SVENSK STANDARD SS-EN 60204-11

Fastställd	Utgåva	Sida	Ingår i
2001-04-20	1	1 (1+58)	SEK Översikt 44

Svenska Elektriska Kommissionen, SEK

Maskinsäkerhet – Maskiners elutrustning – Del 11: Fordringar på utrustning för spänning över 1 000 V AC eller 1 500 V DC men inte överstigande 36 kV

Safety of machinery – Electrical equipment of machines – Part 11: Requirements for HV equipment for voltages above 1 000 V a.c. or 1 5000 V d.c. and not exceeding 36 kV

Som svensk standard gäller europastandarden EN 60204-11:2000. Den svenska standarden innehåller den officiella engelska språkversionen av EN 60204-11:2000.

Nationellt förord

Europastandarden EN 60204-11:2000

består av:

– **europastandardens ikraftsättningsdokument,** utarbetat inom CENELEC

– **IEC 60204-11, First edition, 2000 - Safety of machinery - Electrical equipment of machines - Part 11: Requirements for HV equipment for voltages above 1 000 V a.c. or 1 5000 V d.c. and not exceeding 36 kV**

utarbetad inom International Electrotechnical Commission, IEC.

Standarden skall användas tillsammans med SS-EN 60204-1, utgåva 2, 1998.

ICS 13.110; 29.020

Denna standard är fastställd av Svenska Elektriska Kommissionen, SEK,
som också kan lämna upplysningar om **sakinnehållet** i standarden.
Postadress: SEK, Box 1284, 164 29 KISTA
Telefon: 08 - 444 14 00. *Telefax*: 08 - 444 14 30
E-post: sek@sekom.se. *Internet*: www.sekom.se

EUROPEAN STANDARD **EN 60204-11**

NORME EUROPÉENNE

EUROPÄISCHE NORM November 2000

ICS 13.110;29.020

English version

Safety of machinery - Electrical equipment of machines Part 11: Requirements for HV equipment for voltages above 1 000 V a.c. or 1 500 V d.c. and not exceeding 36 kV
(IEC 60204-11:2000)

Sécurité des machines -
Equipement électrique des machines
Partie 11: Prescription pour les équipements HT fonctionnant à des tensions supérieures à 1 000 V c.a. ou 1 500 V c.c. et ne dépassant pas 36 kV
(CEI 60204-11:2000)

Sicherheit von Maschinen -
Elektrische Ausrüstung von Maschinen
Teil 11: Anforderungen an Hochspannungsausrüstung für Spannungen über 1000 V Wechselspannung oder 1500 V Gleichspannung aber nicht über 36 kV
(IEC 60204-11:2000)

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 60204-11:2000 E

Foreword

The text of document 44/283/FDIS, future edition 1 of IEC 60204-11, prepared by IEC TC 44, Safety of machinery - Electrotechnical aspects, was submitted to the IEC-CENELEC parallel vote and was approved by CENELEC as EN 60204-11 on 2000-09-01.

This European Standard is to be used in conjunction with EN 60204-1.

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) 2001-06-01

– latest date by which the national standards conflicting with the EN have to be withdrawn (dow) 2003-09-01

Annexes designated "normative" are part of the body of the standard.
Annexes designated "informative" are given for information only.
In this standard, annex ZA is normative and annexes A, B, C, D and E are informative.
Annex ZA has been added by CENELEC.

_____

Endorsement notice

The text of the International Standard IEC 60204-11:2000 was approved by CENELEC as a European Standard without any modification.

_____

Annex ZA
(normative)

Normative references to international publications with their corresponding European publications

This European Standard incorporates by dated or undated reference, provisions from other publications. These normative references are cited at the appropriate places in the text and the publications are listed hereafter. For dated references, subsequent amendments to or revisions of any of these publications apply to this European Standard only when incorporated in it by amendment or revision. For undated references the latest edition of the publication referred to applies (including amendments).

NOTE When an international publication has been modified by common modifications, indicated by (mod), the relevant EN/HD applies.

Publication	Year	Title	EN/HD	Year
IEC 60034-1 (mod)	1996	Rotating electrical machines Part 1: Rating and performance	EN 60034-1 + corr. February	1998 2000
IEC 60050-191	1990	International Electrotechnical Vocabulary (IEV) Chapter 191: Dependability and quality of service	-	-
IEC 60050-195	1998	Chapter 195: Earthing and protection against electric shock	-	-
IEC 60050-441	1984	Chapter 441: Switchgear, controlgear and fuses	-	-
IEC 60050-826	1982	Chapter 826: Electrical installations of buildings		
+ A2	1995		HD 384.2 S2[1)]	2000
IEC 60071-1	1993	Insulation co-ordination Part 1: Definitions, principles and rules	EN 60071-1	1995
IEC 60071-2	1996	Part 2: Application guide	EN 60071-2	1997
IEC 60076-5 (mod)	1976	Power transformers Part 5: Ability to withstand short-circuit	HD 398.5 S1[2)]	1983
IEC 60129	1984	Alternating current disconnectors and earthing switches	EN 60129	1994
IEC 60204-1	1997	Safety of machinery - Electrical equipment of machines Part 1: General requirements	EN 60204-1 + corr. September	1997 1998
IEC 60298	1990	A.C. metal-enclosed switchgear and controlgear for rated voltages above 1 kV and up to and including 52 kV	EN 60298[3)] + A11	1996 1999

[1)] HD 384.2 S2 includes A1:1990 + A2:1995 + A3:1999 to IEC 60050:826.

[2)] HD 398.5 S1 is superseded by EN 60076-5:2000 which is based on IEC 60076-5:2000.

[3)] EN 60298 includes corrigendum April 1995 and A1:1994 to IEC 60298.

Publication	Year	Title	EN/HD	Year
IEC 60364-4-41 (mod)	1992	Electrical installations of buildings Part 4: Protection for safety Chapter 41: Protection against electric shock	HD 384.4.41 S2	1996
IEC 60364-4-42 (mod)	1980	Part 4: Protection for safety Chapter 42: Protection against thermal effects	HD 384.4.42 S1 + A1 + A2	1985 1992 1994
IEC 60364-5-54 (mod)	1980	Part 5: Selection and erection of electrical equipment -- Chapter 54: Earthing arrangements and protective conductors	HD 384.5.54 S1	1988
IEC 60417	Series	Graphical symbols for use on equipment	EN 60417	Series
IEC 60420	1990	High-voltage alternating current switch-fuse combinations	EN 60420	1993
IEC 60445	1999	Basic and safety principles for man-machine interface, marking and identification - Identification of equipment terminals and of terminations of certain designated conductors, including general rules for an alphanumeric system	EN 60445	2000
IEC 60466	1987	A.C. insulation-enclosed switchgear and controlgear for rated voltages above 1 kV and up to and including 38 kV	-	-
IEC 60529	1989	Degrees of protection provided by enclosures (IP Code)	EN 60529 + corr. May	1991 1993
IEC 60621-3	1979	Electrical installations for outdoor sites under heavy conditions (including open- cast mines and quarries)	-	-
IEC 60694	1996	Common specifications for high-voltage switchgear and controlgear standards	EN 60694 + corr. May	1996 1999
IEC 60865-1	1993	Short-circuit currents - Calculation of effects Part 1: Definitions and calculation methods	EN 60865-1	1993
IEC 61230 (mod)	1993	Live working - Portable equipment for earthing or earthing and short-circuiting	EN 61230 + A11	1995 1999
IEC 61243-1 (mod)	1993	Live working - Voltage detectors Part 1: Capacitive type to be used for voltages exceeding 1 kV a.c. and up to 52 kV	EN 61243-1 + corr. June	1997 1999
IEC 61310-1	1995	Safety of machinery - Indication, marking and actuation Part 1: Requirements for visual, auditory and tactile signals	EN 61310-1	1995
IEC 61310-3	1999	Part 3: Requirements for the location and operation of actuators	EN 61310-3	1999
ISO 3864	1984	Safety colours and safety signs	-	-

Publication	Year	Title	EN/HD	Year
ISO/TR 12100-1	1992	Safety of machinery - Basic concepts, general principles for design Part 1: Basic terminology, methodology	-	-
EN 50178	1997	Electronic equipment for use in power installations	-	-
HD 637 S1	1999	Power installations exceeding 1 kV a.c.	-	-

SV ANM - IEC 60364 motsvaras i Sverige av starkströmsföreskrifterna.

HD 637 S1 är fastställd som SS 421 01 01, utgåva 1, 1999.

CONTENTS

Clause Page

Page

INTRODUCTION

This part of IEC 60204 provides requirements and recommendations relating to the high voltage electrical equipment (HV equipment) of machines together with its associated low voltage electrical equipment (LV equipment) so as to promote

– safety of persons and property;

– consistency of control response;

– ease of maintenance.

High performance is not to be obtained at the expense of the essential factors mentioned above.

An example of a possible application of these requirements is a machine or group of machines used for the processing of a material where a failure in such machinery can have serious economic consequences.

Figure 1 is a block diagram of a machine and associated equipment showing the various elements of the electrical equipment addressed in this standard. Numbers in parentheses refer to clauses and subclauses in this standard. It is understood that all of the elements taken together including the safeguards, software and the documentation constitute the machine or group of machines working together with usually at least one level of supervisory control.

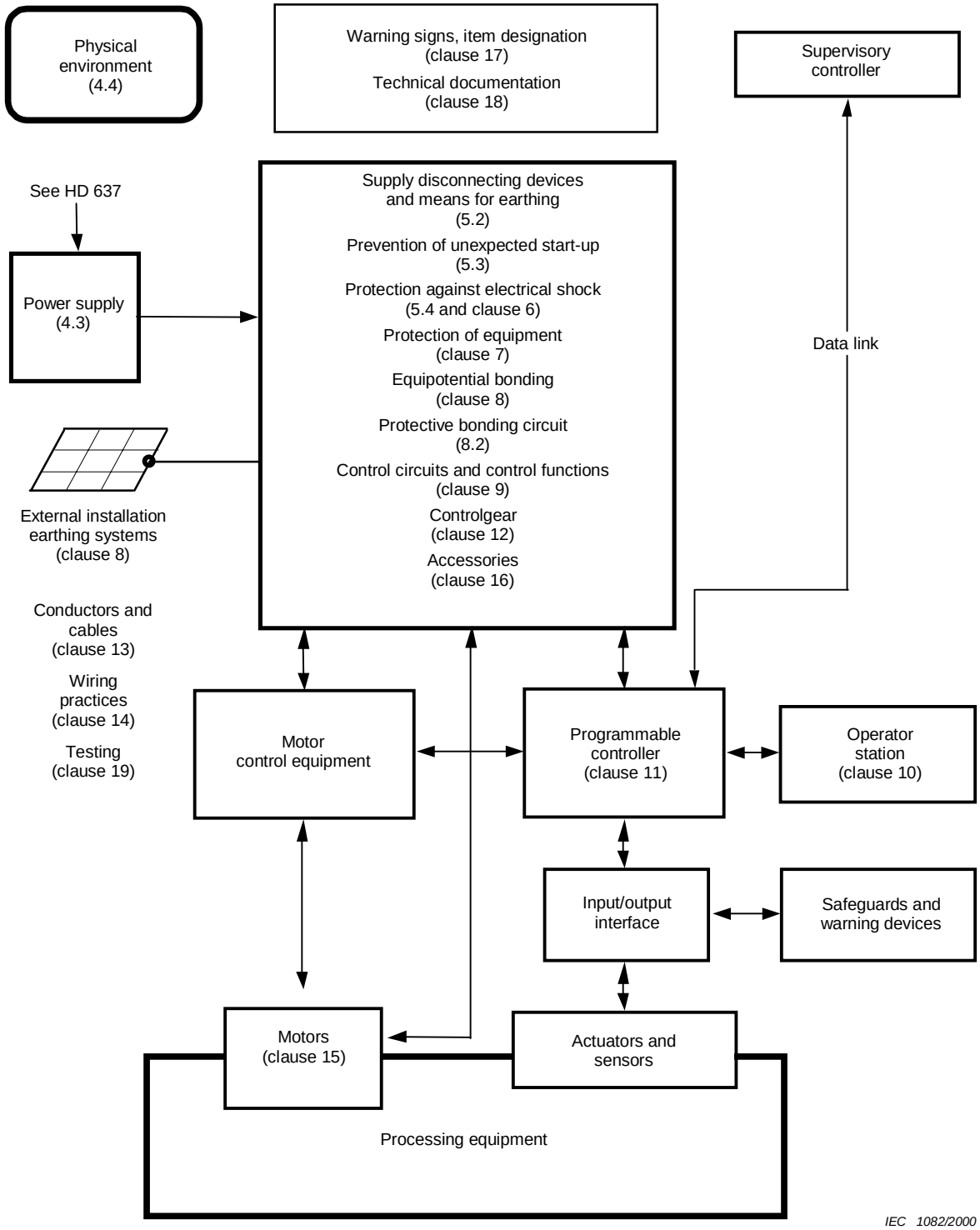

Figure 1 – Block diagram of a machine containing HV equipment

SAFETY OF MACHINERY –

ELECTRICAL EQUIPMENT OF MACHINES –

Part 11: Requirements for HV equipment for voltages above 1 000 V a.c. or 1 500 V d.c. and not exceeding 36 kV

1 Scope

IEC 60204 applies to the electrical and electronic equipment and systems of machines, including a group of machines working together in a coordinated manner, but excluding higher level system aspects (i.e. communications between systems).

This part of IEC 60204 is applicable to equipment, or parts of equipment, which operate with nominal supply voltages above 1 000 V a.c. or 1 500 V d.c. and not exceeding 36 kV a.c. or d.c. with nominal frequencies not exceeding 200 Hz. For higher voltages or frequencies, special requirements may be needed.

In this standard, the term HV equipment also covers the LV equipment forming an integral part of the equipment operating at high voltage. The requirements in this standard primarily cover the parts operating at high voltage except where explicitly stated otherwise. Reference is made to IEC 60204-1 for those requirements which also apply to HV equipment.

NOTE 1 Other LV equipment not forming part of the HV equipment and defined as operating at voltages not exceeding 1 000 V a.c. or 1 500 V d.c. are covered by IEC 60204-1.

NOTE 2 In this standard, the term "electrical" includes both electrical and electronic matters (i.e. electrical equipment means both the electrical and the electronic equipment).

The electrical equipment covered by this part of IEC 60204 commences at the point of connection of the supply to the electrical equipment of the machine (see 5.1).

NOTE 3 For the requirements for power supply installations, see HD 637.

This part of IEC 60204 is an application standard and is not intended to limit or inhibit technological advancement. It does not cover all the requirements (e.g. guarding, interlocking or control) which are needed or required by other standards or regulations in order to safeguard personnel from hazards other than electrical hazards. Each type of machine has unique requirements to be accommodated to provide adequate safety.

NOTE 4 In the context of this standard, the term "person" refers to any individual; "personnel" are those persons who are assigned and instructed by the user or his agent(s) in the use and care of the machine in question.

This part of IEC 60204 specifically includes, but is not limited to, machines as defined in 3.26 (annex A lists examples of machines whose electrical equipment may be covered by this standard).

Additional and special requirements can apply to the electrical equipment of machines that

– are used in the open air (i.e. outside buildings or other protective structures);
– use, process or produce potentially explosive material (e.g. paint or sawdust);
– are used in potentially explosive and/or flammable atmospheres;
– have special risks when producing or using certain materials;
– are used in mines.

Power circuits where electrical energy is directly used as a working tool are excluded from this part of IEC 60204.

2 Normative references

The following normative documents contain provisions which, through reference in this text, constitute provisions of this part of IEC 60204. For dated references, subsequent amendments to, or revisions of, any of these publications do not apply. However, parties to agreements based on this part of IEC 60204 are encouraged to investigate the possibility of applying the most recent editions of the normative documents indicated below. For undated references, the latest edition of the normative document referred to applies. Members of ISO and IEC maintain registers of currently valid International Standards.

IEC 60034-1:1996, *Rotating electrical machines – Part 1: Rating and performance*

IEC 60050(191):1990, *International Electrotechnical Vocabulary (IEV) – Chapter 191: Dependability and quality of service*

IEC 60050-195:1998, *International Electrotechnical Vocabulary (IEV) – Part 195: Earthing and protection against electric shock*

IEC 60050(441):1984, *International Electrotechnical Vocabulary (IEV) – Chapter 441: Switchgear, controlgear and fuses*

IEC 60050(826):1982, *International Electrotechnical Vocabulary (IEV) – Chapter 826: Electrical installations of buildings*

IEC 60050(826):1995, amendment No. 2

IEC 60071-1:1993, *Insulation co-ordination – Part 1: Definitions, principles and rules*

IEC 60071-2:1996, *Insulation co-ordination – Part 2: Application guide*

IEC 60076-5:1976, *Power transformers – Part 5: Ability to withstand short-circuit*

IEC 60129:1984, *Alternating current disconnectors and earthing switches*

IEC 60204-1:1997, *Safety of machinery – Electrical equipment of machines – Part 1: General requirements*

IEC 60298:1990, *A.C. metal-enclosed switchgear and controlgear for rated voltages above 1 kV and up to and including 52 kV*

IEC 60364-4-41:1992, *Electrical installations of buildings – Part 4: Protection for safety – Chapter 41: Protection against electric shock*

IEC 60364-4-42:1980, *Electrical installations of buildings – Part 4: Protection for safety – Chapter 42: Protection against thermal effects*