SLOVENSKI STANDARD
SIST EN 60204-1:2000

01-februar-2000

Safety of machinery - Electrical equipment of machines - Part 1: General requirements (IEC 60204-1:1992, modified)

Safety of machinery - Electrical equipment of machines -- Part 1: General requirements (IEC 60204-1:1992, modified)

Sicherheit von Maschinen - Elektrische Ausrüstung von Maschinen -- Teil 1: Allgemeine Anforderungen

Sécurité des machines - Equipement électrique des machines -- Partie 1: Règles générales

Ta slovenski standard je istoveten z: **EN 60204-1:1992**

ICS:

13.110	Varnost strojev	Safety of machinery
29.020	Elektrotehnika na splošno	Electrical engineering in general

SIST EN 60204-1:2000 **en**

EUROPEAN STANDARD
NORME EUROPÉENNE
EUROPÄISCHE NORM

EN 60204-1

October 1992

UDC 621.3.005:621.38:621.9-83:614.825.001.25

Supersedes EN 60204-1:1985 + A1:1988

Descriptors: Electrical equipment, machines, control and operation, requirements, testing, definitions, electrical safety requirements

English version

Safety of machinery - Electrical equipment of machines
Part 1: General requirements
(IEC 204-1:1992, modified)

Sécurité des machines - Equipement électrique des machines
Partie 1: Règles générales
(CEI 204-1:1992, modifiée)

Sicherheit von Maschinen - Elektrische Ausrüstung von Maschinen
Teil 1: Allgemeine Anforderungen
(IEC 204-1:1992, modifiziert)

This European Standard was approved by CENELEC on 24 March 1992. 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 Central Secretariat or to any 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 CENELEC member into its own language and notified to the Central Secretariat has the same status as the official versions.

CENELEC members are the national electrotechnical committees of Austria, Belgium, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and United Kingdom.

CENELEC

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

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Foreword

This Part of European Standard EN 60204 was developed by CENELEC Technical Committee 44X from IEC 204-1: Electrical equipment of industrial machines - Part 1: General requirements, third edition. The text of IEC 204-1, third edition was prepared by IEC Technical Committee 44 with the collaboration of CENELEC Technical Committee 44X taking into account the common work of CEN/TC 114 and CENELEC/TC 44X in preparing group safety standards (Type B in CEN), as defined in EN 414.

This Part of EN 60204 is the first part of a series of standards relating to the electrical equipment of machines, and specifies general requirements for the electrical equipment of an individual machine as well as a group of machines operating in a coordinated manner. It supersedes EN 60204-1:1985 which however remains applicable for use as a reference standard with EN 60204-3-1:1990.

This new edition of EN 60204-1 differs from the previous edition in that the scope is not limited to industrial machines but includes those machines covered by the EEC Directives relating to the safety of machinery.

This Part of EN 60204 has the status of an application standard (group safety standard, Type B1 in CEN) and is intended to be used by Technical Committees in CEN and CENELEC preparing product family and/or dedicated product standards (machine safety standards or Type C in CEN) which are presumed to comply with the Essential Safety Requirements in annex 1 of Council Directive 89/392/EEC on machines. This Part of EN 60204 also fulfils the requirements of the Low Voltage Directive 73/23/EEC. Electromagnetic compatibility has also been considered.
Annexes A, B and C are informative.

Technical committees preparing Type C European Standards should use this standard by applying one of the three options described below:

Option 1 This Part of EN 60204 applies in full (no additional electrical equipment requirement needed).

Action: Refer directly to this Part of EN 60204.

Option 2 This Part of EN 60204 applies in full and there are additional electrical equipment requirements.

Actions:

1) Refer directly to this Part of EN 60204; and

2) Specify the additional requirements referring to the clause or subclause affected in this Part of EN 60204.

Option 3 This Part of EN 60204 applies in part because:

a) certain requirements are adequately covered in another manner;

b) certain requirements are outside the scope of this Part of EN 60204; and

c) it is necessary to modify certain clauses but these modifications do not adversely affect the level of safety required for that machine.

Actions: 1) Refer directly to

- those relevant clauses of this Part of EN 60204 that are to be complied with; and

- those replaced by machine specific requirements or those otherwise adequately covered; and

2) Add those very specific requirements for the machine stating variations from this Part of EN 60204 for those clauses quoted as being relevant.

This Part of EN 60204 should be applied to machines for which no Type C European Standard exists to comply with the Essential Safety Requirements in annex 1 of Council Directive 89/392/EEC on machines.

The following dates are applicable:

- latest date of publication of an identical national standard (dop) 1993-06-15

- latest date of withdrawal of conflicting national standards (dow) 1993-12-01

NOTE: EN 60204-1:1985 remains applicable for use with EN 60204-3-1:1990.

For products which have complied with EN 60204-1:1985 and its amendment A1:1988 before 1993-12-01, as shown by the manufacturer or by a certification body, this previous standard may continue to apply for production until 1998-12-01.

Endorsement notice

The text of the International Standard IEC 204-1:1992 was approved by CENELEC as a European Standard with agreed common modifications as indicated by a vertical line in the left margin of the text.

Introduction

This Part of European Standard EN 60204 provides requirements and recommendations relating to the electrical equipment of machines so as to promote:

- safety of persons and property;
- consistency of control response; and
- ease of maintenance.

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

An example of a possible application of these requirements is a group of machines used in the production of discrete parts where a failure in such mass production machines or manufacturing systems or cells can have serious economic consequences.

Figures 1 and 2 have been provided as an aid to the understanding of the interrelationship of the various elements of a machine and its associated equipment. Figure 1 is an overall block diagram of a typical manufacturing system (a group of machines working together in a coordinated manner) and figure 2 is a block diagram of a typical machine and associated equipment showing the various elements of the electrical equipment addressed in this Part of EN 60204. Numbers in parentheses ( ) refer to clauses and subclauses in this Part of EN 60204. It is understood in figures 1 and 2 that all of the elements taken together including the safeguards, tooling/fixturing, software, and the documentation constitute the machine and that one or more machines working together with usually at least one level of supervisory control constitute a manufacturing system or cell.

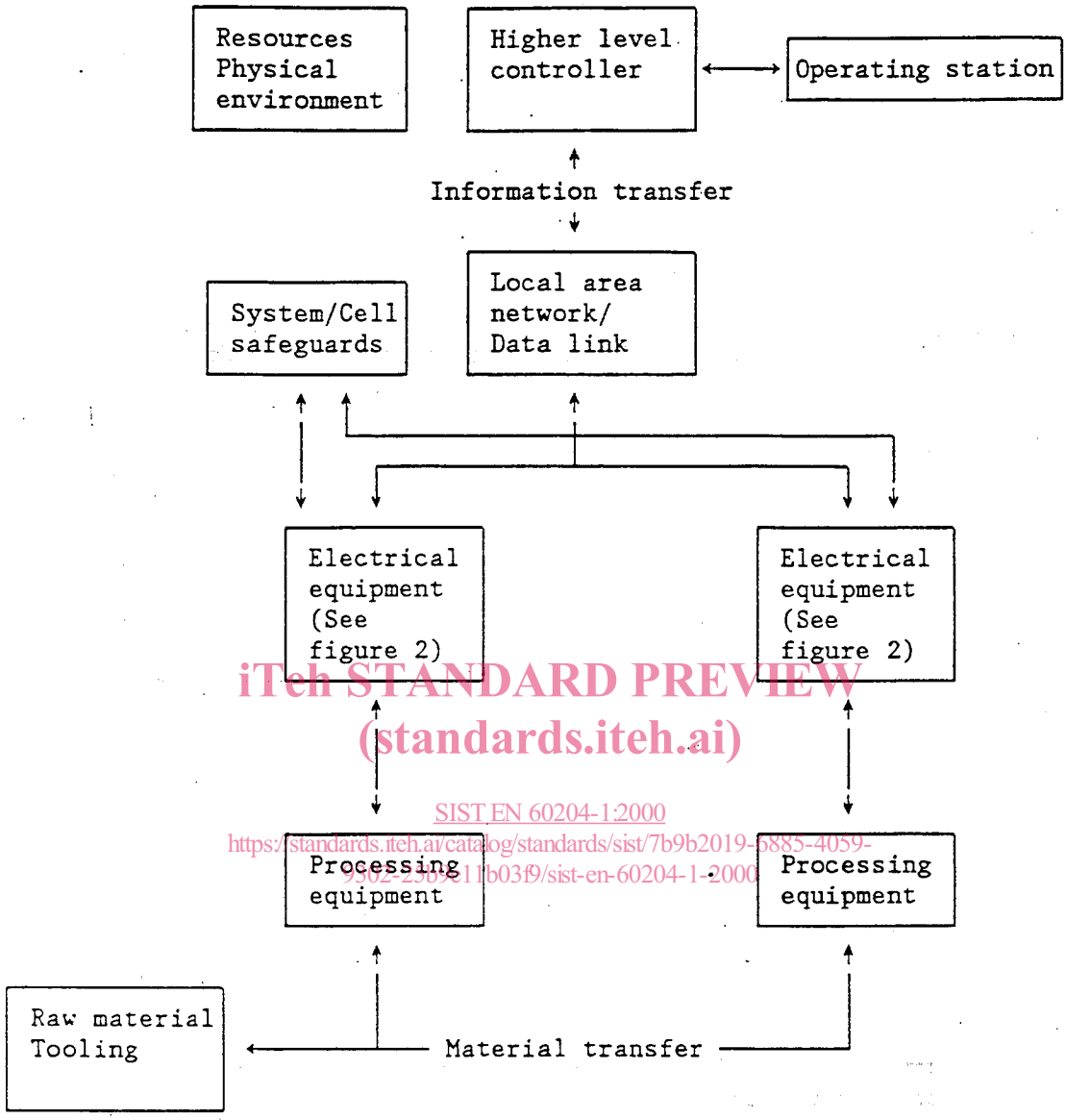

Figure 1: Block diagram of a typical manufacturing system

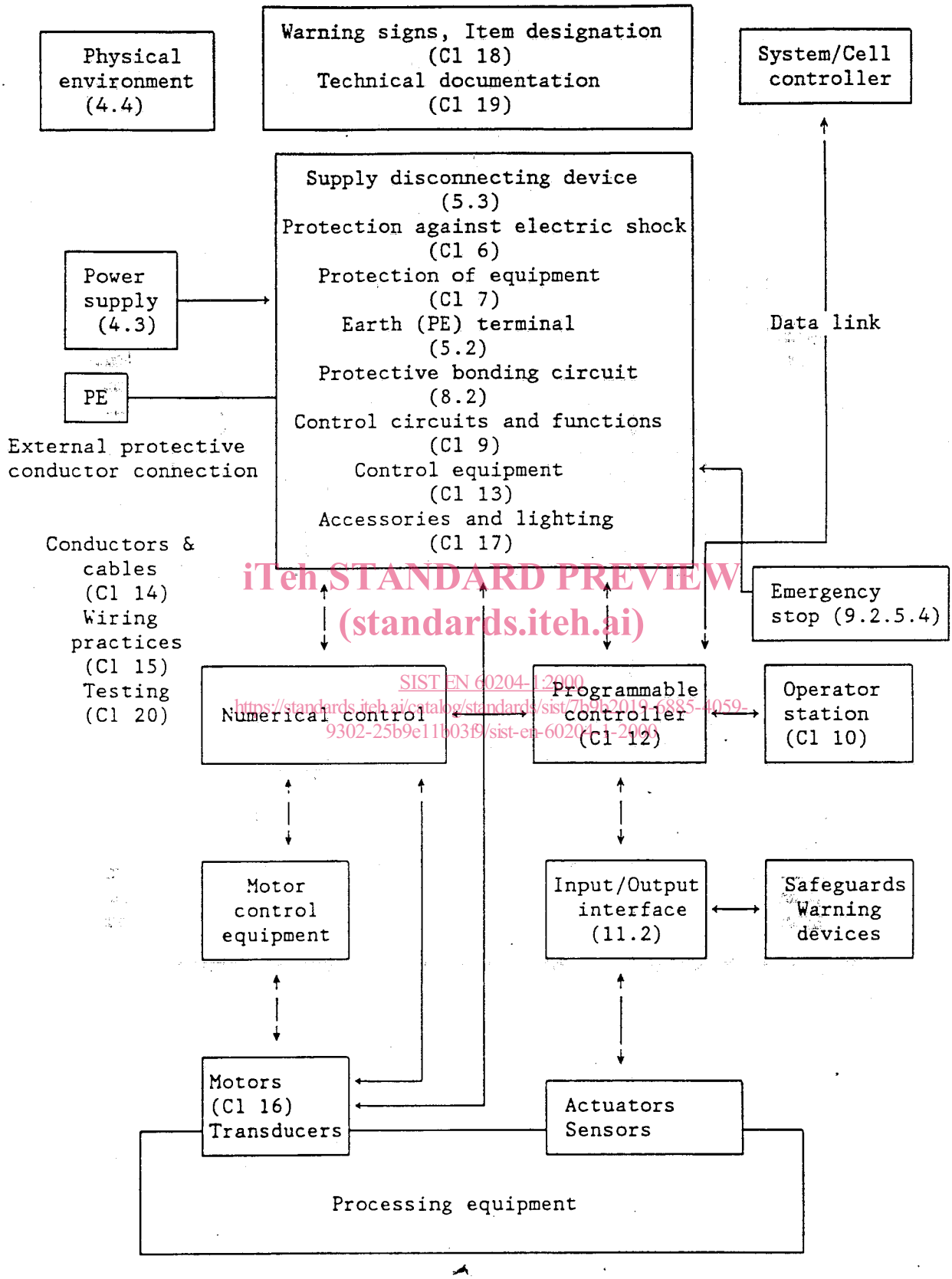

Figure 2: Block diagram of a typical machine and its associated equipment

1 Scope

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

NOTE 1: In this Part, the term *electrical* includes both electrical and electronic matters (e.g. *electrical equipment* means both the electrical and electronic equipment).

NOTE 2: Not used.

NOTE 3: In the context of this Part, 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 integrated manufacturing system in question.

The equipment covered by this Part commences at the point of connection of the supply to the electrical equipment of the machine (see 5.1). This Part is applicable to equipment or parts of equipment which operate with nominal supply voltages not exceeding 1000 V a.c. or 1500 V d.c. between lines and nominal frequencies not exceeding 200 Hz. For higher voltages or frequencies, special requirements may be needed.

NOTE 4: These special requirements are under consideration for a further Part of EN 60204.

This Part is a basic 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 persons from hazards other than electrical. Each type of machine has unique requirements which shall be accommodated to provide adequate safety.

This Part specifically includes, but is not limited to, the electrical equipment of industrial machines as defined in 3.28 (annex A lists examples of machines whose electrical equipment may be covered by this standard).

Also applicable is electrical equipment of machines for assembling, material handling (e.g. conveyors) and inspection, where associated with machines referred to above.

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

- are used in open air (i.e outside buildings or other protective structures);

- use, process or produce explosive material (e.g. paint or sawdust);

- are used in explosive and/or flammable atmospheres;

- give rise to special risks when producing certain materials;

- are used in mines;

- are sewing machines, units and systems (see EN 60204-3-1).

Excluded from this Part are:

- power circuits where electrical energy is directly used as a working tool.

2 Normative references

This Part of EN 60204 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 Part of EN 60204 only when incorporated in it by amendment or revision. For undated references the latest edition of the publication referred to applies.

European Standards

EN 292-1:1991	Safety of machinery - Basic concepts - General principles for design Part 1: Basic terminology, methodology
EN 292-2:1991	Safety of machinery - Basic concepts - General principles for design Part 2: Technical principles and specifications
EN 414:1992	Safety of machinery: Rules for the drafting and presentation of safety standards
EN 418:1992	Safety of machinery: Emergency stop equipment: Functional aspects - Principles for design

International publications with references to the corresponding European publications. When the international publication has been modified by CENELEC common modifications (mod = modified by CENELEC common modifications) the relevant EN/HD applies.

IEC Publications	EN/HD
34-1:1983 + A1:1987 + A2:1989 (mod) Rotating electrical machines Part 1: Rating and performance	HD 53.1 S2: 1985 + A1:1986 + A2:1989 + A3:1992
34-5:1981 (mod) Rotating electrical machines Part 5: Classification of degrees of protection provided by enclosures for rotating electrical machines (IP code)	EN 60034-5:1986
34-11:1978 Rotating electrical machines Part 11: Built-in thermal protection Chapter 1: Rules for protection of rotating electrical machines	-
50(191):1990 International Electrotechnical Vocabulary (IEV) Chapter 191: Dependability and quality of service	-
50(441):1984 International Electrotechnical Vocabulary (IEV) Chapter 441: Switchgear, controlgear and fuses	-
50(826):1982 International Electrotechnical Vocabulary (IEV) Chapter 826: Electrical installations of buildings	HD 384.2 S1:1986