

© Copyright SEK. Reproduction in any form without permission is prohibited.

## **Explosiv atmosfär – Del 34: Tillämpning av kvalitetssystem vid tillverkning av utrustning**

*Explosive atmospheres –  
Part 34: Application of quality systems for equipment manufacture*

Som svensk standard gäller europastandarden EN ISO/IEC 80079-34:2011. Den svenska standarden innehåller den officiella engelska språkversionen av EN ISO/IEC 80079-34:2011.

### **Nationellt förord**

Europastandarden EN ISO/IEC 80079-34:2011

består av:

- **europastandardens ikraftsättningsdokument**, utarbetat inom CENELEC
- **ISO/IEC 80079-34, First edition, 2011 - Explosive atmospheres - Part 34: Application of quality systems for equipment manufacture**

utarbetad inom International Electrotechnical Commission, IEC.

Standarden ska användas tillsammans med SS-EN ISO 9001, utg 3, 2008.

Standarden ersätter tidigare fastställd svensk standard SS-EN 13980, utgåva 1, 2002, som ej gäller fr o m 2014-05-25.

---

ICS 03.120.01; 29.260.20

## *Standarder underlättar utvecklingen och höjer elsäkerheten*

Det finns många fördelar med att ha gemensamma tekniska regler för bl a säkerhet, prestanda, dokumentation, utförande och skötsel av elprodukter, elanläggningar och metoder. Genom att utforma sådana standarder blir säkerhetskraven tydliga och utvecklingskostnaderna rimliga samtidigt som marknadens acceptans för produkten eller tjänsten ökar.

Många standarder inom elområdet beskriver tekniska lösningar och metoder som åstadkommer den elsäkerhet som föreskrivs av svenska myndigheter och av EU.

## *SEK är Sveriges röst i standardiseringssarbetet inom elområdet*

SEK Svensk Elstandard svarar för standardiseringen inom elområdet i Sverige och samordnar svensk medverkan i internationell och europeisk standardisering. SEK är en ideell organisation med frivilligt deltagande från svenska myndigheter, företag och organisationer som vill medverka till och påverka utformningen av tekniska regler inom elektrotekniken.

SEK samordnar svenska intressenters medverkan i SEKs tekniska kommittéer och stödjer svenska experters medverkan i internationella och europeiska projekt.

## *Stora delar av arbetet sker internationellt*

Utdriften av standarder sker i allt väsentligt i internationellt och europeiskt samarbete. SEK är svensk nationalkommitté av International Electrotechnical Commission (IEC) och Comité Européen de Normalisation Electrotechnique (CENELEC).

Standardiseringssarbetet inom SEK är organiserat i referensgrupper bestående av ett antal tekniska kommittéer som speglar hur arbetet inom IEC och CENELEC är organiserat.

Arbetet i de tekniska kommittéerna är öppet för alla svenska organisationer, företag, institutioner, myndigheter och statliga verk. Den årliga avgiften för deltagandet och intäkter från försäljning finansierar SEKs standardiseringssverksamhet och medlemsavgift till IEC och CENELEC.

## *Var med och påverka!*

Den som deltar i SEKs tekniska kommittéarbete har möjlighet att påverka framtidens standarder och får tidig tillgång till information och dokumentation om utvecklingen inom sitt teknikområde. Arbetet och kontakterna med kollegor, kunder och konkurrenter kan gynnsamt påverka enskilda företags affärsutveckling och bidrar till deltagarnas egen kompetensutveckling.

Du som vill dra nytta av dessa möjligheter är välkommen att kontakta SEKs kansli för mer information.

### **SEK Svensk Elstandard**

Box 1284  
164 29 Kista  
Tel 08-444 14 00  
[www.elstandard.se](http://www.elstandard.se)

July 2011

ICS 03.120.01; 29.260.20

Supersedes EN 13980:2002

English version

**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.

CEN and CENELEC members are the national standards bodies and national electrotechnical committees of Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland and United Kingdom.



CEN Management Centre:  
Avenue Marnix 17, B-1000 Brussels



CENELEC Central Secretariat:  
Avenue Marnix 17, B-1000 Brussels

## Contents

<b>Foreword .....</b>	<b>4</b>
<b>Annex ZA (normative) Normative references to international publications and the corresponding European publications .....</b>	<b>6</b>
<b>Annex ZB (informative) Information relevant to equipment and protective systems according to standards harmonized under Directive 94/9/EC .....</b>	<b>7</b>
<b>ZB.1 Introduction .....</b>	<b>7</b>
<b>ZB.2 Non-electrical equipment (EN 13463-1) .....</b>	<b>7</b>
<b>ZB.2.1 General .....</b>	<b>7</b>
<b>ZB.2.2 Non-metallic parts .....</b>	<b>7</b>
<b>ZB.2.3 Casing and external parts .....</b>	<b>8</b>
<b>ZB.2.4 Earthing and equipotential bonding of conductive parts .....</b>	<b>8</b>
<b>ZB.2.5 Light transmitting parts .....</b>	<b>8</b>
<b>ZB.2.6 Ingress protection (IP) .....</b>	<b>8</b>
<b>ZB.2.7 Completed products .....</b>	<b>8</b>
<b>ZB.3 Protection by flow restricting enclosure „fr“ (EN 13463-2) .....</b>	<b>8</b>
<b>ZB.4 Protection by flameproof enclosure „d“ (EN 13463-3) .....</b>	<b>8</b>
<b>ZB.5 Protection by constructional safety „c“ (EN 13463-5) .....</b>	<b>9</b>
<b>ZB.5.1 General .....</b>	<b>9</b>
<b>ZB.5.2 Metal-based material .....</b>	<b>9</b>
<b>ZB.5.3 Machining .....</b>	<b>9</b>
<b>ZB.5.4 Cemented joints and potted assemblies .....</b>	<b>9</b>
<b>ZB.5.5 Assembling .....</b>	<b>9</b>
<b>ZB.5.6 Routine tests .....</b>	<b>10</b>
<b>ZB.5.7 Power transmission systems .....</b>	<b>10</b>
<b>ZB.6 Protection by control of ignition sources „b“ (EN 13463-6) .....</b>	<b>10</b>
<b>ZB.6.1 General .....</b>	<b>10</b>
<b>ZB.6.2 Ignition protection system .....</b>	<b>10</b>
<b>ZB.6.3 Installation .....</b>	<b>10</b>
<b>ZB.6.4 Tests .....</b>	<b>10</b>
<b>ZB.7 Protection by pressurised enclosures „p“ (EN 13463-7) .....</b>	<b>11</b>
<b>ZB.8 Protection by liquid immersion „k“ (EN 13463-8) .....</b>	<b>11</b>
<b>ZB.8.1 General .....</b>	<b>11</b>
<b>ZB.8.2 Protective liquid .....</b>	<b>11</b>
<b>ZB.8.3 Casing .....</b>	<b>11</b>
<b>ZB.8.4 Measuring or indicating devices .....</b>	<b>11</b>
<b>ZB.9 Fans (EN 14986) .....</b>	<b>11</b>
<b>ZB.9.1 General .....</b>	<b>11</b>
<b>ZB.9.2 Material .....</b>	<b>12</b>
<b>ZB.9.3 Assembled equipment and protective systems .....</b>	<b>12</b>
<b>ZB.9.4 Routine tests .....</b>	<b>12</b>
<b>ZB.10 Petrol dispensers (EN 13617-1) .....</b>	<b>12</b>
<b>ZB.10.1 General .....</b>	<b>12</b>
<b>ZB.10.2 Electrical installation .....</b>	<b>12</b>
<b>ZB.10.3 Information for safe operation .....</b>	<b>13</b>
<b>ZB.10.4 Assembly groups .....</b>	<b>13</b>
<b>ZB.10.5 Assembling .....</b>	<b>13</b>
<b>ZB.10.6 Monitoring equipment .....</b>	<b>13</b>
<b>ZB.10.7 Electrostatic discharge capacity .....</b>	<b>14</b>
<b>ZB.10.8 Routine tests .....</b>	<b>14</b>
<b>ZB.11 Electrostatic spraying equipment (EN 50050) .....</b>	<b>14</b>
<b>ZB.11.1 General .....</b>	<b>14</b>
<b>ZB.11.2 Electrical assembly .....</b>	<b>14</b>
<b>ZB.11.3 Mechanical assembly .....</b>	<b>15</b>
<b>ZB.11.4 Tests .....</b>	<b>15</b>
<b>ZB.12 Protective systems .....</b>	<b>16</b>
<b>ZB.12.1 General .....</b>	<b>16</b>
<b>ZB.12.2 Explosion resistant equipment (EN 14460) .....</b>	<b>16</b>

<b>ZB.12.3 Explosion venting devices (EN 14797).....</b>	<b>16</b>
<b>ZB.12.4 Explosion isolation systems (EN 15089) .....</b>	<b>17</b>
<b>Annex ZY (informative) Significant changes between this European Standard and EN 13980:2002.....</b>	<b>18</b>
<b>Annex ZZ (informative) Coverage of Essential Requirements of EC Directives.....</b>	<b>21</b>
<b>Bibliography .....</b>	<b>22</b>

## 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.

---

**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

## CONTENTS

INTRODUCTION.....	6
1 Scope.....	7
2 Normative references .....	7
3 Terms and definitions .....	7
4 Quality management system.....	9
4.1 General requirements.....	9
4.2 Documentation requirements .....	9
4.2.1 General .....	9
4.2.2 Quality manual .....	9
4.2.3 Control of documents .....	9
4.2.4 Control of records.....	10
5 Management responsibility .....	11
5.1 Management commitment.....	11
5.2 Customer focus .....	11
5.3 Quality policy .....	11
5.4 Planning.....	11
5.4.1 Quality objectives .....	11
5.4.2 Quality management system planning.....	11
5.5 Responsibility, authority and communication .....	11
5.5.1 Responsibility and authority.....	11
5.5.2 Management representative .....	12
5.5.3 Internal communication.....	12
5.6 Management review .....	12
5.6.1 General .....	12
5.6.2 Review input.....	12
5.6.3 Review output.....	12
6 Resource management.....	12
6.1 Provision of resources.....	12
6.2 Human resources .....	12
6.2.1 General .....	12
6.2.2 Competence, training and awareness .....	12
6.3 Infrastructure.....	13
6.4 Work environment .....	13
7 Product realization .....	13
7.1 Planning of product realization .....	13
7.2 Customer-related processes.....	13
7.2.1 Determination of requirements related to the product.....	13
7.2.2 Review of requirements related to the product.....	13
7.2.3 Customer communication .....	13
7.3 Design and development .....	13
7.3.1 Design and development planning .....	13
7.3.2 Design and development inputs .....	13
7.3.3 Design and development outputs .....	13
7.3.4 Design and development review .....	13
7.3.5 Design and development verification .....	14

7.3.6	Design and development validation .....	14
7.3.7	Control of design and development changes.....	14
7.4	Purchasing .....	14
7.4.1	Purchasing process .....	14
7.4.2	Purchasing information .....	15
7.4.3	Verification of purchased product .....	15
7.5	Production and service provision .....	16
7.5.1	Control of production and service provision .....	16
7.5.2	Validation of processes for production and service provision .....	16
7.5.3	Identification and traceability .....	16
7.5.4	Customer property.....	16
7.5.5	Preservation of product .....	17
7.6	Control of monitoring and measuring equipment .....	17
8	Measurement, analysis and improvement .....	17
8.1	General .....	17
8.2	Monitoring and measurement .....	17
8.2.1	Customer satisfaction .....	17
8.2.2	Internal audit .....	17
8.2.3	Monitoring and measurement of processes .....	18
8.2.4	Monitoring and measurement of product .....	18
8.3	Control of nonconforming product.....	18
8.4	Analysis of data.....	19
8.5	Improvement .....	19
8.5.1	Continual improvement.....	19
8.5.2	Corrective action .....	19
8.5.3	Preventive action.....	19
Annex A (informative)	Information relevant to particular types of protection and specific products.....	20
Annex B (informative)	Verification criteria for elements with non-measurable paths used as an integral part of a type of protection .....	29
Bibliography.....	32	
Table A.1 – Component/feature compatibility .....	22	

## INTRODUCTION

This International Standard specifies requirements for a quality system that can be used by an organization for the production of equipment and protective systems for explosive atmosphere.

It can also be used by third parties, including certification bodies, to assess the organization's ability to meet conformity assessments system requirements and/or regulatory requirements.

The application of this standard is intended to cover both electrical and non-electrical equipment and protective systems. The detailed content (e.g. annexes) is currently more focused on the established equipment standards for electrical equipment. However, IEC sub-committee 31M has recently been formed with the responsibility for the development of standards for non-electrical equipment. It is anticipated that, where appropriate, these standards, or requirements related to them, will be referenced within this standard in the future.

Manufacturer's quality requirements are an integral part of most certification schemes and as such this Standard has been prepared with the IECEx equipment certification scheme requirements in mind, is intended to support the ATEX scheme requirements for a manufacturer's quality system and can be applied in other national or regional certifications schemes that relate to the manufacture of explosion-protected equipment.

## EXPLOSIVE ATMOSPHERES –

### Part 34: Application of quality systems for equipment manufacture

#### 1 Scope

This part of ISO/IEC 80079 specifies particular requirements and information for establishing and maintaining a quality system to manufacture Ex equipment including protective systems in accordance with the Ex certificate.

It does not preclude the use of other quality systems that are compatible with the objectives of ISO 9001:2008 and which provide equivalent results.

#### 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 60050-426, *International Electrotechnical Vocabulary – Part 426: Equipment for explosive atmospheres*

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

ISO/IEC 17050-1, *Conformity assessment – Supplier's declaration of conformity – Part 1: General requirements*

ISO 9000:2005, *Quality management systems – Fundamentals and vocabulary*

ISO 9001:2008, *Quality management systems – Requirements*