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Explosionsskyddad elektrisk materiel – Utrustning i grupp I, kategori M1 för användning i områden där koldamm eller explosiv gruvgas kan förekomma

Group I - Category M1 equipment intended to remain functional in atmospheres endangered by firedamp and/or coal dust

Som svensk standard gäller europastandarden EN 50303:2000. Den svenska standarden innehåller den officiella engelska språkversionen av EN 50303:2000.

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EUROPEAN STANDARD **EN 50303**

NORME EUROPÉENNE

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English version

Group I, Category M1 equipment intended to remain functional in atmospheres endangered by firedamp and/or coal dust

Appareils du groupe I de catégorie M1 destinés à rester en opération dans les atmosphères exposées au grisou et/ou à la poussière de charbon

Gruppe I, Kategorie M1 Geräte für den Einsatz in Atmosphären, die durch Grubengas und/oder brennbare Stäube gefährdet sind

CENELEC

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

Central Secretariat: rue de Stassart 35, B - 1050 Brussels

Ref. No. EN 50303:2000 E

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Foreword

This European Standard was prepared jointly by Working Group 16 of the Technical Committee CENELEC TC 31 and Working Group 2 of the Technical Committee CEN TC 305 to implement the mandate given to CEN and CENELEC by the European Commission and the European Free Trade Association to set down requirements for the design and construction of equipment in support of the essential safety and health requirements described in Annex I, clause 1 and Annex II, clause 2.0.1 of the European Article 100A Directive 94/9/EC "Equipment and Protective Systems intended for Use in Potentially Explosive Atmospheres".

The text of the draft was submitted to the formal vote and was approved by CENELEC as EN 50303 on 2000-04-01.

The following dates were fixed:

– latest date by which the EN has to be implemented at national level by publication of an identical national standard or by endorsement	(dop)	2001-04-01
– latest date by which the national standards conflicting with the EN have to be withdrawn	(dow)	2003-06-30

Introduction

Before the coming into force of the European Directive 94/9/EC, no European Standard existed for the types of equipment intended for continued use in explosive atmospheres of firedamp and/or coal dust in the underground workings, or surface installations, of mines. Most member state Governments however, had national legislation based on the guidelines of the European Safety and Health Commission for Mining and Other Extractive Industries adopted in Luxembourg during 1986.

These guidelines recommended that the kinds of equipment allowed to remain functional in atmospheres endangered by firedamp and/or coal dust, should be restricted to those which were necessary for the protection of workers and safe with more than one fault applied. With the coming into force of 94/9/EC the fundamental constructional requirements for these kinds of equipment were included in the Annexes I and II of the Directive and designated "Group I Category M1 Equipment".

This standard is based on these requirements and although it makes reference to other (Category M2) explosion protection standards, it is a 'Stand alone' document relating to both electrical and non-electrical equipment intended to remain functional in explosive atmospheres of firedamp and/or coal dust.

1 Scope

1.1 This standard specifies the design, construction, testing and marking requirements for Group I, Category M1 equipment intended to remain functional in underground parts of mines, as well as those parts of surface installations of such mines endangered by firedamp and/or coal dust clouds under normal atmospheric conditions of pressures ranging from 0,8 bar to 1,1 bar and temperatures ranging from - 20 °C to + 60 °C.

1.2 It applies to all electrical and non-electrical equipment capable of causing an explosion through its own potential source of ignition.

1.3 It also applies to cables, pipes and optical fibres, when such items are used to carry energy sources and form part of equipment intended to remain functional in an atmosphere endangered by firedamp and/or coal dust.

1.4 It does not apply to category M1 Miners' Caplights, which are dealt with in prEN 62013-1 (in preparation).

NOTE 1 As the energy needed to ignite a coal dust /air cloud is in excess of 600 times* that needed to ignite a firedamp /air mixture, this standard assumes that provided intrinsically safe 'ia' circuits are constructed to be safe in an explosive atmosphere of firedamp /air, then such circuits are not capable of directly igniting an explosive atmosphere of coal dust/air.

** Based on tests performed by several member state laboratories. Verified at the UK Health & Safety Laboratories, Buxton - Report by Dr P. Tolson, dated 9 August 1995 - "Ignition of coal dust/air mixtures using a modified IEC spark test apparatus".*

NOTE 2 In designing equipment for operation in explosive atmospheric conditions other than those given in 1.1 above, this standard may be used as a guide. In such cases, additional testing is recommended to allow the manufacturer to be able to demonstrate that the equipment is suitable for the exceptional conditions of use.

NOTE 3 When an explosive firedamp atmosphere occurs in the underground workings of a mine, or at a surface installation, it is imperative that the ignition risk be kept to a minimum. Member State Governments may therefore prohibit the continued use of certain Category M1 equipment in an atmosphere endangered by firedamp and/or coal dust if it is not necessary for it to remain functional for the protection of workers**.

*** This has its origin in clause 5.1 of the proposals to the Governments of members States adopted by the Safety and Health Commission for Mining and Other Extractive Industries (SHCMOEI) at its meeting on 29.10.1986. Document No 6374/13/82 - "Electrical apparatus and systems for use when the concentration of firedamp exceeds the statutory limit for electricity".*