SVENSK STANDARD

SS-EN IEC 60079-19, utg 4:2025

Fastställd	Sida	Ansvarig kommitté
2025-12-17	1 (92)	SEK TK 31

Explosiv atmosfär –
Del 19: Reparation, översyn och renovering av utrustning

Explosive atmospheres –
Part 19: Equipment repair, overhaul and reclamation

Som svensk standard gäller europastandarden EN IEC 60079-19:2025. Den svenska standarden innehåller den officiella engelska språkversionen av EN IEC 60079-19:2025.

Nationellt förord

Europastandarden EN IEC 60079-19:2025

består av:

– **europastandardens ikraftsättningsdokument,** utarbetat inom CENELEC
– **IEC 60079-19, Fifth edition, 2025 - Explosive atmospheres – Part 19: Equipment repair, overhaul and reclamation**

utarbetad inom International Electrotechnical Commission, IEC.

Tidigare fastställd svensk standard SS-EN IEC 60079-19, utg 3:2020 med eventuella tillägg, ändringar och rättelser gäller ej fr o m 2028-09-30.

ICS 29.260.20

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EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN IEC 60079-19

September 2025

ICS 29.260.20

Supersedes EN IEC 60079-19:2019

English Version

Explosive atmospheres - Part 19: Equipment repair, overhaul and reclamation (IEC 60079-19:2025)

Atmosphères explosives - Partie 19: Réparation, révision et remise en état de l'appareil (IEC 60079-19:2025)

Explosionsgefährdete Bereiche - Teil 19: Gerätereparatur, Überholung und Regenerierung (IEC 60079-19:2025)

European Committee for Electrotechnical Standardization
Comité Européen de Normalisation Electrotechnique
Europäisches Komitee für Elektrotechnische Normung

CEN-CENELEC Management Centre: Rue de la Science 23, B-1040 Brussels

Ref. No. EN IEC 60079-19:2025 E

SEK Svensk Elstandard

SS-EN IEC 60079-19, utg 4:2025

European foreword

The text of document 31J/386/FDIS, future edition 5 of IEC 60079-19, prepared by SC 31J "Classification of hazardous areas and installation requirements" of IEC/TC 31 "Equipment for explosive atmospheres" was submitted to the IEC-CENELEC parallel vote and approved by CENELEC as EN IEC 60079-19:2025.

The following dates are fixed:

- latest date by which the document has to be implemented at national level by publication of an identical national standard or by endorsement (dop) 2026-09-30
- latest date by which the national standards conflicting with the document have to be withdrawn (dow) 2028-09-30

This document supersedes EN IEC 60079-19:2019 and all of its amendments and corrigenda (if any).

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CENELEC shall not be held responsible for identifying any or all such patent rights.

Any feedback and questions on this document should be directed to the users' national committee. A complete listing of these bodies can be found on the CENELEC website.

Endorsement notice

The text of the International Standard IEC 60079-19:2025 was approved by CENELEC as a European Standard without any modification.

In the official version, for Bibliography, the following notes have to be added for the standard indicated:

IEC 60034 (series)	NOTE	Approved as EN IEC 60034 (series)
IEC 60364 (series)	NOTE	Approved as HD 60364 (series)
IEC 60079-18	NOTE	Approved as EN 60079-18
IEC/TS 60079-39	NOTE	Approved as CLC IEC/TS 60079-39
IEC/TS 60079-47	NOTE	Approved as CLC IEC/TS 60079-47
ISO 9000	NOTE	Approved as EN ISO 9000
ISO 9001	NOTE	Approved as EN ISO 9001
ISO/IEC 17000	NOTE	Approved as EN ISO/IEC 17000
ISO/IEC 17024	NOTE	Approved as EN ISO/IEC 17024
ISO/IEC 80079-34	NOTE	Approved as EN ISO/IEC 80079-34

Annex ZA
(normative)

Normative references to international publications with their corresponding European publications

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements 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.

NOTE 1 Where an International Publication has been modified by common modifications, indicated by (mod), the relevant EN/HD applies.

NOTE 2 Up-to-date information on the latest versions of the European Standards listed in this annex is available here: www.cencenelec.eu.

Publication	Year	Title	EN/HD	Year
IEC 60034-23	-	Rotating electrical machines - Part 23: Repair, overhaul and reclamation	EN IEC 60034-23	-
IEC 60079-0	-	Explosive atmospheres - Part 0: Equipment - General requirements	EN IEC 60079-0	-
IEC 60079-1	-	Explosive atmospheres - Part 1: Equipment protection by flameproof enclosures "d"	EN 60079-1	-
IEC 60079-2	-	Explosive atmospheres - Part 2: Equipment protection by pressurized enclosure "p"	EN 60079-2	-
IEC 60079-5	-	Explosive atmospheres - Part 5: Equipment protection by powder filling “q”	EN 60079-5	-
IEC 60079-6	-	Explosive atmospheres - Part 6: Equipment protection by liquid immersion "o"	EN 60079-6	-
IEC 60079-7	-	Explosive atmospheres - Part 7: Equipment protection by increased safety "e"	EN 60079-7	-
IEC 60079-11	-	Explosive atmospheres - Part 11: Equipment protection by intrinsic safety "i"	EN IEC 60079-11	-
IEC 60079-14	-	Explosive atmospheres - Part 14: Electrical installation design, selection and installation of equipment, including initial inspection	EN IEC 60079-14	-
IEC 60079-15	-	Explosive atmospheres - Part 15: Equipment protection by type of protection "n"	EN IEC 60079-15	-
IEC 60079-17	-	Explosive atmospheres - Part 17: Electrical installations inspection and maintenance	EN IEC 60079-17	-
IEC 60079-26	-	Explosive atmospheres - Part 26: Equipment with Separation Elements or combined Levels of Protection	EN IEC 60079-26	-
IEC/IEEE 60079-30-1	-	Explosive atmospheres - Part 30-1: Electrical resistance trace heating - General and testing requirements	EN 60079-30-1	-
IEC/IEEE 60079-30-2	-	Explosive atmospheres - Part 30-2: Electrical resistance trace heating - Application guide for design, installation and maintenance	EN 60079-30-2	-

Publication	Year	Title	EN/HD	Year
IEC 60079-31	-	Explosive atmospheres - Part 31: Equipment dust ignition protection by enclosure "t"	EN IEC 60079-31	-
IEC 60079-33	-	Explosive atmospheres - Part 33: Equipment protection by special protection “s”	CLC/TR 60079-33	-
IEC 60085	-	Electrical insulation - Thermal evaluation and designation	EN 60085	-
IEC 60112	-	Method for the determination of the proof and the comparative tracking indices of solid insulating materials	EN IEC 60112	-
IEC 60529	-	Degrees of protection provided by enclosures (IP Code)	EN 60529	-
IEC 61241-0[1]	-	Electrical apparatus for use in the presence of combustible dust -- Part 0: General requirements	-	-
IEC 61241-1[2]	-	Electrical apparatus for use in the presence of combustible dust -- Part 1: Protection by enclosures "tD"	-	-
IEC 61241-1-1[3]	-	Electrical apparatus for use in the presence of combustible dust -- Part 1-1: Electrical apparatus protected by enclosures and surface temperature limitation - Specification for apparatus	-	-
IEC 61241-4[4]	-	Electrical apparatus for use in the presence of combustible dust -- Part 4: Type of protection 'pD'	-	-
ISO 4063	-	Welding, brazing, soldering and cutting – Nomenclature of processes and reference numbers	EN ISO 4063	-
ISO 4526	-	Metallic coatings_- Electroplated coatings of nickel for engineering purposes	EN ISO 4526	-
ISO 6158	-	Metallic and other inorganic coatings – Electrodeposited coatings of chromium for engineering purposes	EN ISO 6158	-
ISO 80079-36	-	Explosive atmospheres - Part 36: Non-electrical equipment for explosive atmospheres - Basic method and requirements	EN ISO 80079-36	-
ISO 80079-37	2016	Explosive atmospheres - Part 37: Non-electrical equipment for explosive atmospheres - Non-electrical type of protection constructional safety "c", control of ignition source "b", liquid immersion "k"	EN ISO 80079-37	2016

[1] Withdrawn and replaced by IEC 60079-0:2011.

[2] Withdrawn and replaced by IEC 60079-31:2008.

[3] Withdrawn and replaced by IEC 61241-0:2004 and IEC 61241-1:2004 (withdrawn and replaced by IEC 60079-31:2008).

[4] Withdrawn and replaced by IEC 60079-2:2014.

IEC 60079-19

Edition 5.0 2025-07

INTERNATIONAL STANDARD

NORME INTERNATIONALE

Explosive atmospheres –
Part 19: Equipment repair, overhaul and reclamation

Atmosphères explosives –
Partie 19: Réparation, révision et remise en état de l'appareil

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CONTENTS

INTERNATIONAL ELECTROTECHNICAL COMMISSION

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Explosive atmospheres - Part 19: Equipment repair, overhaul and reclamation

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.
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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. It is an International Standard.

This fifth edition cancels and replaces the fourth edition published in 2019. This edition constitutes a technical revision.

Users of this document are advised that interpretation sheets clarifying the interpretation of this document can be published. Interpretation sheets are available from the IEC webstore and can be found in the "history" tab of the page for each document.

The significance of changes between IEC 60079-19, Edition 5 (2025) and IEC 60079-19, Edition 4 (2019) are as listed below:

		Type		
Explanation of the significance of changes	**Clause**	**Minor and editorial changes**	**Extension**	**Major technical changes**
Reference to IEC 60079 series moved before IEC 60034 series	Introduction	X		
Scope restructured and reworded to clarify Scope of this document and align with other TC31 standards	1	X		
New bullet point clarifying that Ex Components are not repaired	1		X	
Normative references updated to include all standards referenced in the text	2	X		
For Terms, with this document as the source document, as identified in IEC 60050-426:2020 as 426-15-xx the source reference has been omitted from this document since this document is the source	3	X		
New Terms related to certificates, to group related terms	3.2	X		
Term certificate, amended to align with new IEC 60079-0. Former definitions 3.2.1 and 3.2.2 deleted, these are defined in IEC 60079-0, in this document remaining definitions become 3.2.1 and 3.2.2	3.2.1	X		
Term Schedule Drawing, kept even though it is in IEC 60079-0 to maintain connection with related drawings	3.2.2	X		
Note 1 added to term related drawings, to assist manufacturers who consider Schedule Drawings intellectual property not accessible by others	3.2.3		X	
Previous Term 3.27 renumbered and Deprecated Term dust ignition protection "tD" added with amended Note 1	3.6	X		
Previous 3.7 Term flameproof enclosure "d" definition updated to current IEV definition	3.8	X		
Previous 3.8 Term increased safety "e" definition updated to forthcoming IEC 60079-7 Ed 6.0	3.9	X		
Previous 3.9 renumbered and Source updated	3.10	X		
Previous 3.11 with <for explosive atmospheres> added	3.11	X		
Term non-electrical equipment added	3.14	X		
Previous 3.10 renumbered and Term corrected	3.15	X		
Previous 3.17 deleted Depreciated Term "pD" added to 3.19 "p"	3.19	X		
New Term 3.21 qualification <personal> added	3.20		X	
Previous 3.18 renumbered Note deleted now a Term 3.22	3.21	X		
New Term relevant standard added, previously a Note in 3.18 and 3.19	3.22	X		
Previous 3.19 renumbered Note deleted now a Term 3.22	3.23	X		
New Term added Type of Protection "h"	3.27		A1	
New Term added for non-electrical Equipment with method of ignition protection -control of ignition sources "b"	3.27.1		A1	

		Type		
Explanation of the significance of changes	**Clause**	**Minor and editorial changes**	**Extension**	**Major technical changes**
New Term added for non-electrical Equipment with method of ignition protection -constructional safety "c"	3.27.2		A1	
New Term added for non-electrical Equipment with method of ignition protection -liquid immersion "k"	3.27.3		A1	
Previous Term 3.23 amended to align with IEC 60079-0 a new Note was added to change definition when used in IEC 60079-19	3.32	X		
Clauses increased from 15 to 16 for new Type of Protection "h" with method of ignition protection "b", "c" and "k"	4.1.1 Para. 1	X		
Include functional and visual inspection of Ex "m" is the only option to validate the ongoing use of Ex "m"	4.1.1 Para 2		X	
New paragraph to clarify IEC 60079-19 is used in conjunction with IEC 60079 series and other relevant standards such as IEC 60034 series. Clarification of scope requirement	4.1.1 Para. 4		X	
New paragraph related to Ex Components	4.1.1 Para. 3		X	
New paragraph clarifying what are the relevant standards	4.1.1 Para. 4		X	
New paragraph clarifying the requirements for use of related drawings in relation to overhaul and repair	4.1.1 Para. 5		A2	
Clarification of requirement to agree status with user previously in Ed 4, 4.3.2.1 m)	4.1.1 Para. 6		X	
New paragraph clarifying service facility limitations particularly in relation to control systems and packages	4.1.1 Para. 7		A3	
New subclause clarifying related drawings in relation to overhaul and repair formally Clause 4.3.2.4.1	4.1.2		X	
Previous 4.3.2.4.1 3rd paragraph amended now	4.1.2 Para. 1	X		
Previous 4.3.2.4.1 list a) – J) clarified and renumbered	4.1.2 a)	X		
New EXAMPLES of relevant information for repair added to previous 4.3.2.4.1 b)	4.1.2 e)		X	
New sub-clause Status of equipment after overhaul and repair	4.2		A4	
New paragraph clarifying status of electrical equipment after overhaul and repair	4.2.1 Para. 1		A4	
New paragraph clarifying status of non-electrical equipment after overhaul and repair	4.2.1 Para. 2		A4	
New paragraph clarifying repair to Schedule Drawings should be first option, repair to standards is not permitted when Schedule Drawings are available	4.2.1 Para. 1	X		
New paragraph providing similar guidance for repair of non-electrical equipment	4.2.1 Para. 2		X	

		Type		
Explanation of the significance of changes	**Clause**	**Minor and editorial changes**	**Extension**	**Major technical changes**
NOTE 2 in former Ed 4, Clause 4.1 moved to 4.2.1	4.2.1 NOTE	X		
New subclause clarifying status of repair to Schedule Drawings or related drawings, previously 4.1, 4.3.2.6 a) and A 2.1	4.2.2		X	
New subclause clarifying status of repair to relevant standards, previously 4.1, 4.3.2.4 2 g), 4.3.2.6 b), A2.2 a)	4.2.3		X	
New subclause clarifying status repair to repairs with expert evaluation previously 4.1, 4.3.2.6 d), A.2.2 b)	4.2.4		X	
New subclause clarifying service facility involvement in fitness for purpose evaluations for legacy equipment by the used under IEC 60079-17	4.2.5		A5	
New subclause clarifying status of equipment not in compliance with the relevant standards, previously 4.1, 4.3.2.6 c), A2.3	4.2.6		X	
The equipment user, changed to, the user of Ex Equipment	4.3.1 Para. 1	X		
Note from previous 4.2.4 moved to	4.3.1 Note 2	X		
Minor editorial changes to content moving requirements from previous 4.3.2.4.1 into new 4.3.2	4.3.2	X		
Previous 4.2.3 reference standard IEC 60079-14 corrected to IEC 60079-17	4.3.3		X	
Previous 4.3.2 title changed to "Service facility requirements" to clarify purpose	4.4		X	
Previous 4.3.1 Statutory requirements clause renumbered	4.4.1	X		
Restructure clause. Edition 4 C, 4.3.2 Repair and overhaul, renamed, 4.4.2 General adding 1st paragraph from Edition 4, 4.3.2.4.1	4.4.2		X	
Schedule of QMS requirements in previous 4.3.2.1 b)-f), h)-k), p) moved to new Annex D	4.4.2 Para. 2	X		
Previous 4.3.2.1 l) 1st part – facilities and equipment now new paragraph	4.4.2 Para 3		X	
Re-introduce "-and follows good engineering practices" this was removed in Ed 4 but required in this edition for non-electrical equipment reclamations	4.4.2 Para. 3		X	
Previous 4.3.2.1 l) 2nd part – trained personnel now new subclause	4.4.3.1	X		
Previous 4.3.2.1 1st para edited is now	4.4.2 Paras. 1 and 2	X		
Previous 4.3.2.4.1 first 2 paragraphs moved into new clause General	4.4.2 Paras. 4 and 6	X		
Previous 4.3.2 now new subclause Control of overhaul, repair and reclamation	4.4.3	X		
Previous 4.3.2.2 now new subclause and clarified	4.4.3.1 Para. 1	X		

		Type		
Explanation of the significance of changes	**Clause**	**Minor and editorial changes**	**Extension**	**Major technical changes**
Last paragraph from B.4 moved to Competence clause	4.4.3.1 Paras. 2 and 3	X		
New sub-clause Responsible person, to clarify requirements previously in 4.3.2.1 a) and elsewhere	4.4.3.2		X	
Clarification of need for responsible person at each service facility site	4.4.3.2		X	
Two new paragraphs clarifying delegation to other responsible persons and holiday and sickness coverage	4.4.3.2		X	
Clear statement clarifying situation where there is no responsible person at a service facility site	4.4.3.2	X		
New subclause Duties and responsibilities of the Responsible Person, in previous editions these were implied but now clarified	4.4.3.3		X	
Previous 4.3.2.1 o) 3rd sentence now	4.4.3.3 Para. 2	X		
Previous 4.3.2.1 General, now new subclause, Overhaul, repair and reclamation requirements	4.4.4	X		
New paragraph introducing the Overhaul & Repair flow chart which also identifies where the responsible persons participation is required	4.4.4 Para. 1		X	
New flow chart to clarify overhaul, repair and reclamation process which also identifies when the responsible person has to be involved in reviews or decisions	Figure 1		A6	
Previous 4.3.2.1.n) reworded and new reference to manufacturer's instructions for non-electrical equipment	4.4.4 Para. 2	X		
Previous 4.3.2.1.m) with clarification of requirement	4.4.4 Para. 3	X		
Previous 4.3.2.1.o) 1st sentence now 3rd para. of 4.4.4	4.4.4 Para. 4	X		
Previous 4.3.2.1.n) 2nd sentence amened to clarify only electrical tests can be omitted	4.4.4 Para. 5	X		
New paragraph clarifying requirements for Ingress Protection gaskets	4.4.4 Para. 6		X	
Previous 4.3.2.3 Repair of components, moved into new subclause Overhaul, repair and reclamation, with clarification of requirements	4.4.4 Para. 7	X		
Previous 4.3.2.6 1st paragraph now	4.4.4 Para. 8	X		
New paragraph clarifying OEM label	4.4.4 Para. 9		X	
New paragraph to raise awareness of paint finish change possible static charge effects	4.4.4 Para. 10		X	
Previous Clause 4.3.4 Alteration and modification separated into 2 subclauses	4.4.5 4.4.6	X		
Previous clause 4.3.2.6 renumbered and text references amended	4.4.7		X	

		Type		
Explanation of the significance of changes	**Clause**	**Minor and editorial changes**	**Extension**	**Major technical changes**
New paragraphs added to clarify requirements for replacement of manufacturers nameplates	4.4.7 Paras. 1 and 2		X	
Previous 4.3.2.6 numbered list clarified to align with new subclause 4.2 Status of equipment after overhaul and repair	4.4.7 a)	X		
Previous 4.3.2.4 Documentation re-numbered	4.4.8	X		
Previous 4.3.2.4.3 period of retention now in 4.4.8.1	4.4.8.1	X		
Previous 4.3.2.4.2 Job report to the user, renamed, user report, clause renumbered	4.4.8.2	X		
New bullet point a) clarifying Ex Equipment identification, full nameplate data together with Ex information not clearly stated in previous editions	4.4.8.2 a)		X	
New bullet point clarifying job number & dates	4.4.8.2 b)	X		
Previous 4.3.2.4.2 a) Bullet point reworded to include defects	4.4.8.2 c)	X		
Previous 4.3.2.4.2 d) Bullet point renumbered and clarified	4.4.8.2 d)	X		
Previous 4.3.2.1 g) renumbered bullet point reworded "as found" and "as left" changed to "as received" and "as returned"	4.4.8.2 e)	X		
Previous 4.3.2.4.3.3).b) relocated & renumbered as	4.4.8.2 f)	X		
Previous 4.3.2.4.3.3) d)	4.4.8.2 g)	X		
Previous 4.3.2.4.2 e) relocated and renumbered as	4.4.8.2 h)	X		
Replacement parts from previous 4.3.2.4.2 c) & 4.2.3.4.3.e) and software/ firmware added	4.4.8.2 i)	X		
Reclamations from previous 4.3.2.4.2.c) with clarification that the reclamation record is part of the user report	4.4.8.2 j)	X		
Previous 4.3.2.4.3 3) j) renumbered and clarified	4.4.8.2 j)		X	
Previously 4.3.2.4.3.3) g) bullet point relocated	4.4.8.2 k)	X		
Previously 4.3.2.4.3.3) h) bullet point relocated	4.4.8.2 k)	X		
Previously 4.3.2.4.3.3) i) bullet point relocated	4.4.8.2 l)	X		
Previously 4.3.2.4.2 g) clarified and aligned with new 4.2 and Annex A	4.4.8.2 m)	X		
Previous 4.3.2.4.3 4) renumbered 1st Paragraph reworded to clarify requirement for reclamation records	4.4.8.3		X	

		Type		
Explanation of the significance of changes	**Clause**	**Minor and editorial changes**	**Extension**	**Major technical changes**
Previous 4.3.2.4.3.4).e) & h) combined	4.4.8.3 e)	X		
Previous 4.3.2.4.3 Service facility records renumbered	4.4.8.4	X		
Previous 4.3.2.4.3 1st paragraph new subclause and clarified	4.4.8.4.1	X		
New subclause Job records with new paragraphs clarifying what was previously in 4.3.2.4.3.3)	4.4.8.4.2	X		
New sub clause QMS records	4.4.8.4.3	X		
Previous 4.3.2.5.1 a) full specification requirement clarified	4.4.9.1 a)		X	
Previous Clause 4.3.5 renumbered and clarified	4.4.10	X		
Previous Clause 4.3.3.1 renumbered with 5th para from Clause 4.3.3.4.1 added	4.4.11.1	X		
Clarification re duty of responsible person	4.4.11.1 Para. 4		X	
Clause 4.3.6.2 6th para now	4.4.11.1 Para. 4	X		
Previous 4.3.3.3.2 renumbered	4.4.11.2	X		
Previous 4.3.3.2 renumbered	4.4.11.3	X		
Previous 4.3.3.4 renamed Mechanical reclamations & renumbered	4.4.12	X		
Previous 4.3.3.4.2 to 4.3.3.4.8 renumbered	4.4.12.2 to 4.4.12.8	X		
Previous 4.33.4.7 2) clarified that the mechanical properties of the material around the threaded hole needs to be considered	4.4.12.7 2)	X		
New Clause added for bearings	4.4.12.9		X	
New subclause Rolling element bearings	4.4.12.9.1		X	
Previous 5.3.5 moved to new clause sleeve bearings	4.4.12.9.2	X		
Previous 4.3.6.5 Lubrication relocated and renumbered	4.4.12.11	X		
Previous 8.3.2.2, 9.3.3, and 11.3.3 combined as new subclause	4.4.12.12	X		
Previous 8.3.2.1, 9.3.2, and 11.4.1 combined as new subclause	4.4.12.13	X		
Previous 4.3.6 title changed to Electric winding reclamations to include other electrical equipment with windings such as transformers, actuators etc	4.4.13	X		
Previous 4.3.6.1 reworded and expanded to clarify requirements & limitations which had not adequately specified in previous edition	4.4.13.1 Paras. 1 and 2		X	
New paragraph clarifying no change to winding type permitted	4.4.13.1 Para 3		X	
Previous 5.2.7.1 added	4.4.13.1 Para. 4	X		
Previous 5.2.6 2nd paragraph relocated and clarified	4.4.13.1 Para. 5	X		

		Type		
Explanation of the significance of changes	**Clause**	**Minor and editorial changes**	**Extension**	**Major technical changes**
Previous Annex D 1st para. relocated	4.4.13.1 Para. 6	X		
Previous 5.4.4 added	4.4.13.1 Para. 7	X		
Previous 9.2.6.15 renumbered	4.4.13.1 Para. 8	X		
Previous 5.2.5 renumbered and clarified	4.4.13.2	X		
Previous 8.2.5 renumbered	4.4.13.3	X		
Previous 4.3.6.2 renumbered and in 4th paragraph "core" changed to "laminated core"	4.4.13.4	X		
Previous Clause 8.2.6.1.2 10) relocated and reworded to clarify previous	4.4.13.4 Para. 4	X		
Previous 5.2.7.2 renumbered	4.4.13.5	X		
Previous 8.2.6.3 renumbered "temperature sensors" changed to "embedded temperature detectors"	4.4.13.6	X		
Previous 4.3.6.3 renumbered	4.4.13.7	X		
New subclause requiring Ex Equipment to be tested to the relevant industrial equipment standards	4.4.13.7.1	X		
Subclause title amended	4.4.13.7.2	X		
Previous 4.3.6.1 a) amended other winding such as transformer should be balanced but electric machines permit unbalance as in previous editions	4.4.13.7.2 a)		X	
Previous 4.3.6.3.2 reworded and renumbered	4.4.13.7.3		X	
Previous 4.3.6.6 renumbered and clarified	4.4.14	X		
Previous 4.3.6.7 renumbered and clarified that records are required for any calculations relating to performance assessment	4.4.15		X	
Auxiliary equipment with common requirements transferred from each of the different Type of Protection clauses	4.4.16	X		
Previous 5.2.1.2 reworded and additional text and table added to clarify requirements	5.2.1.2		X	
"or Level of Protection "eb"" added	8	X		
"or Level of Protection "ec"" added	9	X		
Previous 12.2.2, 12.2.4 and 12.2.5 grouped together under new subclause	12.2.2	X		
New Clause from TC31 SC31M WG1 added for method of Protection Ex "h"	16		A1	
Clause A.2 amended to clarify marking requirements	A.2		X	
Clarification of knowledge and skill requirements for responsible person	B.2.1 a)		X	
Clarification of knowledge and skill requirements for responsible person and operative	B.3.2 B.3.3		X	
Previous C 1st expanded to provide further background, explanation for use of Annex C	Annex C		A7	

		Type		
Explanation of the significance of changes	**Clause**	**Minor and editorial changes**	**Extension**	**Major technical changes**
Additional condition in Step 3a) Maximum gaps for occasions where when there is a symbol "X" for reduced gaps and the Max Gap value in not specified in the Specific Conditions of Use nor provided by the manufacturer go to step 4	Table C.1		A8	
Table C.1 amended with new step 6 and old step 6 renumbered step 7 Other conditions [a] now a NOTE and previous mandatory NOTE [b] & [c] now [a] & . Previous mandatory NOTE [d] now step 6	Table C.1		A9	
Table C.1 amended to include year of standards for clarification	Table C.1	X		
Figure C.1 amended to reflect changes in Table C.1	Figure C.1		X	
New Annex D with QMS requirements previously in 4.3.2.1	Annex D	X		
All requirements related to copy rewinding from 8.2.6.1.2, 8.2.6.1.3 and 9.2.6.1.5 now	Annex E	X		
New Clause F.8 With new guidance on changes to control equipment assessed by the responsible person.	F.8		X	

NOTE 1 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. More guidance can be found by referring to the Redline version of the standard.

Explanations:

A) Definitions

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.

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 from the previous standard.

Major technical changes

– addition of technical requirements
– increase of technical requirements

These are changes to technical requirements (addition, increase of the level or removal) made in a way that an overhaul or repair of product to the preceding edition will not always be able to fulfil the requirements given in the later edition. For these changes additional information is provided in clause B) below.

NOTE 2 These changes represent current technological knowledge. However, these changes do not normally have an influence on equipment already placed on the market.

B) Information about the background of 'major technical changes'

A1 Non-electrical equipment has been repaired using IEC 60079-19 Clause 4 since edition 2 was published in 2006. With the introduction of the ISO 80079-36 and ISO 80079-37 there has been a need to clarify repair requirements for Ex Equipment certified to these standards. The Term Type of Protection "h" will be in the 2nd edition of ISO 80079-36 and the Terms "c", "b" and "k" as methods of ignition protection for non-electrical equipment will be in the 2nd edition of ISO 80079-37. A new Clause 16 has been introduced to provide guidance for Type of Protection "h".

A2 Many manufacturers consider Schedule Drawings to be proprietary information which they will not provide to other organisations. Schedule Drawings include related drawings referenced within the Schedule Drawings, which can relate to specific constructional detailed of parts of their equipment which can impact on the compliance with the Type of Protection requirements. A NOTE has been added to IEC 60050-426:2020, 426-04-44 to state that for this document related drawings can be used to provide the information necessary to ensure the Ex Equipment being, installed, inspected, maintained, overhauled or repaired remains in compliance with the Type of Protection requirements and the Schedule Drawings.

A3 This document does not permit service facilities to take on the role of a manufacturer and populate Ex Component Certified enclosures or assemble Ex Equipment into packages, other IEC 60079 series of standards apply for these activities.

A4 Previous editions of this document had provided information on the different status of Ex Equipment being overhauled and repaired, however it was not in one clause but scatted across different parts of Clause 4. General. In this document we have placed these requirements in a new subclause at the beginning of Clause 4.

A5 The participation of service facilities overhauling and repairing legacy equipment is clarified as is their participation in a fitness for purpose assessment conducted by the equipment user to the requirements of IEC 60079-17.

A6 Previous editions of this document have detailed requirements for overhaul, repair and reclamation in Clause 4, however the presentation of this information was open to different interpretation of these requirements. This edition presents these requirements in a more logical way and has introduced this flowchart to clarify these existing requirements.

A7 The introduction to Annex C needed more detail to help users understand this requirement better.

A8 According to IEC 60079-0, symbol "X" Specific Conditions of Use can include a statement that for Ex "d" enclosures or electric machine has been constructed with reduced flamepath gaps. However, the Specific Conditions of Use might not provide the gap values required to inspect or repair the equipment and manufacturers might not make this information available to service facilities. When this circumstance occurs Table C.1 and Figure C.1 fail. The table and figure have been amended to provide a solution when this occurs.

A9 Table C.1 and Figure C.1 required amendment to clarify step 6 in Table C.1. As a result Table C.1 and Figure C.1 were amended to include a new step specifically to clarify how Group IIB+H_2 and Group IIC equipment is treated and in the final step it is made clear that this only applies to Group IIA and Group IIB equipment.

The text of this International Standard is based on the following documents:

Draft	Report on voting
31J/386/FDIS	31J/390/RVD

Full information on the voting for the approval of this International Standard can be found in the report on voting indicated in the above table.

The language used for the development of this International Standard is English.

This document was drafted in accordance with ISO/IEC Directives, Part 2, and developed in accordance with ISO/IEC Directives, Part 1 and ISO/IEC Directives, IEC Supplement, available at www.iec.ch/members_experts/refdocs. The main document types developed by IEC are described in greater detail at www.iec.ch/publications.

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

The committee has decided that the contents of this document will remain unchanged until the stability date indicated on the IEC website under webstore.iec.ch in the data related to the specific document. At this date, the document will be

- reconfirmed,
- withdrawn, or
- revised.

INTRODUCTION

When equipment is installed in areas where dangerous concentrations and quantities of flammable gases, vapours or dusts might be present in the atmosphere, protective measures are 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 the IEC 60079 series of standards and other relevant IEC standards for the design requirements of electrical equipment, for example for rotating electric machines the appropriate parts of the IEC 60034 series, in particular IEC 60034-23, which details the comprehensive requirements for overhaul and repair of rotating electric machines.

The nature of the explosion protection offered by each Type of Protection varies according to its unique features.

This document gives guidance on the practical means of maintaining the explosion protection of repaired equipment. This document also defines procedures for repair, overhaul or reclamation and verification of continued compliance of the equipment with the provisions of the Ex Equipment certificate or with the provisions of the appropriate explosion protection standard where an Ex Equipment certificate is not available.

It is intended that the users utilize the most appropriate service facilities for any particular item of equipment, whether they be the facilities of the manufacturer or a suitably competent and equipped repairer.

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

Much of the content of this document is concerned with the repair and overhaul of electric machines. This is because they are items of repairable Ex equipment in which, irrespective of the Type of Protection involved, sufficient commonality of construction exists as to make possible more detailed instructions for their repair, overhaul, reclamation or modification.

1 Scope

This part of IEC 60079 applies to service facilities and covers only those factors related to overhaul, repair or reclamation of Ex Equipment specifically designed for hazardous areas, where the hazard is caused by explosive atmospheres. Ex Equipment can be overhauled, repaired or reclaimed to mitigate deficiencies identified during operation, inspection and maintenance.

NOTE 1 Service facilities can include users, manufacturers and third party repairers.

It does not include:

- advice on cable and wiring systems which can require a renewal when the equipment is re-installed;
- Repair or overhaul of Type of Protection "m";
- Repair or overhaul of Ex Components;
- Requirements for manufacturers who overhaul and repair equipment which they have manufactured.

NOTE 2 Manufacturers who overhaul and repair equipment which they have manufactured might want to take into consideration the principles in this document with respect to marking and user records for the user's verification records.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements 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 60034-23, *Rotating electrical machines – Part 23: Repair, overhaul and reclamation*

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 60079-5, *Explosive atmospheres – Part 5: Equipment protection by powder filling "q"*

IEC 60079-6, *Explosive atmospheres – Part 6: Equipment protection by liquid immersion "o"*

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

IEC 60079-11, *Explosive atmospheres – Part 11: Equipment protection by intrinsic safety "i"*

IEC 60079-14, *Explosive atmospheres – Part 14: Electrical installations design, selection and installation of equipment, including initial inspection*

IEC 60079-15, *Explosive atmospheres – Part 15: Equipment protection by type of protection "n"*

IEC 60079-17*, Explosive atmospheres – Part 17: Electrical installations inspection and maintenance*

IEC 60079-26, *Explosive atmospheres – Part 26: Equipment with Separation Elements or combined Levels of Protection*

IEC/IEEE 60079-30-1, *Explosive atmospheres – Part 30-1: Electrical resistance trace heating – General and testing requirements*

IEC/IEEE 60079-30-2, *Explosive atmospheres – Part 30-2: Electrical resistance trace heating – Application guide for design, installation and maintenance*

IEC 60079-31, *Explosive atmospheres – Part 31: Equipment dust ignition protection by enclosure "t"*

IEC 60079-33, *Explosive atmospheres – Part 33: Equipment protection by special protection "s"*

IEC 60085, *Electrical insulation – Thermal evaluation and designation*

IEC 60112, *Method for the determination of the proof and the comparative tracking indices of solid insulating materials*

IEC 60529, *Degrees of protection provided by enclosures (IP Code)*

IEC 61241-0[1], *Electrical apparatus for use in the presence of combustible dust – Part 0: General requirements*

IEC 61241-1[2], *Electrical apparatus for use in the presence of combustible dust – Part 1: Protection by enclosures "tD"*

IEC 61241-1-1[3], *Electrical apparatus for use in the presence of combustible dust – Part 1-1: Electrical apparatus protected by enclosures and surface temperature limitation – Specification for apparatus*

IEC 61241-4[4], *Electrical apparatus for use in the presence of combustible dust – Part 4: Type of Protection "pD"*

ISO 4063, *Welding, brazing, soldering and cutting – Nomenclature of processes and reference numbers*

ISO 4526, *Metallic coatings – Electroplated coatings of nickel for engineering purposes*

ISO 6158, *Metallic and other inorganic coatings – Electrodeposited coatings of chromium for engineering purposes*

ISO 80079-36, *Explosive atmospheres – Part 36: Non-electrical equipment for explosive atmospheres – Basic method and requirements*

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1 Withdrawn and replaced by IEC 60079-0:2011.

2 Withdrawn and replaced by IEC 60079-31:2008.

3 Withdrawn and replaced by IEC 61241-0:2004 and IEC 61241-1:2004 (withdrawn and replaced by IEC 60079-31:2008.

4 Withdrawn and replaced by IEC 60079-2:2014.

ISO 80079-37:2016, *Explosive atmospheres – Part 37: Non-electrical equipment for explosive atmospheres – Non-electrical type of protection constructional safety "c", control of ignition source "b", liquid immersion "k"*