

Polyester resin grouts

Uses

Lokfix mix and place grouts are used for:

- High strength corrosion resistant anchoring of bolts and bars from 12 to 51 mm diameter into concrete, rock, masonry or brickwork where high speed of installation and early application of load is required
- Permanent installation of reinforcement starter bars, foundation bolts, base plates, balustrading, barriers and safety fences, railway tracks, tie-back anchors, reinforcement dowelling abutments.

Advantages

- Easy to mix and apply
- Rapid strength gain
- Vibration resistant
- Corrosion resistant
- Non-expansive
- Can be placed underwater
- Increased flowability

Standards compliance

The material is tested in accordance with BS 5080, BS 7861 and BS 6319.

Description

The two versions of Lokfix are pre-measured, two-part, filled polyester resin grouts. After hardening, the grout produces anchorages of consistent reproducible values.

The two versions are:

Lokfix S25 (pourable grade, 25 minute gel at 20°C):

Is for use where the hole is 8 to 40 mm greater in diameter than the bar.

Lokfix P25 (pumpable grade, 25 minute gel at 20°C):

Is used in overhead or horizontal holes where the hole is up to 25 mm greater in diameter than the bar. The thixotropic nature of Lokfix P25 reduces flow of grout out of the hole.

Technical support

Fosroc offers a comprehensive range of high performance, high quality technical products. In addition Fosroc offers a technical support package to specifiers and contractors which includes computer-aided design (CAD), standard details as well as on-site technical advice from staff with unrivalled experience in the industry.

Properties

Gel time

Temperature (°C)	Gel time (minutes)	Minimum time before load (hours)
5	130	12
10	65	5
20	25	2
30	10	1

The following test results were obtained at a temperature of 20°C:

	Lokfix S25	Lokfix P25
Compressive strength: (BS 6319 Part 2: 1983)	83 N/mm ²	87 N/mm ²
Tensile strength: (BS 6319 Part 7: 1985)	11 N/mm ²	11 N/mm ²
Flexural strength: (BS 6319 Part 3: 1983)	20 N/mm ²	19 N/mm ²
Compressive modulus: (BS 7861 Part 1: 1996)	13 GPa	13 GPa
Density:	1880 to 1920 kg/m ³	1880 to 1920 kg/m ³

Chemical resistance

The cured resin is resistant to fresh and salt water, petrol, oils, grease and most acids, alkalis and solvents. Consult Fosroc Technical Department for specific chemical resistance.

Temperature limitation

Lokfix polyester resin grouts may be used at substrate temperatures of 5°C and above. For lower temperatures, please seek advice from the Fosroc Technical Department.

Application instructions

Selection of grout version

The version of Lokfix grout chosen will depend on anchor conditions (see 'Description').

Parameters of anchor design

The high strength of the cured resin permits strong anchors to be created. Ultimate strength is varied by:

Strength of host material.

Length of resin bond to bar.

Hole preparation and formation.

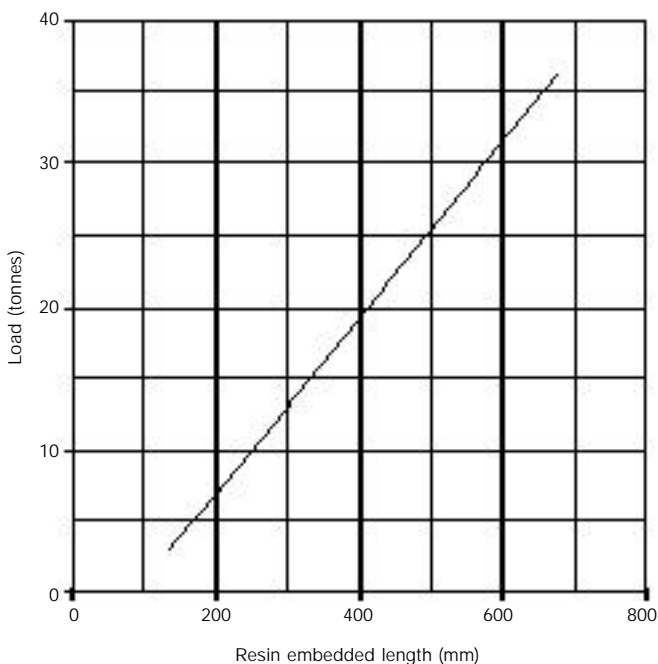
Type and dimension of bar.

Typical loads attained

Concrete: 20 N/mm² unreinforced.

Bar: Deformed rebar to BS 4449.

Hole: Air-flushed rotary percussive drilled.



Note: The graph illustrates typical failure loads. Minimum safety factors of 1.5 in non-critical and 2 in critical cases should be considered for design purposes. Where relevant, the local codes of practice or standards must also be considered in relation to anchorage length.

Hole preparation and formation

Optimum performance of Lokfix grouts requires rough sided, dust-free holes. Use of rotary percussive drills with air or water flushing is recommended.

Diamond drilled holes should be under-reamed.

Cast holes should preferably be of inverse dovetail configuration. If parallel sided holes are cast they should be rough to provide adequate keying.

Bar preparation

All bars should be deformed. They should preferably be degreased and all flaky rust removed.

Mixing

A complete pack of resin and catalysed filler should be mixed in one operation. Mixing may be carried out manually or mechanically. When a smooth, even consistency is achieved the grout is ready for use and should be placed well within the gel time of the grout.

Packs have been designed to produce practical and economic volumes of grout.

DO NOT attempt to mix partial pack components.

Installation

Lokfix S25

Using the calculated volume of grout based on the estimating guide table, the grout should be poured steadily into the prepared holes. The anchor bar is then pressed into the hole to the required depth; slight agitation will assist in achieving a complete bond. The bar should be left undisturbed in the required position until the resin is set.

Lokfix P25

The grout should be injected to the rear of the hole to avoid air entrapment. The thixotropic nature of Lokfix P25 will prevent significant flow of resin out of the hole.

A range of Lokfix pumping and injection equipment is available to aid application.

Cleaning

Any mixing drums, pumps, etc., should be cleaned within the pot life of the grout. Fosroc Solvent 105 is available for this purpose.

Estimating guide

To find the quantity of material required

The table below indicates the quantity of material in litres required for each 100 mm of hole depth.

Example

- 100 fixings, each using a 20 mm diameter bolt into a 38 mm diameter hole which is 300 mm deep.
- From the table: 20 mm diameter bolt and 38 mm diameter hole gives **0.082 litre** per 100 mm depth of hole therefore **0.082 litre** x 3 (300 mm deep hole) equals **0.246 litre** per hole/fixing.
- As 100 fixings are required: 100 x 0.246 litre = **24.6 litres total**.
- Lokfix S25 and Lokfix P25 are supplied in 2.5 litre packs

$$\text{therefore } \frac{24.6}{2.5} = 9.84 \longrightarrow 10 \text{ packs required.}$$

NB: This example and the table below quotes net quantities and makes no allowance for overdrilling the hole or for any wastage. A typical allowance to cover these factors is approximately 10%.

To determine the quantity of material per 100 mm of hole depth

Hole diameter	Bolt diameter							
	12 mm	16 mm	20 mm	25 mm	32 mm	38 mm	44.5 mm	51 mm
20 mm	0.020 litre	—	—	—	—	—	—	—
25 mm	0.038 litre	0.029 litre	—	—	—	—	—	—
32 mm	0.069 litre	0.060 litre	0.049 litre	0.031 litre	—	—	—	—
38 mm	—	0.093 litre	0.082 litre	0.064 litre	—	—	—	—
45 mm	—	—	0.128 litre	0.110 litre	0.079 litre	0.046 litre	—	—
51 mm	—	—	—	0.155 litre	0.124 litre	0.091 litre	—	—
57 mm	—	—	—	0.206 litre	0.175 litre	0.142 litre	0.100 litre	—
64 mm	—	—	—	0.273 litre	0.241 litre	0.208 litre	0.166 litre	0.117 litre
76 mm	—	—	—	—	—	0.340 litre	0.298 litre	0.249 litre

Estimating

Packaging

Lokfix S25

The pack consists of a can of resin and a plastic bag of hardener contained in a plastic mixing pail with a snap-on lid. Volume of mixed components: 2.5 / 8 litres.

Lokfix P25

The pack consists of a can of resin and a plastic bag of hardener contained in a plastic mixing pail with a snap-on lid. Volume of mixed components: 2.5 / 8 litres.

Supply

Contact your local Fosroc office or representative.

Storage

Store in accordance with the Highly Flammable Liquids and Liquefied Petroleum Gases Regulations 1972. Shelf life of 12 months at 20°C will be reduced at higher temperatures.

Limitations

Fire resistance and creep

At operating temperatures above 40°C, the creep of Lokfix resin under load may become significant. Resin anchors should not be used where structural load bearing performance has to be maintained in anchors subjected to fire conditions.

Precautions

Health and safety

Lokfix products and Fosroc Solvent 105 are flammable. Keep away from sources of ignition — No Smoking.

Some people are sensitive to resins and solvents. Avoid contact with skin and eyes. Ensure adequate ventilation at all times and avoid inhalation of vapours.

Wear suitable protective clothing, gloves and eye/face protection. Barrier creams provide additional skin protection.

Should accidental skin contact occur, wash immediately with a resin removing cream, followed by soap and water.

In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.

If swallowed, seek medical attention immediately — **do not** induce vomiting.

For additional information see relevant Product Safety Data Sheet.

Fire

Lokfix products and Fosroc Solvent 105 are flammable. Do not expose to naked flames or other sources of ignition. No Smoking. Containers should be tightly sealed when not in use. In the event of fire, extinguish with CO₂ or foam.

Flash points

Lokfix S25:	29°C
Lokfix P25:	29°C
Fosroc Solvent 105:	43°C

Additional information

Fosroc supplies a range of associated products for the construction and anchoring industries. Details are available on request.

Important note

Fosroc products are guaranteed against defective materials and manufacture and are sold subject to its standard Conditions for the Supply of Goods and Services, copies of which may be obtained on request. Whilst Fosroc endeavours to ensure that any advice, recommendation, specification or information it may give is accurate and correct, it cannot, because it has no direct or continuous control over where or how its products are applied, accept any liability either directly or indirectly arising from the use of its products, whether or not in accordance with any advice, specification, recommendation or information given by it.