AS 2802—1985
UDC 621.315.22:622.27

Australian Standard®
2802—1985

REELING AND TRAILING ELECTRIC CABLES FOR MINING AND GENERAL USE
(Other than Underground Coal Mining)—
ELASTOMERIC FLEXIBLE CABLES FOR WORKING VOLTAGES 1.1/1.1 kV UP TO AND INCLUDING 33/33 kV

STANDARDS ASSOCIATION OF AUSTRALIA
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This Australian standard was prepared by Committee EL/3, Electric Wire and Cables. It was approved on behalf of the Council of the Standards Association of Australia on 7 February 1985 and published on 7 June 1985.

The following interests are represented on Committee EL/3:

Australian Electrical and Electronic Manufacturers Association

Confederation of Australian Industry

Defence Standardization Committee

Department of Aviation

Department of Industrial Relations, New South Wales

Electrical Regulatory Authorities

Electrical Contractors Associations of Australia

Electrical Testing Laboratories

Electricity Supply Association of Australia

Railways of Australia Committee

Telecom Australia

This standard was issued in draft form for comment as DR 84068.

AUSTRALIAN STANDARD

REELING AND TRAILING ELECTRIC CABLES FOR MINING AND GENERAL USE
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First published 1985

PUBLISHED BY THE STANDARDS ASSOCIATION OF AUSTRALIA
STANDARDS HOUSE, 80 ARTHUR ST, NORTH SYDNEY, N.S.W.

ISBN 0 7262 3725 6

PREFACE

This standard was prepared by the Association's Committee on Electric Wires and Cables.

The standard specifies two classes of cables for reeling and trailing cables for mining and general use and defines cable structures developed to satisfy particular industry requirements. In addition, cable sizes have been rationalized to provide an optimum range to meet most applications.

Improvements made in manufacturing technique and quality control, together with availability of cable materials having improved electrical and mechanical properties, permit the production of a superior class of cable. During the preparation of this standard the committee convened meetings in State capital cities during which consultations were held with cable users in the surface mining industry to establish cable requirements and with cable manufacturers regarding technological developments in the cable industry.

The cables specified in this standard have been designed to meet the special requirements of the Australian surface mining industry and also to comply with the requirements of AS 3007, Electrical Installations for Outdoor Sites under Heavy Conditions (Including Open Cast Mines and Quarries). The cables specified in this standard replace those previously included for surface mining applications in AS 1802—1976, Trailing Cables for Mining Purposes (Including Underground Coal Mines, Metalliferous Mines, Open-cut Mines, Quarries and Dredges).

While surface mining was a significant factor in determining the cables to be incorporated in this standard, it is recognised that many of these cables will be equally applicable to other installations, e.g. underground metalliferous mines, ship loaders, travelling cranes, reclaimers at loading stations and other large materials handling plant.

A number of cables specified in this standard may also meet the requirements for underground coal mines, however trailing cables for coal mines are the subject of the separate standard AS 1802, the second section of which is published concurrently with this standard.

Further explanation of the basis of this standard is given in the Foreword.

In the preparation of this standard consideration was given to the following publications and acknowledgement is made of the assistance received therefrom:

AEIC No 6 Ethylene Propylene Rubber Insulated Shielded Power Cables Rated 5 through 69 kV

ICEA Pub No S-68-516 (Nema Pub No WC8) Ethylene-Propylene-Rubber-Insulated Wire and Cable for the Transmission and Distribution of Electrical Energy

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for

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ELASTOMERIC FLEXIBLE CABLES FOR WORKING VOLTAGES 1.1/1.1 kV UP TO AND INCLUDING 33/33 kV

FOREWORD

This standard specifies two classes for reeling and trailing cables as follows:

(a) Class 1 Cable—Cables rated 3.3/3.3 kV and above having superior grade insulation and sheath materials which permit applications with reduced insulation radial thickness to produce a high quality product having optimum flexibility and mass.

(b) Class 2 Cable—Cables rated 1.1/1.1 kV and above designed for application of standard insulation and sheath materials with greater radial thickness insulation than equivalent rated Class 1 cable to provide a more physically robust cable.

The cable structures are defined in detail to satisfy the particular requirements of the industry and the sizes have been rationalized to provide an optimum range to meet most applications.

Cable users will be assisted in making the appropriate cable selection by reference to the descriptive tables of cable types in this standard. A number of cables manufactured in accordance with AS 1802 for underground coal mining may be suitable for use in surface mining or other underground mining. Advice on suitability of these cables should be sought from the cable manufacturer.

The nominal cross-sectional areas of the conductors specified herein are identical with the values specified in AS 1125, Conductors in Insulated Electric Cables and Flexible Cords.

This standard requires the application of semiconductive conductor and insulation screens to all cables rated 3.3/3.3 kV and above and specifies where the application of semiconductive tape is acceptable in lieu of extrusion simultaneously with the insulation material.

The dimensions specified for Class 1 cable radial thicknesses are based on ICEA Pub No S-68-516 for non-effectively earthed systems. The dimensions adopted for Class 2 cables maintain the greater radial thicknesses specified in AS 1802.

The elastomeric insulation specified in this draft standard is compounded in two classes of ethylene propylene rubber namely Class 1, XR-EP-90 having superior electrical and mechanical properties capable of meeting higher test level requirements. Class 2 cables are designed for application of standard R-EP-90 insulation compounded to meet requirements similar to those specified in AS 1802.

Three sheathing materials are specified namely chlorosulphonated polyethylene, chlorinated polyethylene and polychloroprene. For all Class 1 cables, the compounding of these materials provides an extra-heavy duty sheath classified XHD-90-CSP or CPE, or XHD-85-PCP which is required to meet higher test level requirements than the Class 2 cable outer sheathing materials classified HD-90-CSP, HD-90-CPE or HD-85-PCP.

The test requirements specified herein for Class 1 cables are generally higher than those specified in previous standards as a result of developments in cable materials and manufacturing techniques in recent years. Where the method of testing differs from, or has not yet been included in AS 1660 the test method has been included in Clause 26 and appendices to this standard.