Application Guide

Cathodic Protection

MasterShield CP System

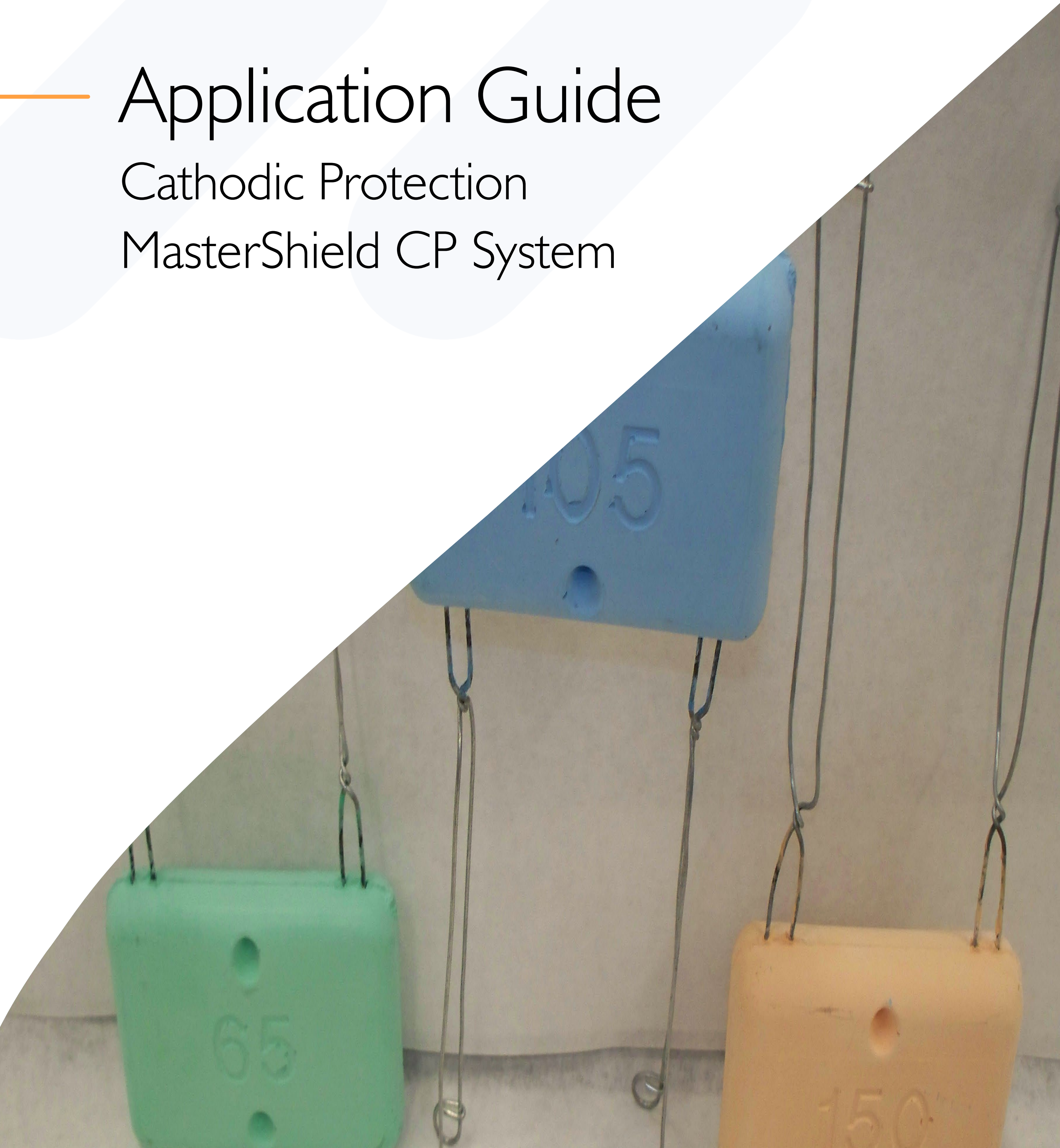


Table of contents

GENERAL 2
Products Info 2
Application Requirements 3
INTRODUCTION & SCOPE 4
Prevention of Incipient Anode Effect 4
Sacrificial Galvanic Anodes – Technical Principles 5
Role of Low-Resistivity Embedment Mortars 8
APPLICATION 9
Methodology at a Glance 9
Concrete Surface Preparation 9
COMPONENTS AND INSTALLATION PROCEDURE 10
MasterShield CP 8000 series- Galvanic Anodes 10
Installation of MasterShield CP Anodes 11
MasterCrete PRI 2500- Reinforcing Steel Zinc Rich Epoxy Coating 13
MasterShield CP /MasterCrete- Low Resistivity Repair/Embedment Mortars 14
Overview 17
Other products application guide 17

GENERAL

This application guide applies to the MB Solutions Australia Ltd Cathodic Protection systems, known as MasterShield CP (Formerly MasterProtect CP) systems; and outlines installation, verification, and maintenance requirements for MasterShield CP 8xxx** Series discrete galvanic anodes, flowable low resistivity grout and compatible MasterCrete low-resistivity repair mortars.
The guide aligns with ISO 12696, EN 1504, and Standards Australia HB 84:2018 and shall be read in conjunction with all project specifications (including drawings), by others, and the current material technical data sheets (TDS) and safety data sheets (SDS).

Products Info

Renamed Brand	Formerly as	Description	Packaging
MasterShield CP 8065	*MasterProtect 8065*	65**-gram galvanic anode- Green*	30 pc/box
MasterShield CP 8105	*MasterProtect 8105*	105**-gram galvanic anode- Blue*	24 pc/box
MasterShield CP 8160	*MasterProtect 8160*	160**-gram galvanic anode- Orange*	24 pc/box
MasterShield CP 816	MasterProtect 816CP	Low resistivity flowable mortar	20 kg bag
MasterCrete CI 5200	*MasterEmaco 5200 CI*	Low resistivity fast setting hand applied repair mortar	20 kg bag
MasterCrete 855	*BluCem HB 55*	Spray applied low resistivity shotcrete mortar	20 kg bag
MasterCrete PRI 2500	*MasterEmaco P 5000ZR*	Zinc Rich Epoxy Primer for steel	4and 1L

*Colour coding of the anodes allows applicators to easily confirm they are installing the correct type, and enables inspectors to quickly verify proper selection before the repair mortar is placed.

**The number in each anode's name indicates the zinc core weight in grams, providing an additional means of identification for colour-blind personnel.

Application Requirements

Training: All work shall be carried out by adequately trained and skilled applicators/installers, under appropriate supervision.

Safety: Always ensure the appropriate use of adequate PPE (gloves, goggles, long sleeves etc) and comply with all other safety related requirements when applying Master Builders Solutions materials.

Quality Systems: The applicator shall operate under a fully compliant quality system, to ensure the on-site quality of applied material. The applicator shall keep fully documented work records for all works undertaken.

Quality Control: If after application and/or testing, any applied material is deemed as unsatisfactory by the specifying consulting engineer and/or MB Solutions Australia Ltd, it may need to be rectified at the applicator's cost.

Useful documents: MasterCrete Repair Products are used for a variety of concrete repair applications and share some common attributes and often some installation techniques.

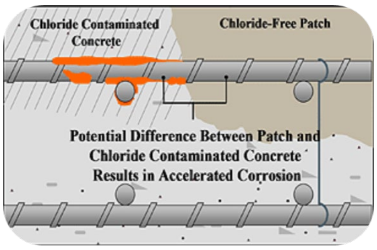
For detailed explanations of the mechanisms of concrete deterioration, inspection and interpretation of inspections and repair technologies, several documents should be referred to. Some of these include:

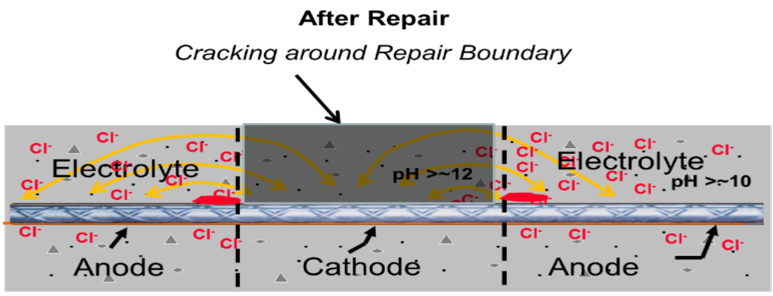
- ISO 12696:2020 "Cathodic Protection of Steel in Concrete" – as the Primary Code, covering the design, materials, installation, performance criteria, and maintenance of cathodic protection systems used in reinforced concrete structures:
    - Specifies both galvanic (sacrificial) and impressed current systems.
    - Provides clear requirements for anode materials, application rates, and durability expectations.
    - Standards Australia HB 84:2018 "Guide to concrete repair and protection" as well as EN 1504-9 (Principles for the use of products and systems)- Principle 11; EN 1504-10 (Application of products and systems): referring to ISO 12696 for design, installation, monitoring, and acceptance criteria
- International Concrete Repair Institute, ICRI 310.2R-2013 "Concrete Surface Profile Chips (CSP 1-10)"

INTRODUCTION & SCOPE

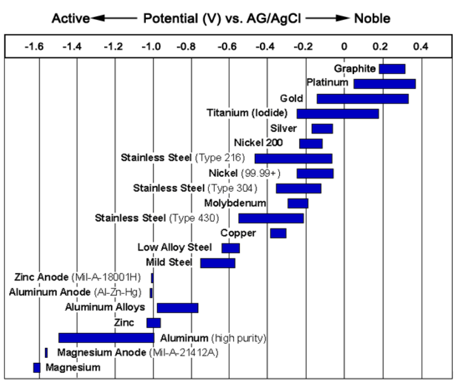
Prevention of Incipient Anode Effect

- When localised concrete repairs are carried out on reinforced concrete structures, differences in pH, moisture content, and chloride concentration between the repair area and the surrounding concrete can create electrochemical imbalances. The repaired area typically contains low-chloride, high-alkalinity mortar that restores passivity to the reinforcing steel, while the adjacent existing concrete remains chloride-contaminated or carbonated.
- This creates a difference in electrical potential between the two zones. The newly repaired area behaves as a cathode, while the surrounding concrete becomes the anode, where corrosion is initiated. This phenomenon is known as the incipient anode effect or ring anode effect. As a result, chloride ions migrate toward the patch and hydroxyl ions move outward, leading to a localised corrosion cell at the repair perimeter, similar to a battery.



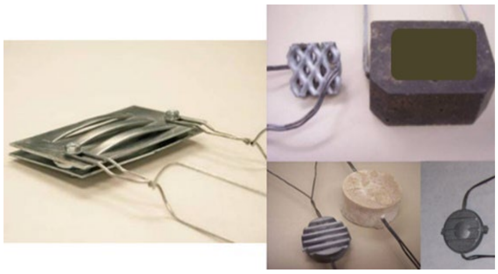


- The incipient anode effect manifests as cracking and spalling adjacent to the repaired area, causing premature deterioration and the need to "repair the repair." This progression is costly, disruptive, and reduces the long-term durability of the structure.
- To mitigate this mechanism, sacrificial galvanic anodes are installed.
- These anodes are manufactured from metals that are less noble (more electrochemically active) than steel. When connected to reinforcing steel in the presence of an electrolyte (such as concrete pore solution), an electrochemical circuit is formed. The sacrificial metal corrodes preferentially, generating a protective current that prevents corrosion of the steel reinforcement.
- Zinc is the most commonly used sacrificial material in reinforced concrete applications due to its optimal balance of corrosion potential, stability, availability, and non-embrittling corrosion products.



MASTER® BUILDERS SOLUTIONS

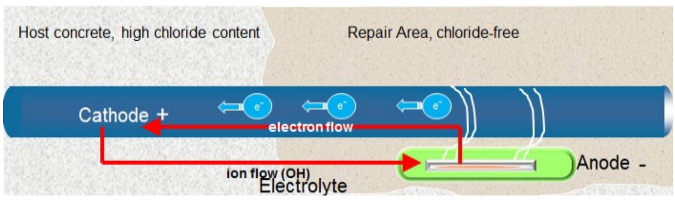
- Galvanic anodes for concrete typically consist of:
    - A zinc core (sometimes in multiple plates or profiles to maximise surface area),
    - Pre-attached tie wires to ensure electrical continuity to the reinforcing steel,
    - A proprietary encasement mortar designed to activate and transport zinc corrosion products away from the anode surface, preventing passivation and prolonging service life.



Sacrificial Galvanic Anodes – Technical Principles

Electrical Function and Resistivity

- For a sacrificial anode to function, an electrochemical circuit must be established between the anode (active metal) and the reinforcing steel (passive metal). This requires:
    - Electron flow from the anode to the cathode (steel),
    - Ion transport through the surrounding mortar and concrete.
- The resistivity of the encasement mortar and surrounding repair material is critical.
    - Lower resistivity materials facilitate current flow, improving anode efficiency.
    - High resistivity inhibits ionic movement and can significantly reduce anode performance.
- For this reason, encasement mortars must have low electrical resistivity relative to the host concrete.The resistivity of the various materials is crucial to the flow, and most anodes require a mortar of lower resistivity than the parent concrete to be effective.



Zinc Selection and Alloy Type

The performance and longevity of galvanic anodes depend on the purity and metallurgy of the zinc core.

- Type I zinc contains higher levels of impurities (particularly iron), making it susceptible to intergranular corrosion and auto-corrosion during storage or under low-corrosion conditions.
- Type II zinc offers significantly lower impurity levels and superior resistance to premature degradation, resulting in longer shelf life and more consistent activation.

- Cadmium is sometimes added to Type I zinc in marine cathodic protection applications; however, Type II zinc anodes provide equivalent protection without cadmium, reducing environmental and occupational hazards.
- Type II Zinc is much less prone to inter granular corrosion and is the material of choice of some anode manufacturers.

Anode Geometry and Mass

- Zinc Surface Area: A larger surface area improves the anode's ability to generate protective current by increasing the interface with the electrolyte.
- Zinc Mass: Greater zinc volume correlates to longer service life, provided the current output is controlled to prevent premature depletion.

Physical Characteristics of Common Galvanic Anodes

Physical comparisons of commercially available discrete galvanic anodes	160 g Chelation Plate	105 g Chelation Plate	65 g Chelation Plate	Waffle Zinc pH Anode	Coin Zinc pH Anode	Expanded mesh Humectant Anode
Zinc/Mortar Surface Ratio	0.44	0.42	0.21	0.68	0.34	1.01
% Zinc by Weight	39%	29%	26%	54%	36%	15%
Surface Area (cm^2/g)	0.71	0.97	0.80	0.47	0.38	0.70
Density (g/cc)	2.08	1.96	1.35	2.71	2.52	4.65
Zinc Volume Fraction	0.11	0.08	0.05	0.20	0.13	0.10

- Chelation-based systems typically deliver higher efficiency and longer service life compared to high pH or humectant systems.

Anode auto-corrosion

Auto-corrosion occurs when zinc reacts with its own encasement mortar rather than the reinforcing steel.

- This premature consumption:
    - Leads to passivation of the zinc surface, preventing galvanic action.
    - Is most common in alkali-driven (pH-dependent) and humectant/deliquescent activated systems, particularly in humid storage conditions.
    - Chelation-activated systems minimise auto-corrosion by promoting controlled zinc dissolution and continuous transport of corrosion by-products away from the zinc surface.

Tie Wires and Electrical Continuity

Tie wires provide the electrical connection between the anode and reinforcing steel.

- Galvanized steel wires are preferred to prevent corrosion during handling and storage.
- Mechanical attachment (e.g. via rivet or bolt fixing) is preferred over, cast-in wires to maintain clean electrical pathways and minimise passivation risk.

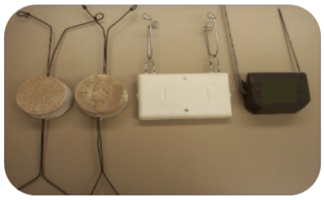
Stand-off Distance

Correct positioning is essential to ensure effective current distribution:

- A stand-off distance of approximately 30 mm from the reinforcing steel improves "throwing capacity," allowing the protective current to reach a larger steel surface area.
- Stand-off can be achieved by:
  - o Pre-formed spacers,
  - o Controlled resistivity mortar layers,
  - o Wire geometry.

Encasement Mortar Technologies

The purpose of the encasement mortar is to activate the anode and enable the controlled transport of zinc corrosion products. Three main activation mechanisms are used:



- pH-Activated Systems:
  - o Rely on very high alkalinity to maintain zinc activity.
  - o Require pre-soaking and special handling due to caustic nature.
  - o Susceptible to carbonation, which lowers pH and leads to anode passivation.
- Humectant / Deliquescent Systems:
  - o Use moisture-retaining chemicals to maintain ionic pathways.
  - o Can swell or crack over time due to accumulation of corrosion by-products.
  - o Higher risk of mortars cracking due to internal expansion.
- Chelation-Driven Systems (Preferred Technology):
  - o Maintain zinc activity independent of pH.
  - o Use chelating agents to keep corrosion products soluble and transport them away from the zinc surface.
  - o Do not require pre-soaking, are safe to handle, and provide prolonged activity under fluctuating moisture conditions. This encasement mortar does not require pre-soaking and is not a high pH making handling a risk.

Role of Low-Resistivity Embedment Mortars

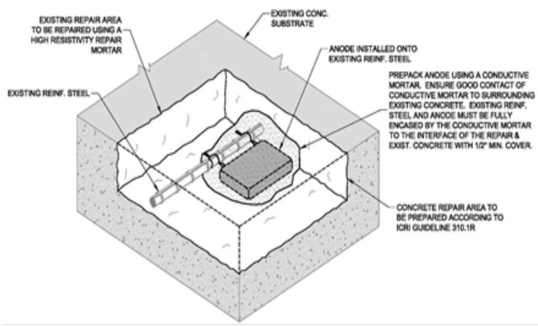
Conventional concrete repair principles typically focus on high-density, low-porosity, and high-resistivity mortars to provide enhanced durability and reduce ingress of chlorides, carbon dioxide, and moisture.

However, when installing galvanic anodes for cathodic protection, the requirements are different. For a sacrificial anode to function effectively, an electrical and ionic pathway must be available between the anode, the reinforcing steel, and the surrounding concrete matrix. This necessitates mortars with low electrical resistivity and controlled porosity.

Purpose of Embedment Mortars

To meet these functional requirements, specially engineered low-resistivity embedment mortars are used to encapsulate the anode. These mortars:

- Facilitate the transport of ions to and from the zinc anode.
- Provide a conductive pathway to the reinforcing steel.
- Ensure effective current distribution, preventing localisation of protection.
- Allow zinc corrosion products to migrate away from the anode surface, reducing the risk of passivation.



Placement Requirements

- The embedment mortar must fully encapsulate the anode and be in direct contact with both the anode encasement and the parent concrete.
- The mortar should extend to the perimeter of the repair patch to ensure that the protective current reaches the interface where incipient anode effects are most likely to develop.
- The surrounding repair mortar used for reinstating the concrete section can be selected for durability and mechanical performance, provided it is compatible and does not inhibit ionic flow from the anode embedment zone.

Function in Preventing Incipient Anode Effect

- By incorporating a continuous layer of low-resistivity embedment mortar around the anode, a conductive network is formed.
- This enables the system to deliver protective current beyond the immediate repair zone and into adjacent chloride-contaminated or carbonated areas, effectively mitigating the incipient anode effect and extending the durability of the repair.

APPLICATION

Methodology at a Glance

1. Remove unsound concrete; clean reinforcing steel to Sa 2½ (ISO 8501-1).
2. Confirm electrical continuity (≤ 1 Ω).
3. Position anodes at repair perimeter, level with reinforcement.
4. Tie anodes using pre-twisted wires (double wrap). Do not untwist.
5. Maintain stand-off ≈ 6–10 mm from bar.
6. Encapsulate in low-resistivity mortar (≤ 20 000 Ω · cm) ensuring ≥ 12 mm cover around anode and ≥ 25 mm from patch surface.
7. Lightly dampen to SSD; do not soak.
8. Apply repair mortar per datasheet.
9. Apply between 5 °C and 40 °C, RH ≤ 85 %. Avoid placement if temperatures fall below 5 °C within 4 hours. Protect fresh mortar from direct sunlight and wind, cure under damp hessian or plastic sheeting.

Concrete Surface Preparation

- Concrete substrate preparation for cathodic-protection repairs includes the removal of cracked or contaminated concrete and cleaning of the reinforcing steel. A CSP 5 or higher surface profile is recommended to ensure adequate mechanical bond and exposure of sound substrate.
- Recommended removal methods (depending on patch size and depth):
  - Hammer and cold Chisel
  - Kango style impact hammer
  - Machine mounted impact hammer
  - Hydro demolition
- All loose material must be removed and reinforcing steel cleaned until free of visible rust, revealing a metallic grey surface that indicates passivation. Reinforcement should be fully exposed on all sides—enough to pass a gloved finger behind each bar.
- If the reinforcing bar has lost more than ~20 % of its original cross-section, replacement or supplemental reinforcement must be evaluated by a structural engineer.
- Steel cleaning should achieve SA 2.5 (near-white metal).
  - Small areas: wire brushing
  - Larger areas: needle gun or captive-grit blasting
  - Hydro-demolition typically produces a clean surface requiring no further preparation.

- Patch edges must be square-cut (10–20 mm) or as required by the repair mortar datasheet to avoid feather edging. Where several small irregular areas exist, combine them into one continuous patch to reduce cracking risk and ensure uniform stress distribution.
- Note: When breaking out concrete, consider the future positioning of MasterShield CP anodes. Reinforcement continuity must be verified, confirming ≤ 1 Ω DC resistance between bars.

COMPONENTS AND INSTALLATION PROCEDURE

MasterShield CP 8000 series- Galvanic Anodes

MasterShield CP 8xxx* anodes are sacrificial zinc units encapsulated in a proprietary chelation-activated mortar. Type II zinc (ASTM B418 Type II) minimises intergranular corrosion and extends service life. Encasement mortar contains < 0.5 % chloride, migrating toward the anode rather than the host mortar.
*xxx: zinc core weight in grams

Key Design Features and Benefits

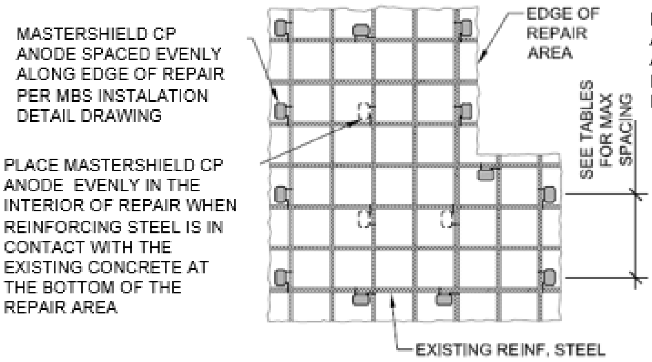
Feature	Technical Description	Functional Benefit
Zinc Alloy – ASTM B418 Type II	High-purity zinc alloy with low iron content	Reduces intergranular corrosion, extends service life
Zinc Mass Configuration	65 g: single zinc plate 105 g: dual-plate configuration 160 g: dual-plate configuration	Dual-plate design provides stable current delivery and increased service life
Chelation-Activated Encasement Mortar	Proprietary mortar formulation promotes dissolution and transport of zinc corrosion products	Prevents passivation and maintains long-term activation even under cyclic wetting/drying
Pre-Twisted Stand-off Wires	Built-in spacing ensures correct positioning relative to reinforcing steel	Enhances current "throwing capacity" and optimises protective range
Colour-Coded Identification	Each anode is colour-coded and embossed with zinc mass	Enables rapid on-site verification and quality control during installation

Property	MasterShield CP 8065	MasterShield CP 8105	MasterShield CP 8160
Colour	Green	Blue	Orange
Packaging(anodes/box)	30	24	24
Total anode weight	240g	340 g	370g
Zinc alloy	ASTM B418, Type II	ASTM B418, Type II	ASTM B418, Type II
Zinc content	65g	105g	160g
Zinc surface area	133cm²	258cm²	279cm²
External surface area	219 cm²	258 cm²	258 cm²
External dimensions	115 mm w x 70 mm h x 20 mm thick	116 mm w x 70 mm h x 26 mm thick	116 mm w x 71 mm h x 26 mm thick
Auto corrosion	< 0.01 mm/yr	< 0.01 mm/yr	< 0.01 mm/yr
Tie wire composition	Galvanized, 16 gauge steel	Galvanized, 16 gauge steel	Galvanized, 16 gauge steel

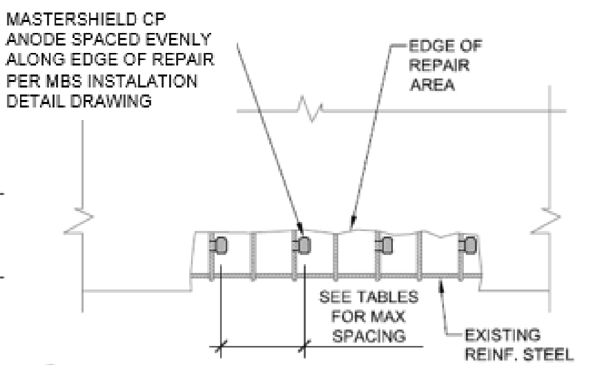
Installation of MasterShield CP Anodes

Spacing

- Anode spacing depends on structural geometry, steel density, moisture conditions, and chloride contamination.
- Typical maximum spacing: ≤ 750 mm (30 in.) between anodes.
- Final layout must be verified by a qualified engineer.
- Refer to standard layout details below as well as Tables A and B for recommended spacing based on steel density ratios for corroded vs non-corroded reinforcement.
- The pre-twisted tie wires ensure proper stand-off from the steel, optimising the throwing capacity, the effective range of current distribution into the surrounding concrete.



1 B-1066 TYPICAL LAYOUT FOR SLAB REPAIR
SCALE: N.T.S.



2 B-1066 TYPICAL LAYOUT FOR SLAB EDGE REPAIR
SCALE: N.T.S.

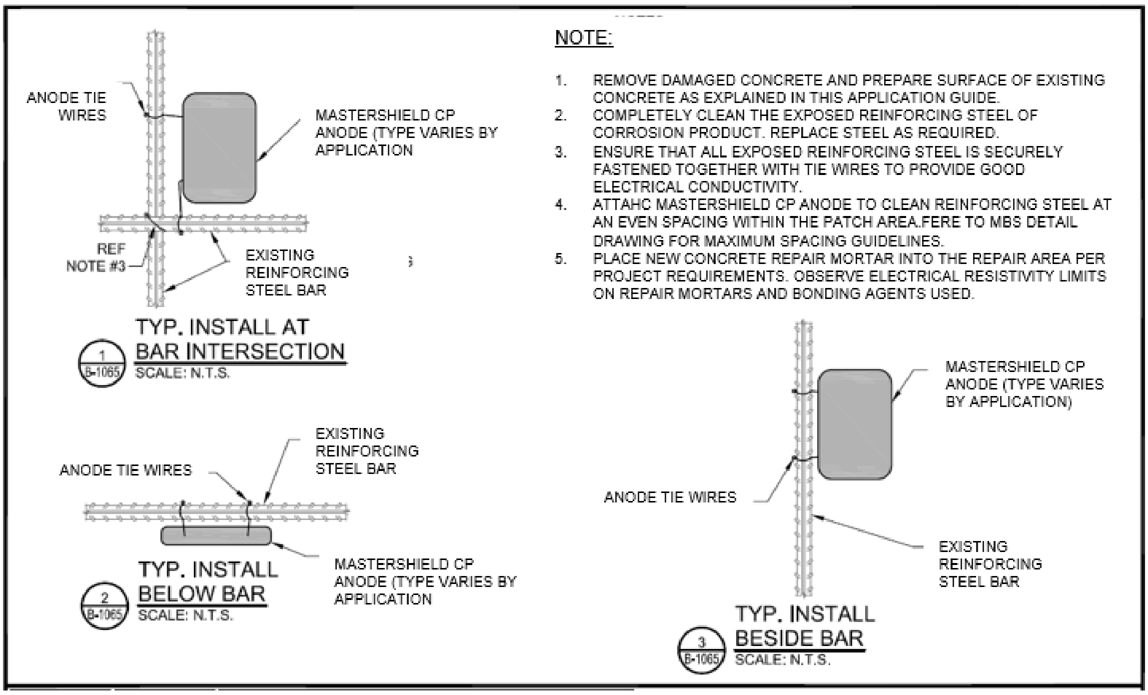
Spacing of anodes depends on state of bars.

Table A Corroded Bars	
Steel Density Ratio	Maximum Spacing mm
<0.20	700
0.21-0.40	600
0.41-0.54	500
0.55-0.67	450
0.68-0.80	400
0.8-0.94	375
0.95-1.07	350
1.08-1.20	325

Table A Non-Corroded Bars	
Steel Density Ratio	Maximum Spacing mm
<0.30	750
0.31-0.60	700
0.61-0.90	650
0.91-1.20	550
1.21-1.50	500
1.51-2.00	425

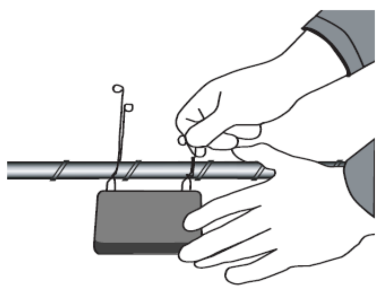
Positioning

- Install anodes at the perimeter of the repair, aligned with the reinforcing steel to maintain the correct cover depth. Ensure that both the anode body and connection wires will be completely encapsulated by the embedment mortar after placement.
- For shallow cover or congested reinforcement, follow the project-specific installation detail. Anodes may be attached to a single bar or to a junction of intersecting bars, maintaining the stand-off created by the tie wires.
- Check reinforcement continuity using wire ties or welded links before installation.
- Pre-wet anodes in clean water immediately prior to embedding to improve adhesion of the encasement mortar.



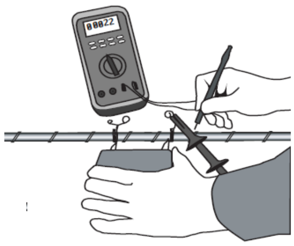
Attaching

- Tighten the two pairs of pre-twisted wires by hand around the reinforcing steel in a double wrap pattern to achieve a sound electrical bond.
- The pre-twisted wire connectors provide a sound bond, good electrical contact and proper spacing from the reinforcing steel to which the anode is attached.
- No additional form of attachment or electrical connection is necessary or permitted.



MASTER® BUILDERS SOLUTIONS

Verification



- Confirm electrical continuity after installation:
- Measure DC resistance between the anode and adjacent reinforcement.
- Acceptable value: ≤ 1 Ω.

MasterCrete PRI 2500- Reinforcing Steel Zinc Rich Epoxy Coating

MasterCrete PRI 2500 is an optional zinc-rich epoxy coating applied to exposed reinforcing steel to minimise oxygen access and improve corrosion resistance.

Mixing

- Stir thoroughly before and during use to ensure even dispersion of solids.
- Maintain material temperature > 15 °C. If necessary, adjust viscosity using MasterCoat THI 955 (0–3 %). Excess thinner reduces sag resistance and delays curing.

Placement

- Substrate Condition: temperature ≥ 5 °C and ≥ 3 °C above dew point; Relative humidity ≤ 85 %.
- Apply promptly onto dry steel within 3 hours of surface preparation.
- Use a small brush to prevent overspray on concrete surfaces.
- Apply one full, continuous coat; inspect for coverage and apply a second coat if required (typically after 30–60 min).
- Do not leave coated steel exposed longer than necessary before applying MasterCrete repair materials.

Important Application Requirements

- Apply only after the MasterShield CP anodes have been installed and electrically connected.
- Do not apply coating to the anode, tie wires, or areas designated for electrical contact.
- Electrical continuity between the anode and reinforcing steel must achieve ≤ 1.0 Ω resistance, as specified in the Verification section.
- For detailed application method refer to:" MasterCrete cementitious repair systems" application guide.

MasterShield CP /MasterCrete- Low Resistivity Repair/Embedment Mortars

To ensure proper functionality of MasterShield CP anodes, anodes must be fully encapsulated using a low-resistivity mortar (≤ 20,000 Ω.cm) to allow ionic and electrical continuity.

Selection Guidance

- MasterShield CP 816-Embedment mortar, shall be used directly around the anode to ensure low resistivity and optimum current output.
- MasterCrete CI 5200 or MasterCrete 855 Repair mortars, shall be used for reinstatement of the remaining patch area, provided electrical continuity is maintained.
- If high-resistivity mortars (> 50,000 Ω.cm) are specified for durability requirements, the anode must first be pre-packed with an approved low-resistivity embedment mortar before repair material placement.
- If MasterCrete 855 is used then no extra embedment mortar is necessary, but care should be taken to ensure that the shotcrete completely fills the cavity behind the anode and that the anode is not pushed out of place. These issues can be eliminated using an embedment mortar.
- For horizontal areas, MasterShield CP 816 may be used as a flowable embedment mortar; temporary formwork may assist containment.
- Repair mortar for bedding the anode:

Product	Thickness range	Compressive strength	Electrical resistance	Setting time (min)
MasterCrete CI 5200	3-100mm (vertical& horizontal) 3-80mm (overhead)	1d: 12.3 MPa 7d:30 MPa 28d:40.2 MPa	28d: 3900 Ω.cm 56d: 6280 Ω.cm	Initial: 160 Final:206
MasterCrete 855	Max 300mm in one pass (vertical) Max 150mm in one pass (overhead)	1d:20 7d:50 28d:65	7d: 7000 Ω.cm 28d: 9000 Ω.cm 56d: 10000 Ω.cm	Initial: 110 Final: 180
MasterShield CP 816	5-100mm (Horizontal)	1d: 18 7d: 41 28d:50	7d: 7000 Ω.cm 28d: 5300 Ω.cm 56d: 8700 Ω.cm 90d: 12000 Ω.cm	Initial: 120 Final: 180

Placement of Repair and Embedment Mortars

- Pre-wet both substrate and MasterShield CP anodes to surface-saturated-dry (SSD) before applying mortar.
- Place the low-resistivity embedment mortar around the anode by hand, ensuring a minimum cover of 12 mm.
- Maintain at least 25 mm from the outer face of the patch (12 mm embedment + 13 mm repair mortar).

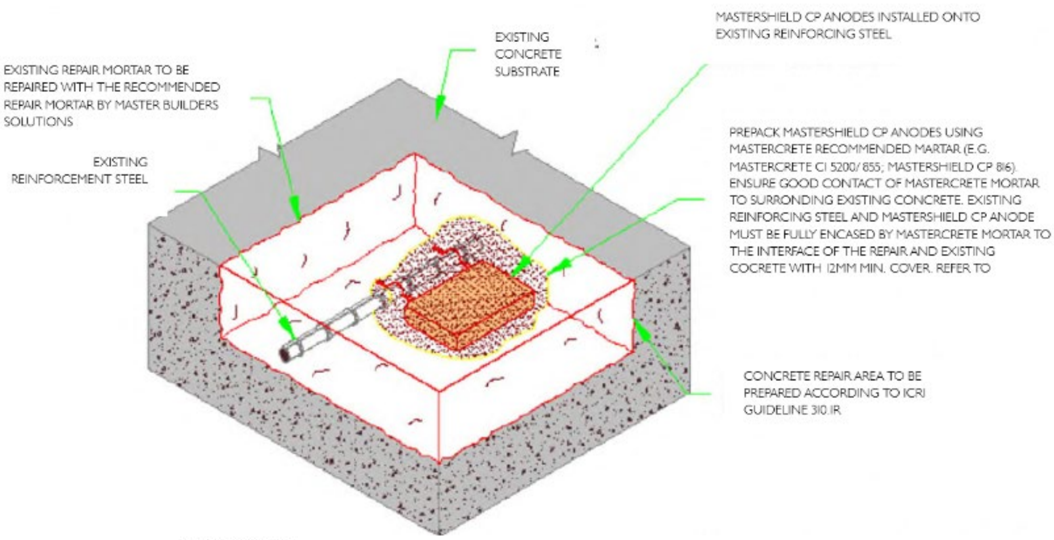
- Spacing within the patch must follow the approved layout relative to bar density.
- If repair materials with resistivity > 50 000 $\Omega \cdot$ cm are specified, pre-pack the anode in a low-resistivity mortar before placement.
- Consolidate repair materials using directional placement to avoid voids.

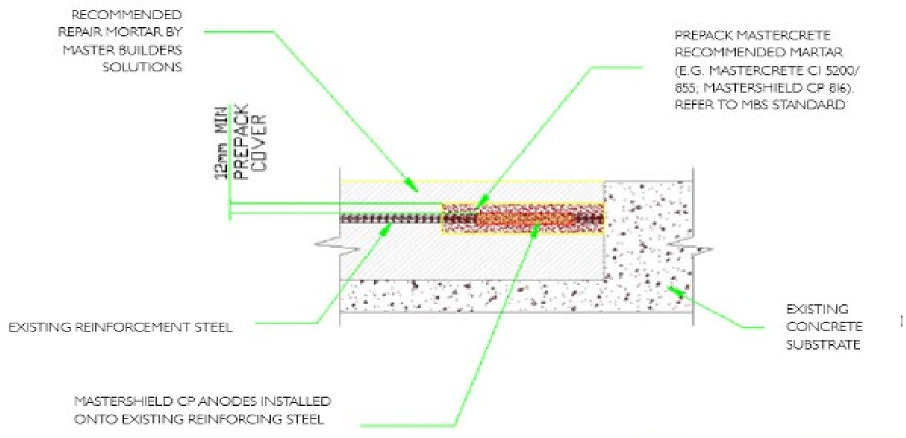
Environmental conditions:

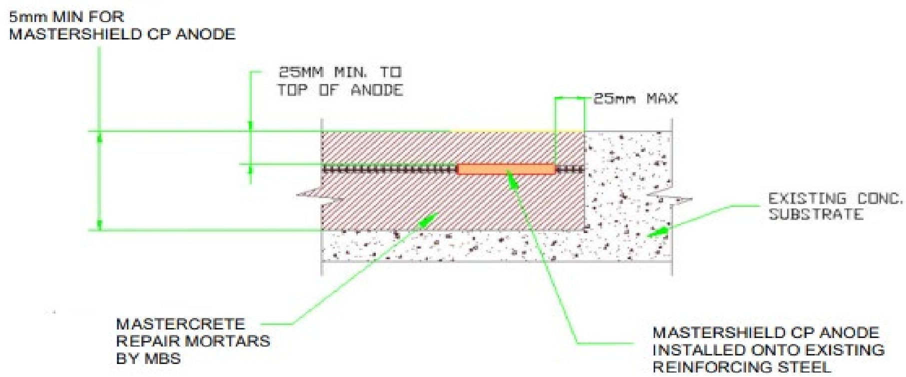
- Do not place embedment or repair mortars when ambient temperature is below 5 °C or expected to drop within 4 hours.
- Cover fresh material in hot, dry, or windy conditions to prevent rapid moisture loss.

DO NOTs

- Use only the supplied connector wires; do not twist, splice, or add extra conductors.
- Do not introduce corrosion inhibitors, humectants, deliquescent, lithium salts, or pH-modifying additives in contact with the anode system.
- Do not apply coatings containing inhibitors or unproven materials to the reinforcing steel or repair mortar.
- Do not use mortars with < 0.8 % porosity (ASTM C672) in the immediate anode zone.
- Do not install additional anodes other than those specified in the MasterShield CP design.
- Do not apply impressed current, external voltage, or any battery source to the reinforcement network.
- Do not install insulating or high-resistivity barriers between the anode and reinforcing steel.


EXISTING REPAIR MORTAR TO BE REPAIRED WITH THE RECOMMENDED REPAIR MORTAR BY MASTER BUILDERS SOLUTIONS
EXISTING CONCRETE SUBSTRATE
MASTERSHIELD CP ANODES INSTALLED ONTO EXISTING REINFORCING STEEL
EXISTING REINFORCEMENT STEEL
PREPACK MASTERSHIELD CP ANODES USING MASTERCRETE RECOMMENDED MARTAR (E.G. MASTERCRETE CI 5200/ 855; MASTERSHIELD CP 816). ENSURE GOOD CONTACT OF MASTERCRETE MORTAR TO SURRONDING EXISTING CONCRETE. EXISTING REINFORCING STEEL AND MASTERSHIELD CP ANODE MUST BE FULLY ENCASED BY MASTERCRETE MORTAR TO THE INTERFACE OF THE REPAIR AND EXISTING COCRETE WITH 12MM MIN. COVER. REFER TO
CONCRETE REPAIR AREA TO BE PREPARED ACCORDING TO ICRI GUIDELINE 310.1R


RECOMMENDED REPAIR MORTAR BY MASTER BUILDERS SOLUTIONS
PREPACK MASTERCRETE RECOMMENDED MARTAR (E.G. MASTERCRETE CI 5200/ 855; MASTERSHIELD CP 816). REFER TO MBS STANDARD
12mm MIN PREPACK COVER
EXISTING REINFORCEMENT STEEL
EXISTING CONCRETE SUBSTRATE
MASTERSHIELD CP ANODES INSTALLED ONTO EXISTING REINFORCING STEEL


5mm MIN FOR MASTERSHIELD CP ANODE
25MM MIN. TO TOP OF ANODE
25mm MAX
EXISTING CONC. SUBSTRATE
MASTERCRETE REPAIR MORTARS BY MBS
MASTERSHIELD CP ANODE INSTALLED ONTO EXISTING REINFORCING STEEL

Overview

Master Builders Solutions provides comprehensive construction solutions designed to enhance the performance, durability, and longevity of infrastructure projects. Our innovative range of products ensures that projects meet the highest standards of quality and reliability.

Along with innovative products, customers also receive on-site and technical support from the Master Builders Solutions team of experts. By diagnosing the underlying cause of deterioration, our specialists develop the most suitable repair strategy to prevent further damage and deliver lasting protection. Our civil infrastructure solutions are tailored to meet the specific needs of the construction industry in ANZ, delivering consistent results for a wide range of applications.

Other products application guide

- **MasterCrete:** "**Cementitious Concrete Repair systems**" Application Guide
- **MasterFlux**: "**Cementitious grouts**" Application Guide
- **MasterFlux ER**: "**Epoxy grouts**" Application Guide
- **MasterStrength MasterFill ER: "Epoxy crack repair systems**" Application Guide
- **MasterFill: "injection systems**" Application Guide
- **MasterJoint CHR**: "**Joint sealants"** Application Guide
- **MasterJoint 910: "Hydro-swelling waterbars for construction joints"** Application Guide
- **MasterJoint 930: "FPO tape for joint waterproofing"** Application Guide
- **MasterShield AKS**: "**Chemical resistant HDPE liner**" Application Guide
- **MasterShield AC: "Anti-carbonation coatings**" Application Guide
- **MasterShield CI**: "**Impregnants and corrosion inhibitors**" Application Guide
- **MasterShield CHR 360**: "**Novalac chemical resistant coating**" Application Guide

Disclaimer

Application Guide for MasterShield CP-ANZ-V1-1025

STATEMENT OF RESPONSIBILITY	The technical information and application advice given in this MB Solutions Australia Pty Ltd publication are based on the present state of our best scientific and practical knowledge. As the information herein is of a general nature, no assumption can be made as to a product's suitability for a particular use or application and no warranty as to its accuracy, reliability or completeness either expressed or implied is given other than those required by law. The user is responsible for checking the suitability of products for their intended use and for ensuring that the application and use of the product is in accordance with the manufacturer's guidelines and recommendations.
NOTE	Field service where provided does not constitute supervisory responsibility. Suggestions made by MB Solutions Australia Pty Ltd either orally or in writing may be followed, modified or rejected by the owner, engineer or contractor since they, and not MB Solutions Australia Pty Ltd, are responsible for carrying out procedures appropriate to a specific application.

MB Solutions Australia Pty Ltd	MB Solutions New Zealand Ltd	Emergency Advice:
ABN 69 634 934 419 Suite 102, 2 Burbank Place Norwest NSW 2153 Freecall: 1300 227 300 www.master-builders-solutions.com/en-au	45C William Pickering Drive Albany, Auckland New Zealand Freecall: +64 9414 7233	1300 954 583 within Australia (24hr) 0800 001 607 within New Zealand