Australian Standard™

Cathodic protection of metals

Part 5: Steel in concrete structures

Standards Australia

This Australian Standard was prepared by Committee MT-014, Corrosion of Metals. It was approved on behalf of the Council of Standards Australia on 17 May 2002 and published on 3 June 2002.

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This Standard was issued in draft form for comment as DR 01047.

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Part 5: Steel in concrete structures

First published as AS 2832.5—2002.

Published by Standards Australia International Ltd
GPO Box 5420, Sydney, NSW 2001, Australia

ISBN 0 7337 4548 2

PREFACE

This Standard was prepared by the Joint Standards Australia/Standards New Zealand Committee MT-014, Corrosion of Metals, at the request of industry.

This Standard was prepared by the Australian members of the Joint Standards Australia/Standards New Zealand Committee MT-014. After consultation with stakeholders in both countries, Standards Australia and Standards New Zealand decided to develop this Standard as an Australian Standard rather than an Australian/New Zealand Standard.

The objective of this Standard is to specify requirements for the cathodic protection of reinforcing steel in concrete that is exposed either to atmospheric, submerged or buried environments with the aim of preventing or controlling corrosion to an acceptable level.

In preparation of this Standard, cognizance was taken of the European Draft Standard prEN 12696, *Cathodic protection of steel in concrete,* Part 1: *Atmospherically exposed concrete* and Part 2: *Buried and submerged concrete*.

This Standard is Part 5 of a series of Standards covering the cathodic protection of metals.

The series comprises the following Parts:

AS or AS/NZS		
2832		Cathodic protection of metals
2832.1	Part 1:	Pipes and cables
2832.2	Part 2:	Compact buried structures
2832.3	Part 3:	Fixed immersed structures
2832.4	Part 4:	Internal surfaces
2832.5	Part 5:	Steel in concrete structures

The term ‘informative’ has been used in this Standard to define the application of the appendix to which it applies. An ‘informative’ appendix is only for information and guidance.

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FOREWORD

Cathodic protection is a technique that has been demonstrated to be successful, in appropriate applications, in providing cost effective long term corrosion control for steel in concrete. It is a technique that requires specific design calculations and definition of installation procedures in order to be successfully implemented.

A long term commitment to an active monitory and inspection program is essential for continued success. This Standard is a performance Standard rather than a design code but requires a detailed design and a specification for the installation, commissioning and operation of a cathodic protection system, prepared by an appropriate specialist. The design may be undertaken by an independent consultant prior to the implementation of a contract for the installation of the system; the specialist may be part of the installation contractor's team. The design may be incorporated into the same contract as that for the installation of the cathodic protection system and, possibly, for subsequent commissioning and operation.

Other electrochemical treatments that provide corrosion control for steel in concrete, including re-alkalization and chloride extraction, are not covered by this Standard.

STANDARDS AUSTRALIA

Australian Standard
Cathodic protection of metals

Part 5: Steel in concrete structures

SECTION 1 SCOPE AND GENERAL

1.1 SCOPE

This Standard provides performance requirements for the cathodic protection of steel in atmospherically-exposed, buried and submerged concrete in both new and existing structures. It covers the parts of buildings and civil engineering structures that include normal reinforcement and prestressed reinforcement embedded in the concrete. It is applicable to both uncoated and organic coated steel reinforcement.

NOTE: Guidance on the principles of cathodic protection and its application to steel in concrete is given in Appendix A.

1.2 REFERENCED DOCUMENTS

The following documents are referred to in this Standard:

AS
1012 Methods of testing concrete
1012.20 Method 20: Determination of chloride and sulfate in hardened concrete and concrete aggregates

1939 Degrees of protection provided by enclosures for electrical equipment (IP Code)

2239 Galvanic (sacrificial) anodes for cathodic protection

2832 Cathodic protection of metals
2832.2 Part 2: Compact buried structures
2832.3 Part 3: Fixed immersed structures
2832.4 Part 4: Internal surfaces

3147 Approval and test specification—Electric cables—Thermoplastic insulated—For working voltages up to and including 0.6/1 kV

HB 79 Alkali aggregate reaction — Guidelines to minimising the risk of damage to concrete structures in Australia

AS/NZS
2832 Cathodic protection of metals
2832.1 Part 1: Pipes and cables

3000 Electrical installations (known as the Australian/New Zealand Wiring Rules)

3108 Approval and test specification — Particular requirements for isolating transformers and safety isolating transformers

HB 84 Guide to concrete repair and protection

