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ELECTRICAL EQUIPMENT OF INDUSTRIAL MACHINES



STANDARDS ASSOCIATION OF AUSTRALIA

Incorporated by Royal Charter

THE FOLLOWING SCIENTIFIC, INDUSTRIAL AND GOVERNMENTAL organizations and departments were officially represented on the committee entrusted with the preparation of this standard:

Associated Chambers of Manufactures of Australia
Australian-British Trade Association
Australian Chamber of Commerce
Australian Electrical Manufacturers Association
Department of Employment and Industrial Relations
Department of Industry and Commerce
Federal Chamber of Automotive Industries
Railways of Australia Committee
Statutory Electrical Authorities

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To keep abreast of progress in industry, Australian standards are regularly reviewed. Suggestions for improvements to published standards, addressed to the head office of the Association, are welcomed.

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ELECTRICAL EQUIPMENT OF INDUSTRIAL MACHINES

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PREFACE

This standard was prepared by the Association's Committee on Electrical Equipment of Industrial Machines, as a revision of AS C341—1964, Electrical Equipment of Machine Tools, which it accordingly supersedes.

With this revision, the standard has been aligned with developments that have taken place since 1964 and the scope has been extended to cover the electrical equipment of industrial machines rather than of machine tools only. This expansion follows developments overseas where the International Electrotechnical Commission have likewise extended the scope of their Publications 204-1, 204-2 and 204-3.

As was the case with AS C341, the purpose of this standard is to ensure the safety of personnel, uninterrupted production, and adequate length of service from equipment. Hence, it sets out the requirements of the various SAA specifications which are generally applied by Australian statutory authorities in respect of industrial machines designed for connection to supply voltages not exceeding 650 V, and in addition, details those requirements regarded as essential to the generally accepted principles of sound and reliable industrial practice, as well as requirements which may be specified by the more discriminatory purchaser. For convenience and clarity of reading, these various requirements are distinguished in the standard by the use of different weights and style of typeface.

The specified requirements, in so far as they apply to performance and suitability for purpose, relate mainly to conditions associated with the normal use of industrial machines. Exceptional conditions, such as tropical conditions, extremes of temperature, hazardous conditions, or excessive dust associated with wood-working machinery, are required to be stated by the purchaser.

It is anticipated that this standard will again be revised at some time to take account of further developments and of the revision of the corresponding IEC publications. The committee is keeping in close touch with the IEC activity in this field and is striving to present the Australian viewpoint at the earliest possible stage in order that the final IEC publication may be adopted with the minimum of amendment.

This standard requires reference to AS 3000, Part 1, SAA Wiring Rules, and to a number of individual specifications included in AS 3000, Part 2, Materials. These individual specifications are listed in Appendix D herein. Reference is also made in the standard to a number of Australian standard specifications giving requirements, including dimensions, for materials, equipment and accessories; these are also listed in Appendix D.

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STANDARDS ASSOCIATION OF AUSTRALIA
Australian Standard
for
ELECTRICAL EQUIPMENT OF INDUSTRIAL MACHINES

SECTION 1. SCOPE AND GENERAL

1.1 SCOPE. This specification sets out the requirements of those Australian Standards that are generally applied by Australian statutory authorities in respect of electrical equipment of non-portable machines or machine assemblies which are intended for industrial use either occasionally or in production lines and which are designed for connection to supply voltages not exceeding 650 V.

In addition, the standard details those quality and performance aspects that will—

- (a) ensure safety of personnel;
- (b) promote effective and efficient usage of such equipment;
- (c) help obtain long life of all equipment; and
- (d) facilitate maintenance at minimum cost.

The electrical equipment covered by this standard includes all motors, control devices, circuit wiring, control panels, and other electrical and electronic apparatus and materials extending to and including the machine isolating switch. Electronic equipment may include the following components which are used in control circuits or in power circuits:

- (i) Electronic devices with semiconductors or with thermionic valves.
- (ii) Static control units and equipment.
- (iii) Magnetic amplifiers.
- (iv) Equipment and units associated electrically and mechanically with the electronic circuits (transducers, low-current electromagnetic relays, transformers, resistors, potentiometers, position sensors, servo components, etc).

NOTE: Applications of these components include the variable speed control of spindle and feed motors, the programmed sequence and positioning of controls, the numerical control of machine tools, and safety equipment.

The standard does not include requirements relating to the performance of an industrial machine as a whole, and is not intended to unduly restrict design or limit manufacturing ingenuity.

This standard does not apply to the electrical equipment used with the following specialized types of machinery:

- A. Machines used for production and distribution of electrical energy
- B. Machines used in mines
- C. Machines used in open air
- D. Machines used in explosive atmospheres