AS/NZS 3800:2020

Australian/New Zealand Standard™

Electrical equipment for explosive atmospheres — Repair and overhaul (IEC 60079-19:2015 (ED. 3.1), MOD)

AS/NZS 3800:2020

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 24 April 2020 and by the New Zealand Standards Approval Board on 1 April 2020.

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The following are represented on Committee EL-023:

Australian Cablemakers Association
Australian Chamber of Commerce and Industry
Australian Industry Group
Aviation and Marine Engineers Association
Construction Forestry Miners and Energy Union
Department of Mines, Industry Regulation and Safety, WA
Department of Natural Resources, Mines and Energy, Qld
Engineers Australia
Minerals Council of Australia
National Association of Testing Authorities Australia
NSW Department of Planning and Environment
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Australian/New Zealand Standard™

Electrical equipment for explosive atmospheres — Repair and overhaul (IEC 60079-19:2015 (ED. 3.1), MOD)

Originated in Australia as AS 2290.2—1979.
Originated in New Zealand as NZS 6112:1989.
Third edition AS/NZS 3800:2012.
This edition 2020.

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 3800:2012.

The objective of this Standard is to give instructions, principally of a technical nature, on the repair, overhaul, reclamation and modification of equipment designed for use in explosive atmospheres. It is not applicable to maintenance, other than when repair and overhaul cannot be disassociated from maintenance, neither does it give advice on cable entry systems, which may require a renewal when the equipment is re-installed. It prevents overhaul without manufacturer and certificate documentation to types of protection "i", "m" and "s". This Standard is based on the assumption that good engineering practices are adopted throughout.

This Standard is an adoption with national modifications, which has been reproduced from the Final version of IEC 60079-19:2010+AMD1:2015 CSV (ED.3.1), *Explosive atmospheres* ?" Part 19: *Equipment repair, overhaul and reclamation*, and has been varied as indicated to take account of Australian/New Zealand conditions.

The inclusion of national variations in boxed text under the relevant clauses in this modified adoption, was approved by the Standards Australia Production Management Group (PMG) on 6 September 2018, as a one-off exemption to the directives of Clause A.3 in Standardisation Guide 007: Adoption of International Standards.

Additional national variations, requirements and guidance are set out in Appendix ZA to Appendix ZH.

Terms and definitions in this Standard that are additional to those of IEC 60079-19 are numbered beginning from 3.201.

The national variations address issues including the following:

(a) Alignment between AS/NZS 3800 and IEC 60079-19.

(b) Clarification around the general requirements for a repair facility.

(c) Clarification around the requirement for spare parts.

(d) Provide additional details regarding the certification nameplate and markings.

(e) Provide additional details regarding reclamations and metal spraying.

(f) Clarification around the welding techniques permitted.

(g) Amendment of the requirements for threaded holes for fasteners to improve the practicability of the verification methods.

(h) Clarification on actions to take when performing modifications.

(i) Amendment of the requirements for temporary repairs.

(j) Amendment of the requirements for overpressure testing to align with the requirements of the 60079 series of standards.

As this Standard is reproduced from an International Standard, the following applies:

(i) In the source text "this part of the IEC 60079 series" should read "this Australian/New Zealand Standard".

(ii) A full point substitutes for a comma when referring to a decimal marker.

Australian or Australian/New Zealand Standards that are identical adoptions of international normative references may be used interchangeably. Refer to the online catalogue for information on specific standards.

The terms "normative" and "informative" are used in Standards to define the application of the appendices or annexes to which they apply. A "normative" appendix or annex is an integral part of a Standard, whereas an "informative" appendix or annex is only for information and guidance.

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

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EXPLOSIVE ATMOSPHERES –

Part 19: Equipment repair, overhaul and reclamation

NATIONAL VARIATION:

Delete title and *replace* with the following:

Electrical equipment for explosive atmospheres — Repair and overhaul (IEC 60079-19:2015 (ED. 3.1), MOD)

FOREWORD

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DISCLAIMER
This Consolidated version is not an official IEC Standard and has been prepared for user convenience. Only the current versions of the standard and its amendment(s) are to be considered the official documents.

This Consolidated version of IEC 60079-19 bears the edition number 3.1. It consists of the third edition (2010-11) [documents 31J/180/FDIS and 31J/192/RVD] and its amendment 1 (2015-03) [documents 31J/249/FDIS and 31J/250/RVD]. The technical content is identical to the base edition and its amendment.

In this Redline version, a vertical line in the margin shows where the technical content is modified by amendment 1. Additions and deletions are displayed in red, with deletions

being struck through. A separate Final version with all changes accepted is available in this publication.

International Standard IEC 60079-19 has been prepared by subcommittee 31J: Classification of hazardous areas and installation requirements, of IEC technical committee 31: Equipment for explosive atmospheres.

The significant technical changes with respect to the previous edition are as follows:

- inclusion of specific Group I requirements;
- inclusion of offshore requirements.

This publication has been drafted in accordance with the ISO/IEC Directives, Part 2.

A list of all parts of the IEC 60079 series, under the general title *Explosive atmospheres*, can be found on the IEC website.

The committee has decided that the contents of the base publication and its amendment will remain unchanged until the stability date indicated on the IEC web site under "http://webstore.iec.ch" in the data related to the specific publication. At this date, the publication will be

- reconfirmed,
- withdrawn,
- replaced by a revised edition, or
- amended.

INTRODUCTION

When electrical equipment is installed in areas where dangerous concentrations and quantities of flammable gases, vapours, mists or dusts may be present in the atmosphere, protective measures are to be applied to reduce the likelihood of explosion due to ignition by arcs, sparks or hot surfaces produced either in normal operation or under specified fault conditions.

This part of IEC 60079 is supplementary to other relevant IEC standards, for example IEC 60364 series, as regards installation requirements, and also refers to IEC 60079 series and its appropriate parts for the design requirements of suitable electrical equipment.

Clause 4 of this part of IEC 60079 contains general requirements for the repair and overhaul of equipment and should be read in conjunction with the other relevant clauses of this standard dealing with the detailed requirements for individual types of protection.

In cases where protected equipment incorporates more than one type of protection, reference should be made to all clauses involved.

This part not only gives guidance on the practical means of maintaining the electrical safety and performance requirements of repaired equipment, but also defines procedures for maintaining, after repair, overhaul or reclamation, compliance of the equipment with the provisions of the certificate of conformity or with the provisions of the appropriate explosion protection standard where a certificate is not available.

The nature of the explosion protection offered by each type of protection varies according to its unique features. Reference should be made to the appropriate standard(s) for details.

Users will utilize the most appropriate repair facilities for any particular item of equipment, whether they be the facilities of the manufacturer or a suitably competent and equipped repairer (see Note).

This part recognizes the necessity of a required level of competence for the repair, overhaul and reclamation of the equipment. Some manufacturers may recommend that the equipment be repaired only by them.

In the case of the repair, overhaul or reclamation of equipment which has been the subject of design certification, it may be necessary to clarify the position of the continued conformity of the equipment with the certificate.

NOTE Whilst some manufacturers recommend that certain equipment be returned to them for repair or reclamation, there are also competent independent repair organizations who have the facilities to carry out repair work on equipment employing some or all of the types of protection covered by IEC 60079 series. For repaired equipment to retain the integrity of the type(s) of protection employed in its design and construction, detailed knowledge of the original manufacturer's design (which may only be obtainable from design and manufacturing drawings) and any certificate documentation may be necessary. Where equipment is not being returned to the original manufacturer for repair or reclamation, the use of repair organizations that are recommended by the original manufacturer should be considered.

NATIONAL VARIATIONS:

Add the following after the second paragraph:

> This standard details the repair, overhaul and reclamation performance requirements for electrical explosion-protected equipment and is supplementary to other relevant Australian, New Zealand and IEC standards, e.g. AS/NZS 3000, AS 2067, AS/NZS 4871 and AS 60034/IEC 60034 series, as regards installation requirements, and also refers to the appropriate parts of AS/NZS 60079 for the design requirements of suitable electrical equipment. Processes and methods associated with repair and overhaul previously

included in this standard have been transferred to SA/SNZ Handbook HB 239, *Guidance of the repair and overhaul of electrical equipment for explosive atmospheres*.

Add the following to the end of the fifth paragraph:

This standard also contains provisions to assist Group II operators to repair equipment in compliance with the requirements of the appropriate explosion-protection standard where a certificate is not available.

EXPLOSIVE ATMOSPHERES –

Part 19: Equipment repair, overhaul and reclamation

NATIONAL VARIATION:

Delete title and *replace* with the following:

Electrical equipment for explosive atmospheres — Repair and overhaul (IEC 60079-19:2015 (ED. 3.1), MOD)

1 Scope

This part of IEC 60079

– gives instructions, principally of a technical nature, on the repair, overhaul, reclamation and modification of equipment designed for use in explosive atmospheres;

– is not applicable to maintenance, other than when repair and overhaul cannot be disassociated from maintenance, neither does it give advice on cable entry systems which may require a renewal when the equipment is re-installed;

– is not applicable to type of protection “m”, “o” and “q”;

– assumes that good engineering practices are adopted throughout.

NOTE Much of the content of this standard is concerned with the repair and overhaul of electrical machines. This is not because they are the most important items of explosion-protected equipment, but rather because they are often major items of repairable capital equipment in which, whatever type of protection is involved, sufficient commonality of construction exists as to make possible more detailed instructions for their repair, overhaul, reclamation or modification.

NATIONAL VARIATION:

Delete “– is *not applicable to type of protection “m”, “o” and “q””*; and *replace* with the following:

– prevents overhaul without manufacturer and certificate documentation to types of protection ”i”, ”m” and “s”;

2 Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

IEC 60079 (all parts), *Explosive atmospheres*

IEC 60079-0, *Explosive atmospheres – Part 0: Equipment – General requirements*

IEC 60079-1, *Explosive atmospheres – Part 1: Equipment protection by flameproof enclosures “d”*

IEC 60079-2, *Explosive atmospheres – Part 2: Equipment protection by pressurized enclosure «p»*

IEC 60079-7, *Explosive atmospheres – Part 7: Equipment protection by increased safety "e"*