IEC 61892-4

Edition 2.0 2019-04

INTERNATIONAL STANDARD

NORME INTERNATIONALE

colour inside

Mobile and fixed offshore units – Electrical installations – Part 4: Cables

Unités mobiles et fixes en mer – Installations électriques – Partie 4: Câbles

IEC 61892-4:2019-04(en-fr)

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

COMMISSION ELECTROTECHNIQUE INTERNATIONALE

ICS 47.020.60

ISBN 978-2-8322-6669-4

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

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MOBILE AND FIXED OFFSHORE UNITS – ELECTRICAL INSTALLATIONS –

Part 4: Cables

FOREWORD

1) The International Electrotechnical Commission (IEC) is a worldwide organization for standardization comprising all national electrotechnical committees (IEC National Committees). The object of IEC is to promote international co-operation on all questions concerning standardization in the electrical and electronic fields. To this end and in addition to other activities, IEC publishes International Standards, Technical Specifications, Technical Reports, Publicly Available Specifications (PAS) and Guides (hereafter referred to as "IEC Publication(s)"). Their preparation is entrusted to technical committees; any IEC National Committee interested in the subject dealt with may participate in this preparatory work. International, governmental and non-governmental organizations liaising with the IEC also participate in this preparation. IEC collaborates closely with the International Organization for Standardization (ISO) in accordance with conditions determined by agreement between the two organizations.
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International Standard IEC 61892-4 has been prepared by IEC technical committee 18: Electrical installations of ships and of mobile and fixed offshore units.

This second edition cancels and replaces the first edition published in 2007. This edition constitutes a technical revision.

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

a) construction requirements for cables have been removed; reference is made to relevant standards from Subcommittee (SC) 18A;
b) reference is made to standards from IEC TC 20 for cables with rated voltage above 30 kV;
c) tables for current-carrying capacities for defined installations have been removed; reference is made to relevant standards from IEC TC 64;

d) requirements as to the sizes of earth continuity conductors not contained in a cable have been moved to IEC 61892-6;

e) requirements as to fire stops have been deleted;

f) requirements as to tests for cables exposed to drilling fluids have been removed; reference is made to relevant standards from IEC SC 18A;

g) the procedure for tests of jet fire resistant cables has been updated;

h) requirements as to the design of cable systems have been moved to IEC 61892-2;

i) requirements in relation to the installation of cables have been moved to IEC 61892-6.

The text of this International Standard is based on the following documents:

FDIS	Report on voting
18/1652/FDIS	18/1662/RVD

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

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

A list of all parts in the IEC 61892 series, published under the general title *Mobile and fixed offshore units – Electrical installations*, can be found on the IEC website.

The committee has decided that the contents of this document will remain unchanged until the stability date indicated on the IEC website under "http://webstore.iec.ch" in the data related to the specific document. At this date, the document will be

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

IMPORTANT – The 'colour inside' logo on the cover page of this publication indicates that it contains colours which are considered to be useful for the correct understanding of its contents. Users should therefore print this document using a colour printer.

INTRODUCTION

IEC 61892 forms a series of International Standards for safety in the design, selection, installation, maintenance and use of electrical equipment for the generation, transmission, storage, distribution and utilization of electrical energy for all purposes in offshore units which are used for the purpose of exploration or exploitation of petroleum resources.

This part of IEC 61892 incorporates and coordinates, as far as possible, existing rules and forms a code of interpretation, where applicable, of the requirements of the International Maritime Organization (IMO), and constitutes a guide for future regulations which may be prepared and a statement of practice for offshore unit owners, designers, installers and appropriate organizations.

This document is based on solutions and methods which are in current use, but it is not intended to impede the development of new or improved techniques.

In this revision, voltage limitations have been removed. However, voltage limitations may be given in the referenced equipment standards. The removal of voltage limitations is considered necessary due to the interconnection of, and supply from shore to offshore units. In such cases, transmission voltages up to 132 kV AC and 150 kV DC are used and higher voltages are being planned.

The IEC 61892 series aims to constitute a set of International Standards for the offshore petroleum industry, but it is not intended to prevent their use beyond petroleum installations.

MOBILE AND FIXED OFFSHORE UNITS – ELECTRICAL INSTALLATIONS –

Part 4: Cables

1 Scope

This part of IEC 61892 is applicable to the selection of electrical cables intended for fixed electrical systems in mobile and fixed offshore units, including pipeline, pumping or "pigging" stations, compressor stations and single buoy moorings, used in the offshore petroleum industry for drilling, production, accommodation, processing, storage and offloading purposes.

This document specifies requirements such as those concerning

– types of cables,
– voltage rating of cables,
– cables and wiring for interconnection of equipment,
– current-carrying capacities for continuous service,
– correction factors for different ambient temperature and for short time duty, and
– short-circuit withstand capacity.

This document also gives information on the jet fire test for hydrocarbon (HCF) fire resistant cables.

The reference to fixed electrical systems includes those subjected to vibration due to the movement of the unit, for example, cables installed on a drag chain, and not those intended for repeated flexing. This document does not cover flexible cables, for example, those used on drilling decks for top-drive, or cables for portable equipment.

This document is applicable for cables with a rated voltage up to and including 18/30 kV AC and makes reference to cable standards developed by SC 18A.

For higher voltages, relevant standards developed by TC 20 are applicable.

This document does not apply to

– optical fibre cables,
– sub-sea and umbilical cables;,
– cables supplying downhole pumps, and
– data, telecommunication and radio frequency cables.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements 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 60092-350:2014, *Electrical installations in ships – Part 350: General construction and test methods of power, control and instrumentation cables for shipboard and offshore applications*

IEC 60092-353, *Electrical installations in ships – Part 353: Power cables for rated voltages 1 kV and 3 kV*

IEC 60092-354:2014, *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 60092-360:2014, *Electrical installations in ships – Part 360: Insulating and sheathing materials for shipboard and offshore units, power, control, instrumentation and telecommunication cables*

IEC 60092-376, *Electrical installations in ships – Part 376: Cables for control and instrumentation circuits 150/250 V (300 V)*

IEC 61892-1, *Mobile and fixed offshore units – Electrical installations – Part 1: General requirements and conditions*

IEC 61892-5, *Mobile and fixed offshore units – Electrical installations – Part 5: Mobile units*

EN 1363-2:1999, *Fire resistance tests – Part 2: Alternative and additional procedures*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in IEC 61892-1 and the following apply.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

- IEC Electropedia: available at http://www.electropedia.org/
- ISO Online browsing platform: available at http://www.iso.org/obp

3.1
braid armour
covering formed from braided metal wires used to protect a cable from external mechanical effects

[SOURCE: IEC 60092-350:2014, 3.3, modified – The notes to entry have been deleted.]

3.2
armour
covering consisting of metal tape(s) or wires, generally used to protect the cable from external mechanical effects

[SOURCE: IEC 60050-461:2008, 461-05-06]

3.3
screen
conducting layer or assembly of conducting layers having the function of control of the electric field within the insulation

Note 1 to entry: It may also provide smooth surfaces at the boundaries of the insulation and assist in the elimination of spaces at these boundaries

[SOURCE: IEC 60050-461:2008, 461-03-01]