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Australian Standard®

Cathodic protection of metals

Part 5: Steel in concrete structures

STANDARDS
Australia

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- Australasian Corrosion Association
- Australian Chamber of Commerce and Industry
- Australian Electrolysis Committee
- Australian Paint Approval Scheme
- Australian Pipeline Industry Association
- AUSTROADS
- Blast Cleaning and Coating Association of Australia
- Bureau of Steel Manufacturers of Australia
- Corrosion Prevention Centre
- CSIRO Manufacturing and Materials Technology
- Galvanizers Association of Australia
- Materials Australia
- Plumbing Products Industry Group
- Water Services Association of Australia
- Water Utility Interests

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Australian Standard®

Cathodic protection of metals

Part 5: Steel in concrete structures

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PREFACE

This Standard has been prepared by the Australian members of the Joint Standards Australia/Standards New Zealand Committee MT-014, Corrosion of Metals, to supersede AS 2832.5—2002, *Cathodic protection of metals,* Part 5: *Steel in concrete structures.*

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.

The objective of this revision is to update requirements in line with current industry practice, and to restructure the Standard to align with the AS 2832 series. Requirements for the qualifications of personnel have been added in the new Appendix E.

In preparation of this Standard, cognisance was taken of the European Standard EN 12696, *Cathodic protection of steel in concrete.*

This Standard is Part 5 of the AS 2832 series of Standards. The other parts are as follows:

AS		
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 (this Standard)

The Committee decided that there were no International Standards (ISO) which were suitable to be used as an Australian Standard.

The terms ‘normative’ and ‘informative’ have been used in this Standard to define the application of the appendix to which they apply. A ‘normative’ appendix is an integral part of a Standard, whereas 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 monitoring 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 electrochemical re-alkalization and electrochemical 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 specifies 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.

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
1580	Paints and related materials—Methods of test	
1580.108.2	Method 108.2:	Dry film thickness—Paint inspection gauge
1580.408.5	Method 408.5:	Adhesion—Pull-off test
2239	Galvanic (sacrificial) anodes for cathodic protection	
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
5000	Electric cables—Polymeric insulated	
5000.1	Part 1:	For working voltages up to and including 0.6/1 (1.2) kV
60529	Degrees of protection provided by enclosures (IP Code)	
61558	Safety of power transformers, power supply units and similar	
61558.1	Part 1:	General requirements and tests
61558.2.6	Part 2.6:	Particular requirements for safety isolating transformers for general use (IEC 61558-2-6:1997, MOD)
HB 79	Alkali aggregate reaction—Guidelines on minimizing the risk of damage to concrete structures in Australia	
HB 84	Guide to concrete repair and protection	

AS/NZS

1768	Lightning protection
3000	Electrical installations (known as the Australian/New Zealand Wiring Rules)