KingInject ® 70E

Resin based injection crack repair system.

DESCRIPTION

KingInject 70E is a two component, low viscosity epoxy resin system for crack injection applications in concrete, masonry, and brickwork.

APPLICATIONS

For injection of cracks in all types of structural concrete elements, masonry, and brickwork.
Suitable for injecting cracks widths from 0.2 - 10 mm.

ADVANTAGES

- Excellent bond strength to concrete, brickwork, and masonry.
- Low viscosity epoxy resin, formulated to allow cracks penetration down to 0.2 mm.
- Can be used in damp or dry conditions.
- Low creep.
- Non-shrink.
- Exhibit good chemical resistance.

STANDARDS

KingInject 70E is suitable for use in contact with potable water when tested in accordance to BS 6920.

METHOD OF USE

Depending on crack width, depth, location, and thickness of the structural element that needs to be injected, many injection techniques requiring different injection tools and equipment may be used. The method of injection given in this Technical Data Sheet is based on most common situation. For more details, KINGKRETE Technical Department should be consulted for assessments and advise.

Substrate Preparation

The surface of the cracks should be cleaned from dust, oil, plaster, grease, curing compound and corrosion deposits. All cracks to be repaired should be cleaned with compressed air. This should be carried out after drilling of injection holes.

Injection Holes Drilling & Fixing

Holes are drilled to install mechanical packers. Always try to allocate steel re-bars and conduit before drilling. Using high quality rotary hummer drill, and depending on packer diameter used, a suitable drill pit used, usually 13 mm or 16 mm diameter mechanical packers are used.

TECHNICAL PROPERTIES

Compressive strength: BS 6319, Part 2:1983	≥ 70 MPa @ 7 days @ 25ºC
Flexural strength: ASTM C580	≥ 50 MPa @ 7 days
Tensile strength: BS 6319, Part 7:1985	≥ 25 MPa
Pot life:	50 - 70 min @ 25ºC
Density:	1.1 ± 0.05
Viscosity:	3 - 5 poise @ 25ºC 1 - 2 poise @ 35ºC
Minimum application temperature:	5°C
VOC:	< 20 g/ltr

The angle which drilling should be is 45ºC or less to the surface and toward the crack. Depth of the drill holes intersecting the crack should be somewhat close to middle of structure, if possible.
Holes greater than 45 cm are not required even if the concrete being repaired is more than 90 cm thick. Holes should always be staggered from one side of the cracks to the other.

Spacing: distance between drilled holes usually varies from approximately 15 – 50 cm according to width of the cracks (30 cm is commonly used). Yet the wider the cracks, the further apart are drill holes.

Note:
If concrete thickness 15 cm or less, do not attempt angle drilling. Also to minimize concrete spalling, packers will be set into the face of the crack.

Fixing of Injection Mechanical Packers (Nipples)

Packers shall be placed in drill holes so that top of the rubber sleeve is below concrete surface. Tight the packer with wrench as much as you can. Mix a small quantity of epoxy adhesive using Quickmast GPS (Fast set).

The mix adhesive should be applied on the cracks between the injection packers to seal the cracks at a thickness of 2 – 3 mm and at least 20 – 30 mm extending from both sides of the cracks. Mixed Quickmast GPS has pot life = 10 – 15 minutes and 30 minutes cure time at 25ºC.
Injection process can commence 2 hours after applying Quickmast GPS.

INJECTION

Mix KingInject 70E, resin and hardener using

KingInject ® 70E

mechanical slow speed drill when using single component injection pump. When using 2 components pump, the pump should be charged at 4:1 ratio (by volume), which is equivalent to the pre-packed proportion of the base and hardener components.

Load the mixed resin and charge the pump, hose and gun Begin injection at point of highest resistance to ensure good penetration and minimal loss of materials.

The injection is usually starts at the lowest point on vertical crack and at the narrowest area on horizontal surface.

Injection process will continue until the mixed resins (KingInject 70E) travelled to next packer. Disconnect and move to next packer.
After completing two packers, return to first packer and inject again. Continue with this fashion until crack is completely filled.

CLEANING

- Resins must be cleaned up immediately before it sets.
- Packers must be removed within 24 - 48 hours and patched with appropriate epoxy mortar using Quickmast 341C.
- Electrical grinder can be used to remove excess cured resin that flowed out the cracks.

PACKAGING

KingInject 70E is available in 1.6 kg (1.5 litre) and 5.32 kg (5 litre) packs.

THICKNESSES AND SIZE LIMITATIONS

KingInject 70E is suitable for injecting cracks widths from 0.2 - 10 mm.

STORAGE

Shelf life is 1 year when stored under cover, out of direct sunlight and protected from extremes of temperature.
Failure to comply with the recommended storage conditions may result in premature deterioration of the product or packaging. For specific storage advice consult KingKrete's Technical Services Department.

HEALTH AND SAFETY

As with all chemical products, care should be taken during use and storage to avoid contact with eyes, mouth, skin and foodstuffs. Treat splashes to eyes and skin immediately. If accidentally ingested, seek medical attention. Reseal containers after use. Use in well ventilated areas and avoid inhalation.

NOTE

Field service, where provided, does not constitute supervisory responsibility. For additional information contact your local KingKrete representative. KingKrete Inc. reserves the right to have the true cause of any difficulty determined by accepted test methods.

QUALITY AND CARE

All products originating from KingKrete's manufacturing facilities are manufactured under a management system independently certified to conform to the requirements of the quality standard ISO 9001.

* Properties listed are based on laboratory-controlled tests.

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