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INTERNATIONAL STANDARD

IEC 60092-503

Second edition
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Electrical installations in ships –

Part 503:

Special features –

AC supply systems with voltages in the range of above 1 kV up to and including 15 kV



Commission Electrotechnique Internationale
International Electrotechnical Commission
Международная Электротехническая Комиссия

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

ELECTRICAL INSTALLATIONS IN SHIPS –
Part 503: Special features –
AC supply systems with voltages in the range
of above 1 kV up to and including 15 kV

FOREWORD

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International Standard IEC 60092-503 has been prepared by IEC technical committee 18:
Electrical installations of ships and of mobile and offshore units

This second edition cancels and replaces the first edition published in 1975. This edition constitutes a technical revision.

This edition includes the following significant technical changes with respect to the previous edition.

- a) The scope is changed to an upper limit of the system voltage from 11 kV to 15 kV.
- b) General requirements regarding warning notices, access to installations, clearances and creepage distances of uninsulated conductors and earthing have been introduced.
- c) Technical review has generally been made to update the standard according to general requirements and referenced equipment standards.

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The text of this standard is based on the following documents:

FDIS	Report on voting
18/1053/FDIS	18/1059/RVD

Full information on the voting for the approval of this standard can be found in the report on voting indicated in the above table.

This publication has been drafted in accordance with the ISO/IEC Directives, Part 2.

A list of all parts of the IEC 60092 series, under the general title *Electrical installations in ships*, can be found on the IEC website.

The committee has decided that the contents of this publication will remain unchanged until the maintenance result date indicated on the IEC web site under "<http://webstore.iec.ch>" in the data related to the specific publication. At this date, the publication will be

- reconfirmed,
- withdrawn,
- replaced by a revised edition, or
- amended.

A bilingual version of this publication may be issued at a later date.

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INTRODUCTION

IEC 60092 forms a series of International Standards for electrical installations in sea-going ships, incorporating good practice and coordinating, as far as possible, existing rules.

These standards form a code of practical interpretation and amplification of the requirements of the International Convention for the Safety of Life at Sea, a guide for future regulations which may be prepared, and a statement of practice for use by shipowners, shipbuilders and appropriate organizations.

ELECTRICAL INSTALLATIONS IN SHIPS –

Part 503: Special features – AC supply systems with voltages in the range of above 1 kV up to and including 15 kV

1 Scope

This part of IEC 60092 is applicable to a.c. supply systems with voltages from 1 kV up to and including 15 kV. The requirements contained in other parts of IEC 60092 apply where appropriate, subject to the exceptions stated in the following clauses.

2 Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

IEC 60034 (all parts), *Rotating electrical machines*

IEC 60038:1983, *IEC standard voltages*

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

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

IEC 60076 (all parts), *Power transformers*

IEC 60092-201, *Electrical installations in ships – Part 201: System design – General*

IEC 60092-202, *Electrical installations in ships – Part 202: System design – Protection*

IEC 60092-350, *Electrical installations in ships – Part 350: Shipboard power cables – General construction and test requirements*

IEC 60092-353, *Electrical installations in ships – Part 353: Single and multicore non-radial field power cables with extruded solid insulation for rated voltages 1 kV and 3 kV*

IEC 60092-354, *Electrical installations in ships – Part 354: Single- and three-core power cables with extruded solid insulation for rated voltages 6 kV, ($U_m = 7,2$ kV) up to 30 kV ($U_m = 36$ kV)*

IEC 60265-1, *High-voltage switches – Part 1: Switches for rated voltages above 1 kV and less than 52 kV*

IEC 60282-1:2005, *High-voltage fuses – Part 1: Current-limiting fuses*

IEC 60502 (all parts), *Power cables with extruded insulation and their accessories for rated voltages from 1 kV ($U_m = 1,2$ kV) up to 30 kV ($U_m = 36$ kV)*

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IEC 60502-1, *Power cables with extruded insulation and their accessories for rated voltages from 1 kV ($U_m = 1,2$ kV) up to 30 kV ($U_m = 36$ kV) – Part 1: Cables for rated voltages of 1 kV ($U_m = 1,2$ kV) up to 3 kV ($U_m = 3,6$ kV)*

IEC 60502-2, *Power cables with extruded insulation and their accessories for rated voltages from 1 kV ($U_m = 1,2$ kV) up to 30 kV ($U_m = 36$ kV) – Part 2: Cables for rated voltages from 6 kV ($U_m = 7,2$ kV) up to 30 kV ($U_m = 36$ kV)*

IEC 60694:1996, *Common specifications for high-voltage switchgear and controlgear standards*

IEC 62271(all parts), *High-voltage switchgear and controlgear*

IEC 62271-200:2003, *High-voltage switchgear and controlgear – Part 200: AC metal-enclosed switchgear and controlgear for rated voltages above 1 kV and up to and including 52 kV*

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

3.1 AC voltages

For alternating voltages, the voltages stated below are r.m.s. values.

3.1.1

nominal system voltage

voltage by which a system is designated

[IEC 60038, Clause 1]

3.1.2

highest and lowest voltages of a system (excluding transient or abnormal conditions)

3.1.2.1

highest voltage of a system

highest value of voltage which occurs under normal operating conditions at any time and at any point on the system

NOTE It excludes voltage transients, such as those due to system switching and temporary voltage variations.

[IEC 60038, 2.1, modified]

3.1.2.2

lowest voltage of a system

lowest value of voltage which occurs under normal operating conditions at any time and at any point on the system

NOTE It excludes voltage transients, such as those due to system switching and temporary voltage variations.

[IEC 60038, 2.2, modified]

3.1.2.3

highest voltage for equipment

maximum value of the "highest system voltage" (see 3.1.2.1) for which the equipment may be used

NOTE Attention is drawn to the fact that in some equipment standards the term "voltage range" has a different meaning.