Quickmast 110 Method Statement  
(Polyurethane resin based injection 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:

<table>
<thead>
<tr>
<th>Protective clothing</th>
<th>Protective overalls</th>
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<tbody>
<tr>
<td></td>
<td>Good quality gloves, goggles and face mask</td>
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<table>
<thead>
<tr>
<th>Equipment</th>
<th>Slow speed mixer</th>
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<tbody>
<tr>
<td></td>
<td>Rotary hummer drill</td>
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<tr>
<td></td>
<td>Pump</td>
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<tr>
<td></td>
<td>Mechanical packers</td>
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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 hummer 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 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 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.**

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 top of the rubber sleeve is below concrete surface, then tight them with wrench as much as you can.

4.0 **Injection**

4.1 Mix Quickmast 110, resin and accelerator using a mechanical slow speed drill.

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 vertical crack or at the narrowest area of horizontal crack.

4.4 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 and after 2 - 3 minutes, start pumping again.

4.5 Quickmast 110 will react fast enough with water and expand rapidly to close these cracks, and the cured Quickmast 110 will heal the crack, if the crack between the packers did not heal, apply Setplug which is a fast cure water plug.

4.6 Injection process will continue until Quickmast 110 travelled to next packer, once this is noted disconnect and move to next packer.

4.7 After completing two packers, return to first packer and inject again. Continue in this manner until crack is completely filled.

4.8 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.

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 proper solvent.

5.3 Packers must be removed within 24 - 48 hours and patched with appropriate epoxy mortar Quickmast 341C.

5.4 Electric grinder can be used to remove excess cured resin that flowed out the crack.
Section B : Approval and variations

This method statement is offered by DCP as a ‘standard proposal’ for the application of Quickmast 110. 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.