

# INSTALLATION GUIDELINES

## PatchGuard™ Connect




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

## Equipment Checklist

Drill and 25mm (1") drill bit, cover meter, multimeter, saw cutter, concrete breaker, rivet gun, wire strippers, water spray, paper roll/rag, tape measure, 12mm (½") ring spanner, sharp knife, caulking gun, hose extension and appropriate PPE.

## Preliminaries

The structure should be assessed prior to application of the PatchGuard Connect anode range as follows:

Steel reinforcement size and location should be established using all available drawings and recorded information. Concrete cover of the steel reinforcement should be a minimum of at least 20mm ( $\frac{7}{8}$ ") for the installation of PatchGuard Connect anode system. Depth of the concrete to be treated should be a minimum 50mm (2") greater than the specified anode. Confirm steel continuity in areas to be treated. Measure the electrical resistance between reinforcing bars in mutually remote locations across the structure and between reinforcing bars exposed during concrete repairs or other works. This work should follow the method and acceptance criteria as specified in BS EN ISO 12696:2016, clause 7.1.

## Installation

1. Undertake a reinforcing steel survey as follows:

- a) Locate steel using a cover meter and then mark steel locations on concrete surface.
- b) Mark locations for PatchGuard Connect units on concrete surface in conjunction with drawings. The spacing between anodes is typically 400mm (16") to 500mm (20") and will depend on local conditions and steel density.



- c) Mark locations for saw cuts in conjunction with drawings.



**2. Drill 25mm (1") diameter holes of the required depth (see table) at the marked locations.**



| Product                       | Hole Diameter | Hole Length     |
|-------------------------------|---------------|-----------------|
| <b>PatchGuard Connect 175</b> | 25mm (1")     | 72mm ( 27/8" )  |
| <b>PatchGuard Connect 350</b> | 25mm (1")     | 110mm ( 41/4" ) |
| <b>PatchGuard Connect 500</b> | 25mm (1")     | 150mm ( 6" )    |

\* Previously known as PatchGuard Connect, Connect Plus and Connect Ultra

**3. Cut chases 4mm (3/16") wide x 15mm (5/8") deep between holes for recessing of the titanium feeder wires. Ensure that no reinforcing steel is exposed within the holes and saw cuts as this may cause electrical shorts.**



**4. Make electrical connections to the reinforcing steel.**

Remove a small area of cover concrete before drilling a 4mm (3/16") hole into the exposed steel.



Use a stainless steel rivet to connect the titanium feeder wire to the steel.

**Steel connections shall be made at both ends of each string of anodes (max 40 in string).**



5. Remove dust and debris and then, using a spray bottle or other suitable method, wet out the holes for a **minimum of 15 minutes** ensuring that any excess water is removed prior to application of the DuoCrete PG mortar.



6. Strip the coating from the titanium wire using wire strippers, only in the location where the anodes are to be fixed. With the PatchGuard Connect anodes positioned in the holes electrically connect the individual units to the titanium feeder wire using the plastic screw connector.

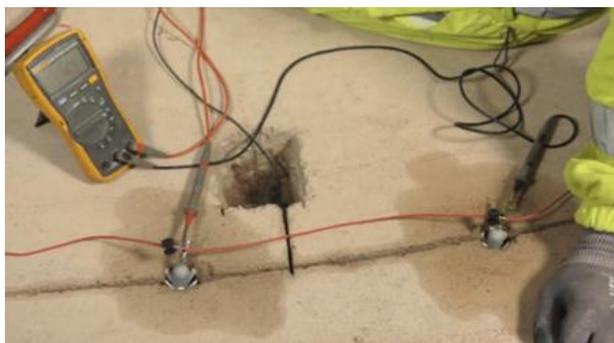


Tighten with a 12mm (1/2") ring spanner ring spanner. Twist the excess wire from the PatchGuard Connect units around the titanium feeder wire to ensure electrical continuity.



Check the connection between the PatchGuard Connect anode and the feeder wire by using a multi meter to ensure a resistivity of 0.5 ohm or less.

Check the resistivity of the meter and cables prior to use and subtract this value from the figure that is read to give a true reading.



The electrical continuity of all anodes should be confirmed by recording the resistance 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.

**7.** Remove the PatchGuard Connect anodes from the holes. Using a caulking gun and a rubber hose extension apply DuoCrete PG mortar, ensuring that any trapped air is removed. Fill the pre-drilled holes approximately half way up with the mortar. Insert the individual PatchGuard Connect units into the mortar. The mortar should flow to ~20mm ( $\frac{7}{8}$ " ) from the concrete surface. The plastic screw connector must be 20mm ( $\frac{7}{8}$ " ) below the concrete surface.



**Note: The PatchGuard Connect anodes should be installed immediately after injection of the DuoCrete PG mortar.**

**8.** The remaining void at the top of the anode hole should be filled with a low shrink repair mortar within **2 hours of installation**. The chases within which the titanium wire is situated, and excavations where steel connections have been made, can also be filled with the low shrink concrete repair mortar at this stage.



The PatchGuard Connect units are now operating in galvanic mode.



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