

Quickmast 120

Elastic polyurethane resin based injection system



Description

Quickmast 120 is a two component; low viscosity polyurethane injection system for elastic sealing of cracks in wet or dry conditions, in concrete structures and masonry. Quickmast 120 is also used in conjunction with Quickmast 110 for permanent and effective sealing of live cracks in wet conditions.

Applications

For injection of wet or dry cracks in all types of structural concrete elements, masonry, and brickwork.

Advantages

- ▲ Solvent and filler free.
- ▲ Excellent bond strength to concrete, brickwork, and masonry in wet and dry conditions.
- ▲ Low viscosity polyurethane system, formulated to allow for small cracks penetration.
- ▲ Outstanding resistance to hydrostatic pressure.
- ▲ Good flexibility.
- ▲ Cures to form permanent and impermeable elastic seal.
- ▲ Exhibits good chemical resistance.
- ▲ Non-toxic, suitable for use in contact with potable water.

Standards

Quickmast 120 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, many injection techniques requiring different injection tools and equipments may be used. The injection method given in this Technical Data Sheet is based on the most common situation. For more details, DCP 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.

Technical Properties

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| Mixed Density: | 1.1 ± 0.05 g/cm ³ @ 25°C |
| Viscosity: | 125 - 150 mPa.s @ 25°C |
| Pot life: | 35 – 45 min @ 25°C 15 – 20 min @ 40°C |
| Gel time: | 40 – 50 min @ 25°C 18 – 25 min @ 40°C |
| Tensile strength: ASTM D638 | ≥ 1.2 MPa @ 7 days |
| Elongation at break: ASTM D638 | ≥ 80% @ 7 days |
| Modulus of elasticity: DIN 53457 | 4.0 – 4.5 MPa |
| Shore A hardness: DIN 53505 | 60 – 90 |
| Slant shear strength: (AASHTO T237) | ≥ 1.5 MPa @ 7 days |

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 hammer drill, and depending on packer diameter used, a suitable drill pit used, usually 13 mm or 16 mm diameter mechanical packers are used.

The angle which drilling should be is 45°C 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 damages, packers will be set into the face of the crack.

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Doha - Qatar

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Fixing of Injection Mechanical Packers (Nipples)

Packers shall be placed into drilled holes so that top of the rubber sleeve is below concrete surface. Tight the packer with wrench as much as you can.

Injection

Mix Quickmast 120, resin and accelerator using mechanical slow speed drill. Load the mixed resin and charge the pump, hose and gun.

When injecting into a defined crack, the crack surfaces between two mechanical packers exhibits immediate free flow of resin while working the first packer, pause for few minutes, in most cases the foam of Quickmast 120 will react fast enough with water and expand rapidly to close these cracks, and the cured Quickmast 120 will heal the crack and provide surface seal to contain the material to flow. After 2 - 3 minutes , start pumping again.

If the crack between the packers did not heal , then apply "Setplug" a fast cure water plug. 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 (Quickmast 120) 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. Immediately and after water flow stoppage, inject the crack/ honeycombing with a mixed (part A & B) resin using Quickmast 120 to permanently seal the crack/ honeycombing.

Quickmast 120 is flexible resin with unique physical properties such as:

- ▲ 60 - 80 % elastic properties and
- ▲ 2 MPa tensile strength.

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

Quickmast 120 is available in 1.1 kg (1 litre) and 5.5 kg (5 litre) packs.

Storage

Quickmast 120 has a shelf life of 6 months from date of manufacture if stored at temperatures between 10°C and 30°C in original sealed packs.

If these conditions are exceeded, DCP Technical Department should be contacted for advise.

Cautions

Health and Safety

Consult the appropriate Material Safety Data Sheet prior to using Quickmast 120.

Fire

Quickmast 120 is nonflammable.

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- ▲ Surface treatments
- ▲ Grouts and anchors.
- ▲ Concrete repair.
- ▲ Flooring systems.
- ▲ Protective coatings.
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- ▲ Waterproofing.
- ▲ Adhesives.
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- ▲ Structural strengthening.

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