

AS/NZS IEC 60079.26:2023
IEC 60079-26:2021



Australian/New Zealand Standard™

Explosive atmospheres

Part 26: Equipment with Separation Elements or combined Levels of Protection



AS/NZS IEC 60079.26:2023

This Joint Australian/New Zealand Standard™ was prepared by Joint Technical Committee EL-014, Equipment for Explosive Atmospheres. It was approved on behalf of the Council of Standards Australia on 04 August 2023 and by the New Zealand Standards Approval Board on 05 July 2023.

This Standard was published on 25 August 2023.

The following are represented on Committee EL-014:

- Australian Chamber of Commerce and Industry
- Australian Industry Group
- Australian Petroleum Production and Exploration Association
- Australian Pipelines and Gas Association
- Aviation and Marine Engineers Association
- Better Regulation Division (Fair Trading, SafeWork NSW, TestSafe)
- Bureau of Steel Manufacturers of Australia
- Business New Zealand
- Communications, Electrical and Plumbing Union — Electrical Division
- Department of Regional NSW
- Electrical Compliance Testing Association of Australia
- Electrical Regulatory Authorities Council, Australia
- Electrical Safety New Zealand
- Engineering New Zealand
- Engineers Australia
- Engineers Australia/ Mining Electrical and Mining Mechanical Engineering Society
- Gas Association of New Zealand
- Institute of Electrical Inspectors
- Institute of Instrumentation, Control & Automation Aust
- Joint Accreditation System of Australia & New Zealand
- Resources Safety & Health Queensland
- University of Newcastle
- WorkSafe New Zealand - Energy Safety

This Standard was issued in draft form for comment as DR AS/NZS IEC 60079.26:2023.

Keeping Standards up-to-date

Ensure you have the latest versions of our publications and keep up-to-date about Amendments, Rulings, Withdrawals, and new projects by visiting:

www.standards.org.au

www.standards.govt.nz

ISBN 978 1 76139 295 5

Australian/New Zealand Standard™

Explosive atmospheres

Part 26: Equipment with Separation Elements or combined Levels of Protection

Originated as AS/NZS 60079.26(Int):2005.
Second edition AS/NZS 60079.26:2007.
Previous edition 2015.
Jointly revised and redesignated as AS/NZS IEC 60079.26:2023.



© IEC Geneva Switzerland 2023 — All rights reserved
© Standards Australia Limited/the Crown in right of New Zealand, administered by the New Zealand Standards Executive 2023

All rights are reserved. No part of this work may be reproduced or copied in any form or by any means, electronic or mechanical, including photocopying, without the written permission of either the IEC or the publisher, unless otherwise permitted under the Copyright Act 1968 (Cth) or the Copyright Act 1994 (New Zealand). If you have any questions about IEC copyright or have an enquiry about obtaining additional rights to this publication, please see the contact details on the back cover or the contact us page of the website for further information.

Preface

This Standard was prepared by the Joint Standards Australia/Standards New Zealand Committee EL-014, Equipment for Explosive Atmospheres to supersede AS/NZS 60079.26:2015, *Explosive atmospheres, Part 26: Equipment with Equipment Protection Level (EPL) Ga*.

The objective of this document is to specify requirements for construction, testing and marking for Ex Equipment that contains parts of the equipment with different Equipment Protection Levels (EPLs) and a separation element. This equipment is mounted across a boundary where different EPLs are required, for example between different gas hazardous areas, dust hazardous areas or gas hazardous areas adjacent to dust hazardous areas.

Separation elements are considered for both electrical and non-electrical equipment. If mechanical energy can be transformed into a potential ignition source, additionally an ignition hazard assessment in accordance with ISO 80079-36 is performed and appropriate measures are undertaken. Suitable measures can be selected from ISO 80079-37 or IEC TS 60079-42.

This document also specifies requirements for the combination of two Types of Protection, each with EPL Gb, to achieve EPL Ga. Examples are included in Clause 4.2.

This document supplements and modifies the general requirements of AS/NZS IEC 60079-0. Where a requirement of this document conflicts with a requirement of AS/NZS IEC 60079-0, the requirement of this document takes precedence.

This document is identical with, and has been reproduced from, IEC 60079-26:2021, *Explosive atmospheres – Part 26: Equipment with Separation Elements or combined Levels of Protection*.

As this document has been reproduced from an International document, 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.

NOTES

CONTENTS

FOREWORD	4
1 Scope	7
2 Normative references	7
3 Terms and definitions	8
4 Ex Equipment with two combined Types of Protection	8
4.1 General.....	8
4.2 Basic requirements	8
4.3 Electrical Connections	9
5 Ex Equipment containing parts with different EPLs and a separation element.....	9
5.1 General.....	9
5.2 Separation elements	9
5.2.1 General	9
5.2.2 Basic requirements	10
5.2.3 Mechanical partition walls.....	10
5.2.4 Metallic partition walls with gas-tight conductor bushings.....	10
5.2.5 Partition wall supplemented with a joint	11
5.2.6 Partition wall for explosive gas atmospheres supplemented with natural ventilation.....	11
5.2.7 Requirements depending on the thickness of the partition wall	12
6 Process connection	13
7 Type tests	14
7.1 Standardized Types of Protection	14
7.2 Separation elements	14
7.3 Temperature evaluation	14
8 Marking	14
8.1 General.....	14
8.2 Ex Equipment with two combined Types of Protection.....	14
8.3 Ex Equipment containing parts with different EPLs.....	15
8.4 Examples of marking:.....	15
9 Instructions.....	16
9.1 Separation elements	16
9.2 Process connection.....	16
9.3 EPL allocation.....	16
Annex A (normative) Types of construction for separation elements	17
Bibliography.....	23
Figure 1 – Partition wall with a conductor bushing considered as gas diffusion tight.....	11
Figure 2 – Example of a separation element with a cylindrical shaft joint and ventilation.....	12
Figure 3 – Example g) of marking of equipment with a separation element.....	15
Table 1 – Requirements for Ex Equipment containing parts with different EPLs.	9
Table A.1 – Ex Equipment with separation elements mounted at a boundary of Zone 0.....	17
Table A.2 – Ex Equipment with separation elements mounted at a boundary of Zone 1.....	18
Table A.3 – Ex Equipment with separation elements mounted at a boundary of Zone 20.....	19
Table A.4 – Ex Equipment with separation elements mounted at a boundary of Zone 21.....	19

Table A.5 – Ex Equipment with separation elements mounted at a boundary of Zone 0 in Zone 21 or 22	20
Table A.6 – Ex Equipment with separation elements mounted at a boundary of Zone 1 in Zone 21 or 22	20
Table A.7 – Ex Equipment with separation elements mounted at a boundary of Zone 20 in Zone 1 or 2	21
Table A.8 – Ex Equipment with separation elements mounted at a boundary of Zone 21 in Zone 1 or 2	22

INTERNATIONAL ELECTROTECHNICAL COMMISSION

EXPLOSIVE ATMOSPHERES –

Part 26: Equipment with Separation Elements or combined Levels of Protection

FOREWORD

- 1) The International Electrotechnical Commission (IEC) is a worldwide organization for standardization comprising all national electrotechnical committees (IEC National Committees). The object of IEC is to promote international co-operation on all questions concerning standardization in the electrical and electronic fields. To this end and in addition to other activities, IEC publishes International Standards, Technical Specifications, Technical Reports, Publicly Available Specifications (PAS) and Guides (hereafter referred to as "IEC Publication(s)"). Their preparation is entrusted to technical committees; any IEC National Committee interested in the subject dealt with may participate in this preparatory work. International, governmental and non-governmental organizations liaising with the IEC also participate in this preparation. IEC collaborates closely with the International Organization for Standardization (ISO) in accordance with conditions determined by agreement between the two organizations.
- 2) The formal decisions or agreements of IEC on technical matters express, as nearly as possible, an international consensus of opinion on the relevant subjects since each technical committee has representation from all interested IEC National Committees.
- 3) IEC Publications have the form of recommendations for international use and are accepted by IEC National Committees in that sense. While all reasonable efforts are made to ensure that the technical content of IEC Publications is accurate, IEC cannot be held responsible for the way in which they are used or for any misinterpretation by any end user.
- 4) In order to promote international uniformity, IEC National Committees undertake to apply IEC Publications transparently to the maximum extent possible in their national and regional publications. Any divergence between any IEC Publication and the corresponding national or regional publication shall be clearly indicated in the latter.
- 5) IEC itself does not provide any attestation of conformity. Independent certification bodies provide conformity assessment services and, in some areas, access to IEC marks of conformity. IEC is not responsible for any services carried out by independent certification bodies.
- 6) All users should ensure that they have the latest edition of this publication.
- 7) No liability shall attach to IEC or its directors, employees, servants or agents including individual experts and members of its technical committees and IEC National Committees for any personal injury, property damage or other damage of any nature whatsoever, whether direct or indirect, or for costs (including legal fees) and expenses arising out of the publication, use of, or reliance upon, this IEC Publication or any other IEC Publications.
- 8) Attention is drawn to the Normative references cited in this publication. Use of the referenced publications is indispensable for the correct application of this publication.
- 9) Attention is drawn to the possibility that some of the elements of this IEC Publication may be the subject of patent rights. IEC shall not be held responsible for identifying any or all such patent rights.

International Standard IEC 60079-26 has been prepared by IEC technical committee 31: Equipment for explosive atmospheres.

This fourth edition cancels and replaces the third edition published in 2014 and constitutes a technical revision.

This edition includes the following significant changes with respect to the previous edition:

Changes	Clause	Type		
		Minor and editorial changes	Extension	Major technical changes
The scope of the standard was extended for separation elements between all EPLs for gas and dust hazardous areas as well as for non-electrical equipment. The title and the structure of the standard was modified accordingly.	5		x	
The requirements for combined Types of Protection 4.1.2 were restructured and included in Clause 4	4	x		
The requirements for equipment with moving parts was removed and transferred to IEC 60079-0	4.2 (ed. 3)	x		
For equipment with partition walls other than corrosion resistant metals, glass or ceramic the type tests were detailed and the cycling test acc. to IEC TS 60079-40 specified, if they were exposed to constant vibrational stress	7.2			C1
The marking is extended for equipment to be mounted between different Zones	8		x	
The thickness of the partition wall must be specified in the instructions	9	x		
Additional warnings are included in the instructions for equipment with separation elements exposed to abrasive dust flow	9		x	
Table 1 "Separation elements" was moved to Annex A as Table A.1 and modified for clarification	Table A.1	x		
Table A.2 to table A.8 added for the extended separation elements			x	

NOTE The technical changes referred to include the significance of technical changes in the revised IEC Standard, but they do not form an exhaustive list of all modifications from the previous version.

Explanation of the types of changes:

A) Definitions

1. Minor and editorial changes:

- Clarification
- Decrease of technical requirements
- Minor technical change
- Editorial corrections

These are changes which modify requirements in an editorial or a minor technical way. They include changes of the wording to clarify technical requirements without any technical change, or a reduction in level of existing requirement.

2. Extension: Addition of technical options

These are changes which add new or modify existing technical requirements, in a way that new options are given, but without increasing requirements for equipment that was fully compliant with the previous standard. Therefore, these will not have to be considered for products in conformity with the preceding edition.