Australian Standard®

ELECTRICAL EQUIPMENT FOR COAL MINES—

EXPLOSION-PROTECTED DISTRIBUTION AND CONTROL BOXES FOR VOLTAGES UP TO 3300 V A.C.

This Australian standard was prepared by Committee EL/23, Electrical Equipment in Coal Mines. It was approved on behalf of the Council of the Standards Association of Australia on 9 September 1986 and published on 3 November 1986.

The following interests are represented on Committee EL/23:

Australian Coal Association

Australian Electrical and Electronic Manufacturers Association

Confederation of Australian Industry

Department of Industrial Relations, NSW

Department of Mines, QLD

Elcom Collieries, NSW

Institute of Mining Electrical and Mining Mechanical Engineers

Joint Coal Board

Queensland Confederation of Industry

University of Newcastle

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PREFACE

This standard was prepared by the Association's Committee on Electrical Equipment in Coal Mines to supersede AS 1039—1983, Electrical Equipment for Coal Mines—Flameproof Distribution and Control Boxes for Voltages up to 1100 V a.c. It is intended for the guidance of manufacturers, users, regulatory authorities and associated interests and for use with other Australian standards and relevant mining regulations.

The purpose of the standard is to establish requirements for a form of enclosed electrical equipment for use in flammable or explosive atmospheres, i.e. for explosion protected distribution and control boxes associated with electrical equipment, in coal mines.

Major changes made in this edition are the inclusion of equipment up to 3300 V a.c., (previously 1100 V a.c.) and the use of the term 'explosion-protected' equipment which more readily describes the type of equipment to users. Various technical changes have been made throughout to line up with the techniques currently in use in the industry and the design and construction requirements have been reorganized and expanded to include more specific items.

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STANDARDS ASSOCIATION OF AUSTRALIA

Australian Standard
for
ELECTRICAL EQUIPMENT FOR COAL MINES— EXPLOSION-PROTECTED DISTRIBUTION AND CONTROL BOXES FOR VOLTAGES UP TO 3300 V A.C.

SECTION 1. SCOPE AND GENERAL

1.1 SCOPE. This standard specifies requirements for multiple-outlet or single-outlet explosion-protected distribution and control boxes (hereinafter referred to as 'DCB') designed for use with a.c. voltages up to 3300 V, in the coalmining industry.

NOTE: Appendix A sets out information to be specified by the purchaser with an enquiry or order.

1.2 REFERENCED DOCUMENTS. The following standards are referred to in this standard:

AS 1029 Low Voltage Contactors
Part 1—Electromechanical—Up to and Including 1000 V a.c. and 1200 V d.c.

AS 1042 Direct-acting Indicating Electrical Measuring Instruments and their Accessories

AS 1147 Plastics Insulating Materials of Mouldings for Cable Connecting Devices for Use in Coal Mines

AS 1299 Electrical Equipment for Coal Mines—Flameproof Restrained Plugs and Receptacles

AS 1300 Electrical Equipment for Coal Mines—Bolted Flameproof Cable Coupling Devices

AS 1675 Current Transformers for Measurement and Protection

AS 1740 Electrical Equipment for Coal Mines—Transformer Substations for Use Underground

AS 1802 Reeling and Trailing Electric Cables for Underground Coal Mining Purposes

AS 1828 Electrical Equipment for Explosive Atmospheres—Cable Glands

AS 1864 High Voltage Alternating Current Contactors

AS 1930 Circuit-breakers for Distribution Circuits (up to and including 1000 V a.c. and 1200 V d.c.)

AS 1931 High Voltage Testing Techniques
Part 1—General Definitions, Test Requirements, Test Procedures and Measuring Devices
Part 2—Application Guide for Measuring Devices

AS 1972 Cables for Use Below Ground in Coal Mines (other than Trailing Cables)

AS 2006 High Voltage Alternating Current Circuit-breakers

AS 2067 Switchgear Assemblies and Ancillary Equipment for Alternating Voltages above 1 kV

AS 2081 Earth-fault Protection, Monitoring and Current Limitation Equipment for Use in Coal Mines and Shale Mines

AS 2184 Low Voltage Switchgear and Control gear—Moulded-case Circuit-breakers for Rated Voltages up to and including 600 V a.c. and 250 V d.c.

AS 2374 Power Transformers
Part 1—General Requirements

AS 2480 Electrical Equipment for Explosive Atmospheres—Flameproof Enclosure—Type of Protection d

AS 2536 Surface Texture

AS 2595 Electrical Equipment for Coal Mines—Electrical Requirements for Underground Mining Machines and Accessories
Part 1—Equipment for Use in Explosive Atmospheres

AS 3000 SAA Wiring Rules

AS 3100 Approval and Test Specification for Definitions and General Requirements for Electrical Materials and Equipment

AS 3111 Approval and Test Specification for Miniature Overcurrent Circuit Breakers

AS 3135 Approval and Test Specification for Semi-enclosed Fuses for a.c. Circuits

1.3 DEFINITIONS. For the purpose of this standard, the following definitions apply:

1.3.1 Access cover—cover which provides access to electrical equipment that—

(a) may require adjustment or alteration;

(b) is used to make and break load current under normal conditions; and

(c) requires frequent removal or opening of the cover for maintenance.

1.3.2 Adaptor—device designed to connect a cable coupling to apparatus in such a manner as will form a flameproof enclosure. It may be either attached to or integral with the apparatus.

1.3.3 Approved—means approved by the relevant Regulatory Authority.

1.3.4 Automatic control—control by means of any device other than a manually operated switch or control button.