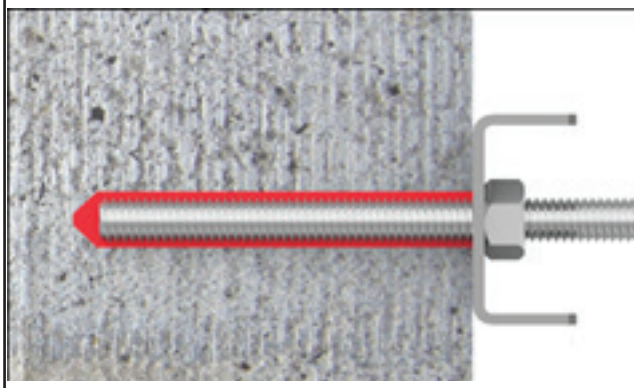
Fosroc®Lokfix E35

Styrene free Polyester resin based cartridge system, for anchoring reinforcement and lightweight fixings into a variety of substrates.



Uses

For concrete (solid, porous and light) masonry, natural stone and hollow bricks.

- Cost effective alternative for the anchoring of threaded rods, reinforcing bars, profiled rod, steel section with undercuts and internal threaded rod sleeves.
- Safe application in hollow bricks using a screen sleeve
- For horizontal, vertical and overhead application.
- Bonding and surface crack sealing applications.
- Suitable for dry, wet and flooded concrete.

Advantages

- Fast return to service
- May be used with a good quality skeleton gun (300 ml size)
- No additional mixing equipment required
- Does not apply expansive force to the substrate
- Enables fixings closer to edges than mechanical anchors
- Resistant to a variety of chemicals.
- Low VOC
- Re-usable by replacing the static mixer
- Waterproof, protecting the fixing from corrosion
- Performs over a wide variety of temperatures.

Description

Lokfix E35 is a two component Polyester anchoring material, supplied in single component cartridges with a static mixer nozzle. When applied it sets and cures rapidly to firmly secure a variety of steel fixings into concrete and masonry substrates.

Three grades of Lokfix E35 are available, selection is normally based upon the substrate installation temperature :

Lokfix E35S : Standard temperature grade, optimised for substate installation temperatures between -5 to +40°C.

Lokfix E35L: Low temperature grade, optimised for substrate installation temperatures between +10 to +30°C.

Lokfix E35T : Tropical temperature grade, optimised for substrate installation temperatures between +10 to +45°C

Other grades of Lokfix are also available

Lokfix E55 Resin anchor cartridge system based on styrene free vinyl-ester for light and medium weight fixings and reinforcement into concrete and masonry.

Lokfix E75 Resin anchor cartridge system based on pure epoxy for heavy duty fixings and reinforcement anchoring into concrete.

Specification Clause

The anchor grout shall be Fosroc Lokfix E35 cartridge system. The Anchoring grout shall comply with European Technical Assessments, ETA 18/0553 and ETA 18/0552.

Standards Compliance

Lokfix E35S, L&T comply with the following standards”

- European approval acc. to EAD 330076-00-0604 product area code : 33 Injection Anchors for use in Masonry (supersedes ETAG TR029)
- European approval acc. to EAD 330499-00-601 product area code:33 Injection Anchors for use in uncracked concrete (supersedes ETA G001 option 5).
- Emissions
- Leed complaint VOC Level

Lokfix®

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Table. Material Properties

Compressive Strenth (EN 196)	70MPa
Flexural Strength (EN 196)	30MPa
E Modulus (EN 196)	400MPa
Density	1.74kg/L
Max permanent service temperature	-40 to +50°C
Max temporary service temperature	-40 to 80°C

Chemical resistance

Lokfix E55 has resistance to a wide variety of chemicals. Consult Fosroc technical department for specific data.

Table. 2. Lokfix E35S Gel & Fixing Times

For optimal use the cartridge temperature should be between

Substrate Temp.	Gel Time(mins)	Fixing Time(mins)
-5°C	90	360
0°C	45	180
+5°C	25	120
+10°C	20	100
+15°C	15	80
+20°C	6	45
+30°C	4	25
+35 to 40°C	2	20

Table 3. Lokfix E35L Gel & Fixing Times

For optimal use the cartridge temperature should be between +15 to +30°C

Substrate Temp	Gel Time (mins)	Fixing Time (mins)
-10°C	60	240
-5°C	45	120
0°C	25	80
+5°C	10	45
+10°C	4	25
+15°C	3	20
+20 to 30°C	2	15

Table 4. Lokfix E35T get & Fixing Times

For optimal use the cartridge temperature should be between +15 to +30°C

Substrate Temp.	Gel Time(mins)	Fixing Time(mins)
+10°C	30	300
+15°C	20	210
+20°C	15	145
+30°C	10	80
+35°C	6	45
+40°C	4	25
+45°C	2	20

Note, the substtrate temperature can vary significantly from the ambient temperature.

The tables are for dry conditions.

Design Criteria

Note table 5 is for dry un-cracked concrete only. For all other conditions including fixings into solid and hollow masonry types, refer to the relevant method statement, or EAD document available through your local technical office.

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Table 5. Setting Parameters - details below

Un-cracked Concrete Threaded Rod									
Anchor Size	**Un-cracked Concrete Threaded Rod**								
Anchor Size				M8	M10	M12	M16	M20	M24
Edge Distance	1 xhef	Ccr,N	mm	80	90	110	125	170	210
Min. Edge Distance	5 x d	Cmin	mm	40	50	60	80	100	120
Axial Distance	2 x hef	Scr,N	mm	160	180	220	250	340	420
Min. Axial Distance	5 x d	Smin	mm	40	50	60	80	100	120
Embedment Depth	Hef mm			80	90	110	125	170	210
Min. part thickness	Hmin		mm	Hef +30mm			Hef +3d0		
Drill Diameter	d0		mm	10	12	14	18	24	28
Brush Diameter	db mm			12	14	16	20	26	27
Installation Torque	Tinst.		Nm	10	20	40	60	120	150
Material Consumption			ml	3	4	5	7	24	24

Assistance and qualification

Design of fixings and reinforcement must be undertaken by suitably qualified personnel with understanding of the construction and use of the structure, the use of the fixing, as well as being in compliance with local legislation. In applications, where fixings must be designed and applied in compliance with the requirements of the ETA, designers should consult the relevant Fosroc accreditation documents.

Product Installation

The following methodology is for installation into solid substrates such as reinforced concrete. For hollow substrates please request a separate method statement.
Full details are available in the application method statement, a copy of which may be obtained from your local Fosroc technical department.

Hole Formation and Preparation

Drill hole with percussive drill ensuring sides of the concrete are rough. If rebar is struck immediately stop drilling and seek the advice of the designing engineer
Clear holes immediately prior to installation of fixings to avoid them becoming re-contaminated. Standing water in the hole shall be removed prior to preparation.
Using a hand pump or compressed air insert the nozzle to the back of the hole and blow out 4 times.

Insert a wire cleaning brush to the bottom of the hole and brush out 4 times. Using a hand pump or compressed air insert the nozzle to the back of the hole and blow out an additional 4 times. If dust is still present, repeat the process untill no further dust is visible.
Ensure the drill bit and the cleaning brush are of suitable diameter for the fixing used.

Threaded rod :
Drill bit = rod diameter + 2 mm
Wire brush = rod diameter + 4 mm

Fixings Preparation

Fixings shall be free from rust, paint, grease and contaminants which will interfere with the bond.
In wide/overhead holes a piston plug will help reduce slump and ensure a void fee application.

Installation

Unscrew the fixing cap. Pull the plastic within the tube slightly upwards so that the steel collar is exposed, cut the plastic tube competently removing the metal clip and discard. Screw the static mixer nozzle onto the cartridge. Place the cartridge into the application gun. Pull the trigger to extrude the Lokfix E35. Important: extrude the initial material until the colour becomes grey and consistent. This typically takes two or three full squeezes. Discard material that is streaky in colour. Insert the nozzle to the back of the hole and pump the

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Lok material gently pulling back until the hole is ¾ full. Ensure there are no voids in the resin. If the hole is too deep for the nozzle to reach the back, use a nozzle extender. In wide/overhead holes a piston plug will help reduce slump and ensure a void fee application. Observing the product gel time, insert the fixing into the hole using a gentle twisting motion. Ensure the fixing is inserted to the required depth and is held straight until the resin sets. There should be some extrusion of the Lokfix material from the hole which indicates that there is full embedment. Do not load or apply tension to the fixing until the product fixing time has been observed, see tables 2, 3 & 4. Do not over-tighten fixings. Observe maximum installation torque as stated in table 5. If the cartridge is to be re-used, remove the mixing nozzle and re-apply the cap. When using again a new mixing nozzle will be required.

Cleaning

Wet resin should be removed from tools and equipment using Fosroc Solvent 105 immediately after use.

Estimating

Supply

Lokfix E55S and Lokfix E55L are supplied in boxes of 12 no. 300ml cartridges, each supplied with a single mixer nozzle. Fosroc may also supply: steel cleaning brushes; hollow block sleeves; dust blower pumps; extension nozzle; application guns; piston plugs; spare mixer nozzles.

Yield

Standard yield estimation is provided in tables 4 and 5 based on the hold diameter, fixing size and embedded length. For non-standard consumption the following calculation of theoretical consumption may be used. Factors such as over-drilling, extrusion from bolt hole, initial gun extrusion and some wastage should also be considered. (π radius cm hole2 - π radius cm bolt2) x hole length cm = consumption ml.

Limitations

Load calculations to be undertaken by a qualified engineer. When embedding into hollow masonry it is normally necessary to use hollow block sleeves. Consult separate method statement. Attention natural stone can discolour, check in advance. Not recommended for the following conditions: seismic; cracked concrete and fire rated, consider Lokfix E55 or Lokfix E75. after referring to the respective technical datasheets.

Storage

300ml cartridges have a maximum shelf life of 12 months when kept in a dry warehouse at between +5 to +25ºC.

Precautions

Health & Safety
Observe the information provided on the relevant SDS.

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