AS 60204.11—2006

Australian Standard®

Safety of machinery—Electrical equipment of machines

Part 11: Requirements for HV equipment for voltages above 1000 V a.c. or 1500 V d.c and not exceeding 36 kV (IEC 60204-11, Ed. 1.0 (2000) MOD)

STANDARDS
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- Department of Consumer and Employment Protection, WorkSafe Division (WA)
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- Department of Primary Industries, Mine Safety (NSW)
- Electrical Regulatory Authorities Council
- Federal Chamber of Automotive Industries
- Victorian WorkCover Authority

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PREFACE

This Standard was prepared by the Standards Australia Committee EL-017, Electrical Equipment of Industrial Machinery.

The objective of this Standard is to provide a framework, and criteria, for assessment of the safety of high voltage electrical equipment of machines.

This Standard is an adoption with national modifications and has been reproduced from IEC 60204-11, Ed. 1.0 (2000), *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*, and has been varied as indicated to take account of Australian conditions.

The source IEC standard IEC 60204-11, makes numerous references to a European harmonization document HD 637, dealing with high voltage electrical installations. In this Australian standard, the references to HD 637 have been either removed or replaced by reference to the more recent IEC standard IEC 61936-1.

Variations to IEC 60204-11, Ed. 1.0 (2000) are indicated at the appropriate places throughout this standard. Strikethrough (~~example~~) identifies IEC text, tables and figures which, for the purposes of this Australian Standard, are deleted. Where text, tables or figures are added, each is set in its proper place and identified by shading (example). Added figures are not themselves shaded, but are identified by a shaded border.

As this Standard is reproduced from an International Standard, the following applies:

(a) Its number does not appear on each page of text and its identity is shown only on the cover and title page.

(b) In the source text 'IEC 60204-11' should read 'AS 60204.11'.

(c) A full point should be substituted for a comma when referring to a decimal marker.

The terms 'normative' and 'informative' are used to define the application of the annex to which they apply. A normative annex is an integral part of a standard, whereas an informative annex is only for information and guidance.

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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.

More guidance on the use of this standard is given in annex F of IEC 60204-1.

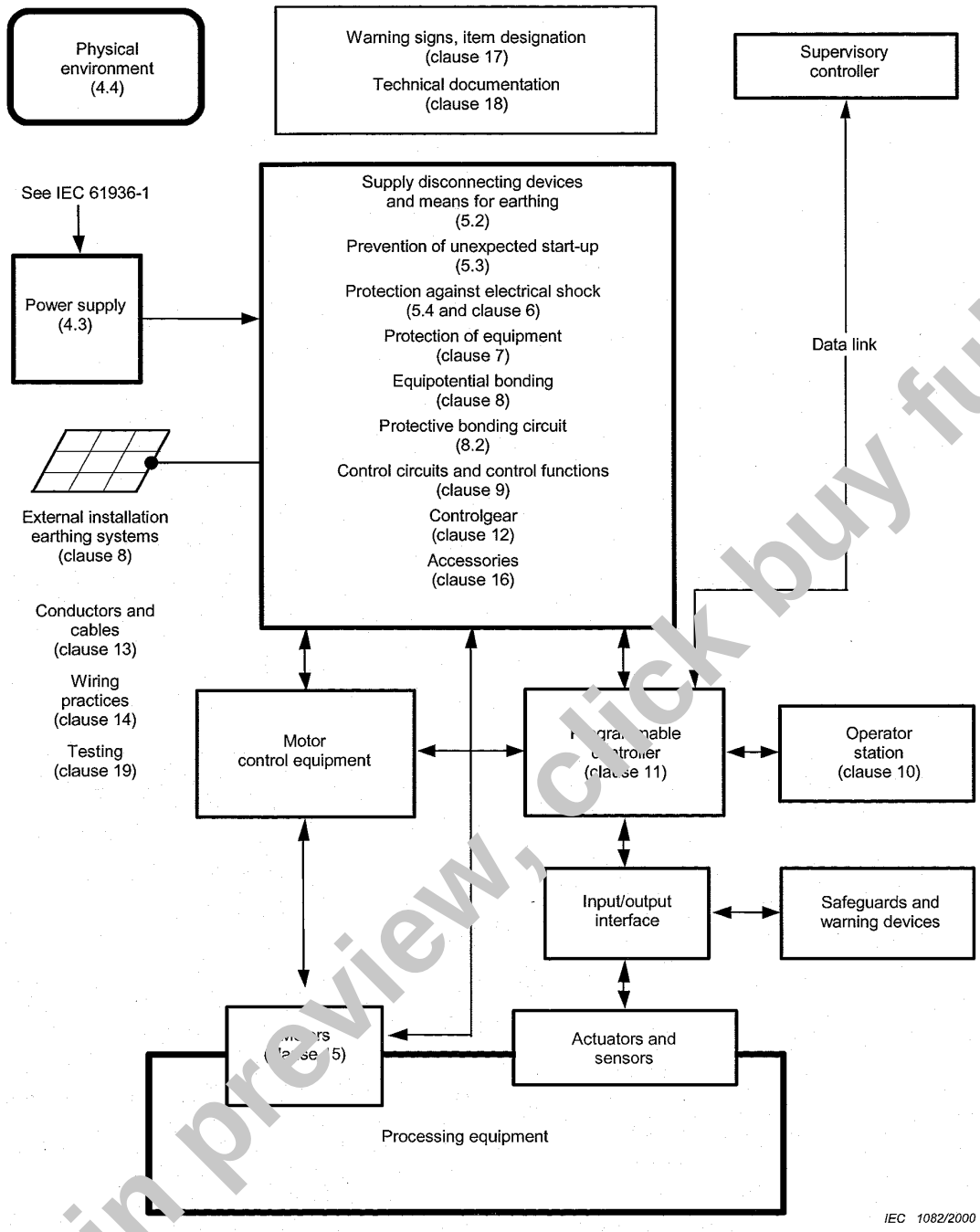

Figure 1 – Block diagram of a machine containing HV equipment

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Any table, figure or text of the international standard that is struck through is not part of this standard. Any Australian table, figure or text that is added is part of this standard and is identified by shading.

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~~ IEC 61936-1.

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;