

Quickmast 105 Method Statement (Resin based injection crack repair system)

Section A : General Comments

General

- (i) The method of injection given in this Method Statement is based on the most common situation.
- (ii) The minimum application temperature shall not be less than 5°C.
- (iii) The area to be repaired should be marked on the structure.

Equipment

It is suggested that the following list of equipment is adopted as a minimum requirement:

<i>Protective clothing</i>	:	<i>Protective overalls</i>
	:	<i>Good quality gloves, goggles and face mask</i>
<i>Equipment</i>	:	<i>Slow speed mixer</i>
	:	<i>Rotary hummer drill</i>
	:	<i>Low pressure pump</i>
	:	<i>Mechanical packers</i>

Section B : Application

1.0 Surface Preparation

- 1.1 The surface of the cracks should be cleaned from dust, oil, plaster, grease, curing compound, corrosion deposits or any other contaminants.

2.0 Injection Holes Drilling and Fixing

- 2.1 Using a high-quality rotary hammer drill, holes are drilled to install mechanical packers.
- 2.2 Depending on the packer diameter, a suitable drill pit shall be used; generally, 13 - 16 mm diameter packers are used for this purpose.
- 2.3 Try to allocate steel reinforcement bars and conduit before drilling.
- 2.4 The angle of drilling should be 45° or less to the surface and toward the crack, and the depth of the drill holes should be close to the middle of structures as much as possible.
- 2.5 Holes should always be staggered from one side of the cracks to the other.



- 2.6 Spacing between drilled holes usually varies from approximately 15 - 50 cm according to the width of the cracks (30 cm is commonly used). In general the wider the cracks, the further apart are drill holes.

Notes:

- *Holes greater than 45 cm are not required even if the concrete being repaired is more than 90 cm thick.*
- *If the concrete thickness is 15 cm or less, do not attempt angle drilling. Also to minimize concrete spalling, packers will be set into the face of the crack.*

3.0 Fixing of Injection Mechanical Packers

- 3.1 After drilling the injection holes, all cracks should be cleaned with compressed air.
- 3.2 Packers shall be placed in drill holes so that the top of the rubber sleeve is below the concrete surface, then tighten them with a wrench as much as you can.
- 3.3 Seal the cracks between the injection packers using an epoxy putty (i.e. **Quickmast SBA**) at a 2 - 3 mm thickness and 20 - 30 mm extending from both sides of the cracks
- 3.4 Injection process can commence 2 hours after applying the epoxy putty.

4.0 Injection

- 4.1 Mix **Quickmast 105**, resin, and hardener using a mechanical slow-speed drill when using a single-component injection pump. If a 2-component injection pump is used, charge the pump at a 2:1 ratio.
- 4.2 Load the mixed resin and charge the pump, hose, and gun then start the injection at the point of the highest resistance to ensure a good penetration and minimal loss of materials.
- 4.3 The injection is usually started at the lowest point on the vertical crack or at the narrowest area of the horizontal crack.
- 4.4 Injection process will continue until **Quickmast 105** travelled to the next packer, once this is noted disconnect and move to the next packer.
- 4.5 After completing two packers, return to the first packer and inject again. Continue in this manner until the crack is completely filled.

5.0 Cleaning

- 5.1 Resin must be cleaned up immediately before it sets.
- 5.2 Clean pumps and all tools that come in contact with resin with the proper solvent.
- 5.3 Packers must be removed within 24 hours and patched with appropriate epoxy mortar **Quickmast 341C**.
- 5.4 Electric grinder can be used to remove excess cured resin that flowed out of the crack.





Section B : Approval and variations

This method statement is offered by DCP as a 'standard proposal' for the application of **Quickmast 105**. It remains the responsibility of the Engineer to determine the correct method for any given application. Where alternative methods are to be used, these must be submitted to DCP for approval, in writing, prior to commencement of any work. DCP will not accept responsibility or liability for variations to the above method statement under any other condition.



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