

Australian/New Zealand Standard™

**Electrical equipment for mines and  
quarries**

**Part 3: Substations**



### **AS/NZS 4871.3:2010**

This Joint Australian/New Zealand Standard was prepared by Joint Technical Committee EL-023, Electrical Equipment in Mines and Quarries. It was approved on behalf of the Council of Standards Australia on 13 April 2010 and by Council of Standards New Zealand on 23 April 2010.  
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The following are represented on Committee EL-023:

Australian Chamber of Commerce and Industry  
Australian Coal Association  
Australian Industry Group  
Aviation and Marine Engineers Association, New Zealand  
Department of Mines and Energy, Qld  
Department of Primary Industries, Mineral Resources, NSW  
Electrical Apparatus Service Association  
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# Australian/New Zealand Standard™

## Electrical equipment for mines and quarries

### Part 3: Substations

Originated as part of AS 1740—1975.  
Jointly revised and redesignated in part as AS/NZS 4781.3:2002.  
Second edition 2010.  
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## PREFACE

This Standard was prepared by the Joint Standards Australia/Standards New Zealand Committee EL-023, Electrical Equipment in Mines and Quarries, to supersede AS/NZS 4871.3:2002, *Substations*.

*This Standard incorporates Amendment No. 1 (February 2017). The changes required by the Amendment are indicated in the text by a marginal bar and amendment number against the clause, note, table, figure or part thereof affected.*

The objective is to set out requirements for the design, construction and testing of substations for mines and quarries.

This Standard is Part 3 of the series AS/NZS 4871, *Electrical equipment for mines and quarries*.

The AS/NZS 4871 series comprises the following parts:

- Part 1: General requirements
- Part 2: Distribution, control and auxiliary equipment
- Part 3: Substations (this Part)
- Part 4: Mains powered electrical mobile machines
- Part 5: Battery powered electrical mobile machines
- Part 6: Diesel powered machinery and ancillary equipment

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.

## CONTENTS

	<i>Page</i>
SECTION 1 SCOPE AND GENERAL	
1.1 SCOPE.....	4
1.2 APPLICATION .....	4
1.3 REFERENCED DOCUMENTS.....	4
1.4 DEFINITIONS.....	4
1.5 EXISTING EQUIPMENT .....	4
SECTION 2 SPECIFIC EQUIPMENT REQUIREMENTS	
2.1 GENERAL REQUIREMENTS.....	5
2.2 LABELLING .....	5
2.3 LIGHTING .....	6
2.4 EXPLOSION VENTS.....	6
2.5 PRIMARY SWITCHGEAR ASSEMBLY .....	6
2.6 SECONDARY SWITCHGEAR ASSEMBLY .....	7
2.7 TRANSFORMERS .....	8
2.8 EXPLOSION-PROTECTED SUBSTATION .....	9
2.9 EARTHING.....	9
SECTION 3 TESTING	
3.1 GENERAL.....	10
3.2 TEST SECTIONS .....	10
3.3 PRIMARY SECTION.....	10
3.4 SECONDARY SECTION.....	10
3.5 TRANSFORMER SECTION.....	10
APPENDIX A ARRANGEMENTS OF PROTECTION.....	11

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**Australian/New Zealand Standard**  
**Electrical equipment for mines and quarries**

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**Part 3: Substations**

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## SECTION 1 SCOPE AND GENERAL

**1.1 SCOPE**

This Standard specifies requirements for the design, construction and testing of substations intended to be relocated from time to time in association with mining and quarrying activities, and fixed substations in underground situations.

**1.2 APPLICATION**

All substations shall comply with the requirements of AS/NZS 4871.1 and the requirements in this Standard.

NOTE: Examples of arrangements of protection are given in Appendix A.

**1.3 REFERENCED DOCUMENTS**

The following documents are referred to in this Standard:

## AS

- 2374 Power transformers
- 2374.1 Part 1: General
- 2374.5 Part 5: Ability to withstand short-circuit

- 60076 Power transformers (series)

## AS/NZS

- 1300 Approval and test specification—General requirements for electrical equipment
- 4695 Fire hazard testing of electrotechnical products
- 4695.112 Part 112: Method for determining the comparative and the proof tracking indices of solid insulating materials under moist conditions
- 4871 Electrical equipment for coal mines, for use underground
- 4871.1 Part 1: General requirements
- 60079 Explosive atmospheres (series)
- 60112 Method for the determination of the proof and the comparative tracking indices of solid insulating materials

**1.4 DEFINITIONS**

For the purposes of this Standard, the definitions in AS/NZS 4871.1 apply.

**1.5 EXISTING EQUIPMENT**

In recognition of changes made to this edition of this Standard, existing equipment should be assessed for risk and interim control measures should be implemented where necessary.

Compliance improvements should be made within a time frame that takes into consideration the associated risk levels.