

SLOVENSKI STANDARD

SIST EN ISO/IEC 80079-34:2011

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Nadomešča:
SIST EN 13980:2002

Potencialno eksplozivne atmosfere - 34. del: Uporaba sistemov kakovosti za električno in neelektrično opremo (ISO/IEC 80079-34:2011, spremenjen)

Explosive atmospheres - Part 34: Application of quality systems for equipment manufacture (ISO/IEC 80079-34:2011, modified)

Explosionsgefährdete Bereiche - Teil 34: Anwendung von Qualitätsmanagementsystemen für die Herstellung von Geräten (ISO/IEC 80079-34:2011, modifiziert)

Atmosphères explosives - Partie 34: Application des systèmes de qualité pour la fabrication d'équipements (ISO/IEC 80079-34:2011, modifiée)

Ta slovenski standard je istoveten z: EN ISO/IEC 80079-34:2011

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13.230	Varstvo pred eksplozijo	Explosion protection

SIST EN ISO/IEC 80079-34:2011 **en**

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EUROPEAN STANDARD
NORME EUROPÉENNE
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**Explosive atmospheres -
Part 34: Application of quality systems for equipment manufacture
(ISO/IEC 80079-34:2011, modified)**

Atmosphères explosives -
Partie 34: Application des systèmes de
qualité pour la fabrication d'équipements
(ISO/CEI 80079-34:2011, modifiée)

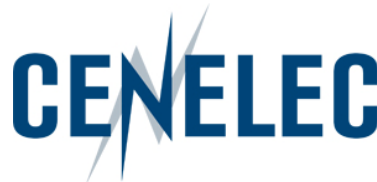
Explosionsgefährdete Bereiche -
Teil 34: Anwendung von
Qualitätsmanagementsystemen für die
Herstellung von Geräten
(ISO/IEC 80079-34:2011, modifiziert)

This European Standard was approved by CEN and CENELEC on 25 May 2011.

CEN and CENELEC members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration. Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the CEN-CENELEC Management Centre or to any CEN and CENELEC member.

This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CEN and CENELEC member into its own language and notified to the CEN-CENELEC Management Centre has the same status as the official versions.

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Foreword

The text of ISO/IEC 80079-34:2011 has been prepared by Technical Committee IEC TC 31 "Equipment for explosive atmospheres" of the International Electrotechnical Commission (IEC) and has been taken over as EN ISO/IEC 80079-34:2011 by Technical Committee CEN/TC 305 "Potentially explosive atmospheres – Explosion prevention and protection" the secretariat of which is held by DIN. The enquiry took place at ISO/CEN level (31M/31/CDV, CEN Project = WI 00305114). However, the vote on 31M/45/FDIS took place at IEC/CLC level (agreement between ISO and IEC, see also D130/103), under the responsibility of the Technical Committee CENELEC TC 31 "Electrical apparatus for potentially explosive atmospheres".

The text of document 31M/45/FDIS, future edition 1 of ISO/IEC 80079-34:2010, prepared by Technical Committee IEC TC 31 "Equipment for explosive atmospheres", was submitted to the IEC-CENELEC parallel vote.

A draft amendment, prepared by the Technical Committee CEN TC 305 "Electrical Potentially explosive atmospheres – Explosion prevention and protection", was submitted to the CENELEC formal vote.

The combined texts were approved by CEN and CENELEC as EN ISO/IEC 80079-34 on 2011-05-25.

This document supersedes EN 13980:2002.

The significant changes with respect to EN 13980:2002 are the following:

- references have been changed, especially references to CEN/CENELEC and their publications have been changed to references to international available publications;
- foreword and scope have been adapted to international requirements;
- terminology has been changed and adapted to terminology being more customary in the international standardization (e. g. "notified body" has been modified to "body responsible for verification");
- information relevant to particular types of protection has been amended with
 - Ex t - dust ignition protection by enclosure,
 - gas detectors and
 - flame arresters;
- Annex B has been renamed as "Verification criteria for elements with non-measurable paths used as an integral part of a type of protection";
- B.3 has been modified;
- information relevant to equipment and protective systems according to standards harmonized under Directive 94/9/EC are given in new Annex ZB.

This standard should be read in conjunction with EN ISO 9001:2008.

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

The following dates were fixed:

- latest date by which the EN has to be implemented at national level by publication of an harmonized national standard or by endorsement (dop) 2012-05-25
- latest date by which the national standards conflicting with the EN have to be withdrawn (dow) 2014-05-25

Annex ZB provides information on those aspects that the quality system should address with respect to particular protection laid down in harmonized standards under Directive 94/9/EC, e.g. types of protection for non-electrical equipment or components, equipment according to specific product standards and autonomous protective systems. It does not add to or otherwise change the requirements of this standard.

This European Standard has been prepared under a mandate given to CENELEC by the European Commission and the European Free Trade Association and covers essential requirements of EC Directive 94/9/EC. See Annex ZZ.

The State of the Art is included in Annex ZY “*Significant changes between this European Standard and EN 13980:2002*”.

Annexes ZA, ZB, ZY and ZZ have been added by CEN and CENELEC.

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Annex ZA (normative)

Normative references to international publications and the corresponding European publications

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.

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

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
IEC 60050-426	-	International Electrotechnical Vocabulary - Part 426: Equipment for explosive atmospheres	-	-
IEC 60079-0	-	Explosive atmospheres - Part 0: Equipment - General requirements	EN 60079-0	-
ISO/IEC 17050-1	-	Conformity assessment - Supplier's declaration of conformity - Part 1: General requirements	EN ISO/IEC 17050-1	-
ISO 9000	2005	Quality management systems - Fundamentals and vocabulary	EN ISO 9000	2005
ISO 9001	2008	Quality management systems - Requirements	EN ISO 9001	2008

Annex ZB (informative)

Information relevant to equipment and protective systems according to standards harmonized under Directive 94/9/EC

ZB.1 Introduction

This annex provides information on those aspects that the quality system should address with respect to particular protection laid down in harmonized standards under Directive 94/9/EC, e.g. types of protection for non-electrical equipment or components, equipment according to specific product standards and autonomous protective systems. It does not add to or otherwise change the requirements of this standard.

This annex provides information how to meet the requirements of this standard, recognizing that other methods achieving the same objectives are equally acceptable; it also draws attention to aspects of requirements that may not be readily apparent to those unfamiliar with quality systems for products intended for use in potentially explosive atmospheres.

The examples can be used by manufacturers to check whether the safety-relevant aspects are considered in the quality system and covered by adequate procedures (see 7.1). They can also be used for internal or external quality audits (see 8.2).

NOTE The following examples do not cover all protection concepts but give some advice and will be supplemented to in the next edition.

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ZB.2 Non-electrical equipment (EN 13463-1)

ZB.2.1 General

The following safety aspects as specified in the technical file should be realised by systematic production techniques and/or verifications and tests on the basis of written procedures.

For dust ignition, protection the safety aspects laid down in A.10 may also apply.

ZB.2.2 Non-metallic parts

- Material characteristics;
- finish;
- surface resistance;
- surface area of non-conductive parts;
- limitation of thickness;
- measures for charge bonding (earthed frames).

ZB.2.3 Casing and external parts

- Material of the casing and content of light metals;
- protection of removable parts against unintentional or inadvertent removal;
- materials used for cementing.

ZB.2.4 Earthing and equipotential bonding of conductive parts

- Earthing terminal;
- effective connection of conductive parts;
- voltage equalising cables.

ZB.2.5 Light transmitting parts

- Material;
- integrity;
- guards and protective covers.

ZB.2.6 Ingress protection (IP)

- Weld continuity;
- fitting of gaskets and seals;
- continuity of moulded grooves and tongues;
- application of cements.

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ZB.2.7 Completed products

- Instructions are delivered with the equipment;
- instructions include information regarding embedded equipment and components;
- intended marking is fixed;
- intended warning labels are fixed;
- after final testing, products are protected against foreseeable injuries during storage and transport.

ZB.3 Protection by flow restricting enclosure „fr“ (EN 13463-2)

Safety aspects are covered by the general clause for non-electrical equipment (EN 13463-1).

ZB.4 Protection by flameproof enclosure „d“ (EN 13463-3)

The same safety aspects as for electrical equipment apply (see A.3; for aspects of dust ignition protection, see also A.10).

ZB.5 Protection by constructional safety „c“ (EN 13463-5)

ZB.5.1 General

In addition to the safety aspects for non-electrical equipment in ZB.2, the following safety aspects are relevant.

ZB.5.2 Metal-based material

- Material name complying with the requirement;
- material properties (composition with regard to corrosion, thermal conduction and mechanical sparks, mass fraction of aluminium, titanium, magnesium, zirconium, flammability);
- cracks, inclusions, blow holes and porosity (either by a visual test or by another suitable test method depending on exposure);
- heat treatment (e.g. hardening, tempering);
- dimensional accuracy including all parts without machining.

ZB.5.3 Machining

- Compliance with tolerances for shape, position, concentricity, quality of finish;
- dimensional accuracy of functional surfaces (e.g. tolerances for diameters, especially for indicator units preadjustment and correct polarity);
- depth and configuration of cut-in to ensure the constructionally intended stress concentration.

ZB.5.4 Cemented joints and potted assemblies

- Shelf-life and storage of adhesives and casting compounds;
- mixing procedure;
- surface treatment (degreasing or equivalent measures are usually required immediately before the potting-process to ensure proper adhesion);
- curing process, which should include curing time, any relevant environmental factors and all provisions made to ensure that the curing process will proceed without disturbance.

ZB.5.5 Assembling

- Correct components and parts;
- distances between moving parts or between fixed and moving parts;
- equipotential bonding between subassemblies;
- mechanical seals;
- protective covers.

ZB.5.6 Routine tests

- Sealing systems (fit, lubrication, initial tension, primary pressure);
- dynamic vibrations (e.g. critical rotation speed, bearing at standstill or at transport);
- functional test of the complete assembly (distance between rotor/stator modules, clamping, clearance, free room of motion).

ZB.5.7 Power transmission systems

- Conditions of the lubrication;
- belt tension;
- equipotential bonding (especially couplings, belt drives, chain drives, gears, shafts);

ZB.6 Protection by control of ignition sources „b“ (EN 13463-6)

ZB.6.1 General

In addition to the safety aspects for non-electrical equipment (see ZB.2), the following safety aspects are relevant.

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ZB.6.2 Ignition protection system (standards.iteh.ai)

- Selection of appropriate sensors, actuators and other relevant parts (e.g. temperature range);
- indicating devices marked to indicate the maximum and minimum operating levels;
- specification of tests and all other necessary information in the instructions.

ZB.6.3 Installation

- Installation of sensors and actuators (fail safe characteristics, separate power supply);
- connection installation of sensors (e.g. offset);
- position of sensors;
- correct interfacing;
- avoidance of delay elements;
- avoidance of unintended modification of set values;
- independent power supply.

ZB.6.4 Tests

Typically, the following tests and verifications should be done at the manufacturer's site.

- tests before initial operation or specification of these tests in the instructions;
- functioning;

- accuracy;
- response behaviour;
- fail-safe;
- interlocking of settings;
- specification of tests in the course of maintenance in the instructions.

If the ignition protection system is assembled during installation at the user's site, the instruction should give specific guidance how to carry out these tests.

ZB.7 Protection by pressurised enclosures „p“ (EN 13463-7)

The same safety aspects as for electrical equipment apply (A.6).

ZB.8 Protection by liquid immersion „k“ (EN 13463-8)

ZB.8.1 General

In addition to the safety aspects for non-electrical equipment (see ZB.2), the following safety aspects are relevant.

ZB.8.2 Protective liquid

- Type of the liquid; <https://standards.iteh.ai/catalog/standards/sist/bf2d8b9c-8d7f-4e0b-af32-5fb7dd113f71/sist-en-iso-iec-80079-34-2011>
- liquid level or flow rate or pressure (depending on the system).

ZB.8.3 Casing

- Leak tightness of the protective liquid closed loop;
- protections against unintentional or inadvertent of fastenings;
- measures against protective liquid impurity.

ZB.8.4 Measuring or indicating devices

- Dipstick;
- marking of maximum/minimum criteria for the protective liquid level;
- marking of maximum permissible angle of inclination.

ZB.9 Fans (EN 14986)

ZB.9.1 General

The following safety aspects as specified in the technical file should be realised by systematic production techniques and/or verifications and tests on the basis of written procedures.

ZB.9.2 Material

- Selection of specified materials; material name complies with the requirement;
- material properties (composition with regard to corrosion, thermal conduction and mechanical sparks, mass fraction of aluminium, titanium, magnesium, zirconium, flammability);
- cracks, inclusions, blow holes and porosity (either by a visual test or another suitable test method depending on exposure);
- heat treatment (e.g. hardening, tempering);
- dimensional accuracy including all parts without machining.

ZB.9.3 Assembled equipment and protective systems

- Adaption of suitable electrical equipment (explosion group, temperature class, equipment category);
- adaption of specified protective systems for fans of category 1G.

ZB.9.4 Routine tests

- Sealing systems (fit, lubrication, initial tension, primary pressure);
- dynamic vibrations (e.g. critical rotation speed, bearing at standstill or at transport);
- functional test of the complete assembly (distance between rotor/stator modules, clamping, clearance, free room of motion);
- excess rotation speed;
- thickness of linings;
- impeller-shaft attachment (avoidance of drift, joint is secured against loosening);
- mounting of autonomous protective systems, if applicable;
- functional test of the temperature monitoring devices in the flame arresters, if applicable;
- pressure test for fans of category 1G, if applicable.

ZB.10 Petrol dispensers (EN 13617-1)**ZB.10.1 General**

The following safety aspects as specified in the technical file should be realised by systematic production techniques and/or verifications and tests on the basis of written procedures.

ZB.10.2 Electrical installation

- Type of cable;
- installation of cable;
- correct wiring;

- connection technique;
- torque of screwed connections (traceability).

ZB.10.3 Information for safe operation

- Availability of operating instructions;
- marking on the type label (technical data, type of protection, etc.);
- passing on of warning notes;
- maintenance instructions.

ZB.10.4 Assembly groups

- Drives or electrical equipment;
- subassemblies (gears, couplings, belts);
- components;
- safety-relevant verifications for the interconnection of apparatus, subassemblies and components;
- protective systems within the gas recirculation system.

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ZB.10.5 Assembling

- Correct components and parts; [SIST EN ISO/IEC 80079-34:2011](https://standards.iteh.ai/catalog/standards/sist/bf2d8b9c-8d7f-4e0b-af32-5fb7dd113f71/sist-en-iso-iec-80079-34-2011)
- minimum distances of moving parts (rotor/stator);
- measures performed for equipotential bonding (to ground, between subassemblies);
- protective covers.

ZB.10.6 Monitoring equipment

- Installation of sensors and actuators (fail safe characteristics, separate power supply);
- installation of sensors (position, correct interfacing, prevention of lag elements);
- tests during maintenance (according to operating instructions);
- functional tests and precision control;
- insulation of cables.

For additional information, see also ZB.6.