

Handbook

High voltage mining equipment for use underground



This Australian Handbook was prepared by Committee EL-023, Electrical Equipment in Mines. It was approved on behalf of the Council of Standards Australia on 31 October 2007. This Handbook was published on 31 December 2007.

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 - Australian Coal Association
 - Australian Industry Group
 - Department of Natural Resources and Mines, Qld
 - Department of Primary Industries, Mine Safety, NSW
 - Electrical Apparatus Service Association
 - Electrical Regulatory Authorities Council
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Standards Australia wishes to acknowledge the participation of the expert individuals that contributed to the development of this Standard through their representation on the Committee.

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OF

HB 242—2007

High voltage mining equipment for use underground

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NOTES

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PREFACE

This Handbook was prepared by a Working Group, chaired by Mr. Greg Briggs, on behalf of the Joint Standards Australia/Standards New Zealand Committee EL-023, Electrical Equipment in Mines.

The objective of this Handbook is to provide practical guidance for the health and safety of personnel when using high voltage equipment in underground mines. It outlines engineering principles to control the risks associated with high voltage equipment in underground mines that will protect the safety of people and property.

This Handbook is applicable to equipment and practices in both underground coal and metaliferous mines.

The Handbook has been written to assist designers, manufacturers, and users of HV equipment in underground mines.

CONTENTS

	<i>Page</i>
SECTION 1 SCOPE AND GENERAL	
1.1 PURPOSE	5
1.2 SCOPE	5
1.3 REFERENCED STANDARDS	5
1.4 DEFINITIONS	6
1.5 APPLICABLE LEGISLATION.....	11
SECTION 2 HAZARD IDENTIFICATION AND RISK ASSESSMENT	
2.1 HAZARD ASSESSMENT.....	12
2.2 CONSULTATION.....	12
SECTION 3 HV SAFETY MANAGEMENT PLAN	
3.1 GENERAL	13
3.2 ELEMENTS	13
SECTION 4 ELECTRICAL PROTECTION	
4.1 STRATEGY	14
4.2 SECTIONALISING THE DISTRIBUTION SYSTEM	14
4.3 EARTH-CONTINUITY PROTECTION	15
4.4 EARTH-FAULT LIMITATION	15
4.5 EARTH-LEAKAGE PROTECTION	19
4.6 SHORT CIRCUIT	19
4.7 OVERCURRENT/OVERLOAD PROTECTION	19
4.8 EARTH-FAULT LOCKOUT	20
4.9 RESETS	20
4.10 MAINTENANCE AND TESTING OF PROTECTION DEVICES	20
SECTION 5 HIGH VOLTAGE ISOLATION	
5.1 ISOLATION AND SWITCHING DEVICES	21
5.2 ISOLATION PRACTICES FOR ELECTRICAL WORK.....	24
SECTION 6 ENCLOSURES	
6.1 ARC FAULT CONTAINMENT.....	26
6.2 CREEPAGE AND CLEARANCE.....	27
6.3 MINIMUM FREE DISTANCE	28
6.4 PERMITTED TECHNIQUES	28
6.5 IP CONSIDERATIONS	28
SECTION 7 DISTRIBUTION AND CONTROL ARRANGEMENTS	
7.1 GENERAL	29
7.2 MAIN DISCONNECTING SWITCH	29
7.3 TRAILING CABLE DISCONNECTING SWITCHES.....	29
7.4 DISCONNECTING SWITCHES	29
7.5 BARRIERS AND COVERS	31
7.6 COVER INTERLOCKS	31
7.7 EMERGENCY-STOP SWITCH.....	31
7.8 CAUTION LABELS	31

SECTION 8 RETICULATION	
8.1	INSTALLATION AND SAFEGUARDING OF CABLES 32
8.2	TRAILING CABLE HANDLING AND PULLING 35
SECTION 9 MOBILE MACHINES AND MOTORS	
9.1	GENERAL 39
9.2	ELECTRICAL ENCLOSURES 39
9.3	MACHINE SWITCHING DEVICES 39
9.4	BARRIERS 39
9.5	ELECTRICAL INTERLOCKING 39
9.6	EMERGENCY SWITCHING 39
9.7	HV MACHINE CABLES 40
9.8	CABLE ANCHOR POINT 40
9.9	EARTHING 40
9.10	VARIABLE SPEED DRIVES (VSD) 40
SECTION 10 TRANSPORTING HIGH VOLTAGE EQUIPMENT	
10.1	GENERAL 42
10.2	CABLES 42
10.3	OTHER HIGH VOLTAGE EQUIPMENT 46
SECTION 11 COMMISSIONING PROCEDURES	
11.1	GENERAL 47
11.2	FIRST TIME COMMISSIONING 47
11.3	RECOMMISSION/DECOMMISSION 47
SECTION 12 OPERATING PROCEDURES SWITCHGEAR/EQUIPMENT	
12.1	OPERATING PROCEDURES FOR OPERATORS OF HV MACHINES 49
12.2	OPERATING PROCEDURES FOR ELECTRICAL MAINTENANCE AND/OR REPAIR OF HV EQUIPMENT 50
SECTION 13 INSPECTION AND MAINTENANCE	
13.1	TROUBLESHOOTING AND TESTING 52
13.2	MAINTENANCE OF HV SYSTEMS 54
APPENDICES	
A	TOUCH POTENTIAL CALCULATIONS FOR A HIGH VOLTAGE AFC 57
B	PLANT STANDARDS 63
C	USEFUL PUBLICATIONS 64
D	EXAMPLES OF SAFETY ALERTS INVOLVING HV EQUIPMENT 66

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Handbook

High voltage mining equipment for use underground

SECTION 1 SCOPE AND GENERAL

1.1 PURPOSE

This Handbook provides practical guidance for electrical equipment and practices associated with underground high voltage (HV) installations and HV mining equipment in order to protect the safety of people and property in mines.

1.2 SCOPE

This Handbook outlines safety guidelines for electrical mining equipment where the voltage of the supply system is above 1200 V and covers non-hazardous and hazardous area applications. It contains provisions relating to equipment design, commissioning, operation, and maintenance of such equipment.

This Handbook should be read in conjunction with the joint Australian and New Zealand Standard AS/NZS 4871.

NOTE: Recommendations for plant Standards are contained in Appendix B, while useful publications are noted in Appendix C. Appendix D provides examples of safety alerts involving HV equipment.

1.3 REFERENCED STANDARDS

The following documents are referred to in this Handbook:

AS

- 3007 Electrical installations—Surface mines and associated processing plant
- 3007.2 Part 2: General protection requirements
- 4024 Safety of machinery (all Parts)
- 60529 Degrees of protection provided by enclosures (IP Code)

AS/NZS

- 1747 Reeling, trailing and feeder cables used for mining—Repair, testing and fitting of accessories
- 1802 Electric cables—Reeling and trailing—For underground coal mining purposes
- 1972 Electric cables—Underground coal mines—Other than reeling and trailing
- 2081 Electrical equipment for coal and shale mines—Electrical protection devices (all Parts)
- 2290 Electrical equipment for coal mines—Introduction and maintenance
- 2290.1 Part 1: For hazardous areas
- 3000 Electrical installations (known as the Australian/New Zealand Wiring Rules)
- 4360 Risk management
- 4801 Occupational health and safety management systems—Specification with guidance for use