mm <sup>2</sup> )	
	Flowable (W/P 0.18)	Pourable (W/P 0.165)
1	25	27
3	46	52
7	56	58
28	67	71

Flexural strength ( BS 4551, 1998)

Age (days)	Flexural strength (N/mm <sup>2</sup> )	
	W/P 0.18	W/P 0.165
1	2.8	
3	7.0	
7	9.0	
28	11	

Tensile strength 3.7N/mm<sup>2</sup> @ 28 days (W/P - 0.18)

Time for expansion Start : 20 minutes (after mixing ) Finish : 120 minutes

Fresh wet density approximately 2225kg/Cum depending on actual consistency used

Unrestrained expansion 2 - 4 % in the plastic state enables to Overcome shrinkage.

Pressure to restrain 0.004 N/mm<sup>2</sup> approx.

### Consistency of grout mix

The quantity of clean water required to be added to a 25kg bag to achieve the desired consistency is given below:

Pourable : 4.125 litres

Flowable : 4.5 litres

The selected water content should be accurately measured into the mixer. The total content of the Lapkon G5 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.

### 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 laitence, 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

Several hours prior to placing, the concrete substrates should be saturated with fresh water. Immediately before grouting takes place any free water should be removed with particular care being 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.



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## Mixing and placing

### Mixing

For best results a mechanically powered grout mixer should be used. When quantities up to 50kg are used, a heavy duty slow speed drill (400-500 rpm) fitted with a paddle is suitable.. Larger quantities will require a heavy duty 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.

### Placing

At 30°C place the grout within 20 minutes of mixing to gain full benefit of the expansion process. Lapkon G5 can be placed in thicknesses up to 100mm in a single pour when used as an under plate grout. For thicker sections it is necessary to fill out Lapkon G5 with well graded silt free aggregate to minimise heat build up. Typically a 10mm aggregate is suitable. 50 - 100% aggregate by weight of Lapkon G5 can be added.

### Curing

On completion of the grouting operation, exposed areas should be thoroughly cured. This should be done by the use of Silkon WB40 curing membrane, continuous application of water and/or wet hessian.

## Limitations

### Low temperature working

When the air or contact surface temperatures are 10°C or below on a falling thermometer, warm water ( 30 - 40°C) is recommended to accelerate strength development. For ambient temperature below 10°C the formwork should be kept 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 40°C, cool water ( below 20°C) should be used for mixing the grout prior to placement.

### Packaging

Lapkon G5 is supplied in 25 kg moisture resistant bags.

### Yield

Allowance should be made for wastage when estimating quantities required. The approximate yield per 25 kg bag for different consistency is :

Consistency	Pourable	Flowable
Yield ( litres)	12.5	13.3

## Storage

### Shelf life

Lapkon G5 has a shelf life of 6 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 instructions

Lapkon G5 is alkaline and should not come into contact with skin and eyes. Inhalation of dust during mixing should be avoided. Gloves, goggles and dust mask should be worn. If contact with skin occurs, it shall be washed with water. Splashes to eyes should be washed immediately with plenty of clean water and medical advice sought.

### Fire

Lapkon G5 is non flammable.

### Additional information

For further details about the use and selection of grouts refer to the Silkon Information module entitled 'Precision grouting in the Construction industry'.