

## INSTALLATION GUIDELINES

PatchGuard™

cpt



**IMPORTANT:** This information is for guidance only. Modifications may be required to reflect local site conditions.

### Equipment Checklist

Drill and 25mm (1") drill bit, multimeter, marker paint, wire brush/file, water spray, paper roll/rag, tape measure, sharp knife, caulking gun, long nose pliers and appropriate PPE.

### Preliminaries

Break-out the concrete in the areas where the PatchGuard anodes are to be installed as per standard practice.



### Installation

**1.** Identify and mark up drilling locations between the steel bars as close as is practically possible to the **edge of the patch.**

**Note:** The minimum depth of the PatchGuard anode should be 20mm ( $\frac{7}{8}$ " ) from the concrete surface. The spacing between anodes is typically 400mm (16") to 500mm (20") and will depend on local conditions and steel density.



**2.** Clean the steel, using a wire brush or file, in the vicinity of the proposed location of the PatchGuard anode to facilitate electrical connection.



3. Check the resistivity of the multimeter and cables prior to use by touching the pins together as shown. Subtract this value from subsequent measurements to give a true resistivity reading.



Confirm steel reinforcement continuity in areas to be treated by checking a sample of bars within the patch.

**The resistivity between the reinforcing bars must be 1 ohm or less.**

To obtain the required resistivity it may be necessary to use metal tie wires to connect the reinforcing bar to achieve electrical continuity.



4. Drill 25mm (1") holes of the required depth at the edge of the patch repair (see table) making sure to avoid contact with the steel. Remove excess dust.



Product	Hole Diameter	Hole Length
<b>PatchGuard 175<sup>†</sup></b>	25mm (1")	47mm ( 1 7/8" )
<b>PatchGuard 350<sup>†</sup></b>	25mm (1")	80mm ( 3 1/4" )
<b>PatchGuard 400</b>	25mm (1")	100mm ( 4" )
<b>PatchGuard 500<sup>†</sup></b>	25mm (1")	120mm ( 4 3/4" )

<sup>†</sup> Previously known as PatchGuard, PatchGuard Plus and PatchGuard Ultra

**5. Soak the holes for a minimum of 15 minutes** making sure any excess water is removed using paper roll/rag.



**6. Insert DuoGuard PG cartridge into caulking gun. Cut off the end of the nozzle with a sharp knife and squeeze trigger, 1 or 2 pulls, to expel any watery material before proceeding.**

Apply DuoCrete PG Mortar. Fill the holes approximately  $\frac{1}{3}$  of the way up.

Push PatchGuard units into the PG Mortar, ensuring that the whole anode surface is covered and that there are no air voids.



**7. Connect the PatchGuard by wrapping the anode tying wire (minimum 2 times) around the pre-cleaned steel bar and carefully tightening using pliers.**



**8. The electrical resistance between the connecting wire on the PatchGuard anode and the reinforcing steel should be confirmed to be 0.5 ohm or less.**

If the resistance is greater than 0.5 ohm then the PatchGuard anode tying point should be removed, the reinforcing steel cleaned, and the PatchGuard anode reconnected.



Repeat this process until a resistance of 0.5 ohm or less is achieved then secure the anode wire to the steel using 2 plastic cable ties.



The electrical resistance of all anodes should be recorded as per the example below:

Unit	Date Tested	Electrical Resistance (Ohms)
Beam 3 Unit 12	05/07/17	0.15

Note: A copy of this data shall be handed to the Engineer/Client & Concrete Preservation Technologies at the end of the project.

**9. Apply a small amount of repair mortar to cap off the anode if the repair is not to be reinstated within 2 hours.**

Concrete repairs can then be carried out at any time after anode installation.



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