

INTERNATIONAL STANDARD

NORME INTERNATIONALE

**Mobile and fixed offshore units – Electrical installations –
Part 5: Mobile units**

**Unités mobiles et fixes en mer – Installations électriques –
Partie 5: Unités mobiles**



THIS PUBLICATION IS COPYRIGHT PROTECTED

Copyright © 2019 IEC, Geneva, Switzerland

All rights reserved. Unless otherwise specified, no part of this publication may be reproduced or utilized in any form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from either IEC or IEC's member National Committee in the country of the requester. If you have any questions about IEC copyright or have an enquiry about obtaining additional rights to this publication, please contact the address below or your local IEC member National Committee for further information.

Droits de reproduction réservés. Sauf indication contraire, aucune partie de cette publication ne peut être reproduite ni utilisée sous quelque forme que ce soit et par aucun procédé, électronique ou mécanique, y compris la photocopie et les microfilms, sans l'accord écrit de l'IEC ou du Comité national de l'IEC du pays du demandeur. Si vous avez des questions sur le copyright de l'IEC ou si vous désirez obtenir des droits supplémentaires sur cette publication, utilisez les coordonnées ci-après ou contactez le Comité national de l'IEC de votre pays de résidence.

IEC Central Office
3, rue de Varembe
CH-1211 Geneva 20
Switzerland

Tel.: +41 22 919 02 11
info@iec.ch
www.iec.ch

About the IEC

The International Electrotechnical Commission (IEC) is the leading global organization that prepares and publishes International Standards for all electrical, electronic and related technologies.

About IEC publications

The technical content of IEC publications is kept under constant review by the IEC. Please make sure that you have the latest edition, a corrigendum or an amendment might have been published.

IEC publications search - webstore.iec.ch/advsearchform

The advanced search enables to find IEC publications by a variety of criteria (reference number, text, technical committee,...). It also gives information on projects, replaced and withdrawn publications.

IEC Just Published - webstore.iec.ch/justpublished

Stay up to date on all new IEC publications. Just Published details all new publications released. Available online and once a month by email.

IEC Customer Service Centre - webstore.iec.ch/csc

If you wish to give us your feedback on this publication or need further assistance, please contact the Customer Service Centre: sales@iec.ch.

Electropedia - www.electropedia.org

The world's leading online dictionary on electrotechnology, containing more than 22 000 terminological entries in English and French, with equivalent terms in 16 additional languages. Also known as the International Electrotechnical Vocabulary (IEV) online.

IEC Glossary - std.iec.ch/glossary

67 000 electrotechnical terminology entries in English and French extracted from the Terms and Definitions clause of IEC publications issued since 2002. Some entries have been collected from earlier publications of IEC TC 37, 77, 86 and CISPR.

A propos de l'IEC

La Commission Electrotechnique Internationale (IEC) est la première organisation mondiale qui élabore et publie des Normes internationales pour tout ce qui a trait à l'électricité, à l'électronique et aux technologies apparentées.

A propos des publications IEC

Le contenu technique des publications IEC est constamment revu. Veuillez vous assurer que vous possédez l'édition la plus récente, un corrigendum ou amendement peut avoir été publié.

Recherche de publications IEC -

webstore.iec.ch/advsearchform

La recherche avancée permet de trouver des publications IEC en utilisant différents critères (numéro de référence, texte, comité d'études,...). Elle donne aussi des informations sur les projets et les publications remplacées ou retirées.

IEC Just Published - webstore.iec.ch/justpublished

Restez informé sur les nouvelles publications IEC. Just Published détaille les nouvelles publications parues. Disponible en ligne et une fois par mois par email.

Service Clients - webstore.iec.ch/csc

Si vous désirez nous donner des commentaires sur cette publication ou si vous avez des questions contactez-nous: sales@iec.ch.

Electropedia - www.electropedia.org

Le premier dictionnaire d'électrotechnologie en ligne au monde, avec plus de 22 000 articles terminologiques en anglais et en français, ainsi que les termes équivalents dans 16 langues additionnelles. Egalement appelé Vocabulaire Electrotechnique International (IEV) en ligne.

Glossaire IEC - std.iec.ch/glossary

67 000 entrées terminologiques électrotechniques, en anglais et en français, extraites des articles Termes et Définitions des publications IEC parues depuis 2002. Plus certaines entrées antérieures extraites des publications des CE 37, 77, 86 et CISPR de l'IEC.

INTERNATIONAL STANDARD

NORME INTERNATIONALE

**Mobile and fixed offshore units – Electrical installations –
Part 5: Mobile units**

**Unités mobiles et fixes en mer – Installations électriques –
Partie 5: Unités mobiles**

INTERNATIONAL
ELECTROTECHNICAL
COMMISSION

COMMISSION
ELECTROTECHNIQUE
INTERNATIONALE

ICS 47.020.60

ISBN 978-2-8322-6670-0

<p>Warning! Make sure that you obtained this publication from an authorized distributor.</p> <p>Attention! Veuillez vous assurer que vous avez obtenu cette publication via un distributeur agréé.</p>
--

CONTENTS

FOREWORD.....	4
INTRODUCTION.....	6
1 Scope.....	7
2 Normative references	8
3 Terms and definitions	8
4 General requirements	9
4.1 Environmental conditions	9
4.1.1 Ambient temperature	9
4.1.2 Relative humidity	10
4.2 Protection against flooding.....	10
4.3 Rotating machines	10
4.4 Conductors, equipment and apparatus	10
4.5 Main switchboards	11
4.6 Handrails or handles on mobile units	11
4.7 Axes of rotation.....	11
5 Limits of inclination of the unit	11
5.1 Authority requirement.....	11
5.2 Machines, equipment and apparatus – General.....	11
5.3 Propulsion machinery.....	11
5.4 Essential source of power	12
5.5 Emergency machinery.....	12
5.6 Dynamic condition.....	12
6 Bilge pumps.....	12
6.1 Power supply	12
6.2 Cables and cable connections.....	12
6.3 Location of starting arrangement.....	13
7 Navigation and obstruction lights	13
7.1 General.....	13
7.2 Obstruction lights when in operation	13
7.3 Navigation lights	13
7.4 Power supply and monitoring systems	13
7.5 Special requirements for lights using LEDs	14
8 Steering gear.....	14
8.1 Power operated steering gear	14
8.2 Motors	14
8.3 Motor starters	15
8.4 Power circuit supply.....	15
8.5 Supply of control circuits and control systems	15
8.6 Circuit protection.....	15
8.7 Starting and stopping of motors for steering gear power units	16
8.8 Steering gear control systems.....	16
8.9 Alarms and indications.....	16
8.10 Rudder angle indication	17
8.11 Separation of circuits	17
8.12 Communication between navigating bridge and steering gear compartment	17

9	Electric propulsion	17
10	Dynamic positioning	17
11	Ballast systems	18
11.1	General.....	18
11.2	Ballast pumps	18
11.3	Control and indicating systems	18
11.4	Internal communication	19
11.5	Protection against flooding.....	19
12	Jacking systems	20
12.1	General.....	20
12.2	Design	20
12.3	Holding capacity	20
12.4	Electric motor capacity.....	21
12.5	Jacking gear motors and motor controller.....	21
12.5.1	General	21
12.5.2	Group installation	21
12.5.3	Overcurrent protection	21
12.5.4	Running protection	21
12.5.5	Monitoring	21
12.6	Testing at factory at site or on board after modifications	22
13	Anchoring systems	22
13.1	General.....	22
13.2	Anchoring arrangements	22
13.3	Control systems	22
13.4	Thruster-assisted anchoring systems (TA)	23
	Annex A (informative) Typical VSD driven AC jacking system	24
	Bibliography.....	25
	Figure A.1 – Typical VSD driven AC jacking system.....	24
	Table 1 – Ambient temperature	10

INTERNATIONAL ELECTROTECHNICAL COMMISSION

**MOBILE AND FIXED OFFSHORE UNITS –
ELECTRICAL INSTALLATIONS –****Part 5: Mobile units****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.
- 2) The formal decisions or agreements of IEC on technical matters express, as nearly as possible, an international consensus of opinion on the relevant subjects since each technical committee has representation from all interested IEC National Committees.
- 3) IEC Publications have the form of recommendations for international use and are accepted by IEC National Committees in that sense. While all reasonable efforts are made to ensure that the technical content of IEC Publications is accurate, IEC cannot be held responsible for the way in which they are used or for any misinterpretation by any end user.
- 4) In order to promote international uniformity, IEC National Committees undertake to apply IEC Publications transparently to the maximum extent possible in their national and regional publications. Any divergence between any IEC Publication and the corresponding national or regional publication shall be clearly indicated in the latter.
- 5) IEC itself does not provide any attestation of conformity. Independent certification bodies provide conformity assessment services and, in some areas, access to IEC marks of conformity. IEC is not responsible for any services carried out by independent certification bodies.
- 6) All users should ensure that they have the latest edition of this publication.
- 7) No liability shall attach to IEC or its directors, employees, servants or agents including individual experts and members of its technical committees and IEC National Committees for any personal injury, property damage or other damage of any nature whatsoever, whether direct or indirect, or for costs (including legal fees) and expenses arising out of the publication, use of, or reliance upon, this IEC Publication or any other IEC Publications.
- 8) Attention is drawn to the Normative references cited in this publication. Use of the referenced publications is indispensable for the correct application of this publication.
- 9) Attention is drawn to the possibility that some of the elements of this IEC Publication may be the subject of patent rights. IEC shall not be held responsible for identifying any or all such patent rights.

International Standard IEC 61892-5 has been prepared by IEC technical committee 18: Electrical installations of ships and of mobile and fixed offshore units.

The requirements specified in this International Standard are based on the Code for the Construction and Equipment of Mobile Offshore Drilling Units (MODU Code) published by the International Maritime Organization (IMO), and might include additional provisions.

This fourth edition cancels and replaces the third edition published in 2014. This edition constitutes a technical revision.

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

- a) the technical requirements as to electric propulsion have been replaced with a reference to IEC 60092-501:2013;

- b) the requirement for handrails on main and emergency switchboards has been added;
- c) requirements as to control systems and indicators for watertight doors and hatch covers have been made more specific;
- d) requirements concerning the holding capacity for jacking systems have been rewritten;
- e) requirements as to thruster-assisted mooring system have been rewritten;
- f) the annex regarding enhanced system verification (HIL test) for dynamic positioned mobile units has been relocated to IEC 61892-2:2019.

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

FDIS	Report on voting
18/1653/FDIS	18/1665/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 the 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.

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 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 5: Mobile units

1 Scope

This part of IEC 61892 specifies additional characteristics for electrical installations in mobile units.

It applies to installations that depend on buoyancy, such as column-stabilized units (semi-submersible units), ship- or barge-type units as well as self-elevating units. It specifies additional characteristics for such units, used during transfer from one location to another and for drilling, production, accommodation, processing, storage and offloading purposes.

It applies to all installations, whether permanent, temporary, transportable or hand-held, to AC installations and DC installations without any limitation on voltage level. Referenced equipment standards may give voltage level limitations.

This document specifies requirements such as those concerning

- environmental conditions,
- limits of inclination for the unit where the equipment is required to operate,
- bilge pumps,
- navigation and obstruction lights,
- steering gear,
- ballast system,
- jacking systems, and
- anchoring systems.

For electric propulsion, reference is made to IEC 60092-501.

For dynamic positioning systems, reference is made to relevant IMO requirements.

This document does not apply to

- fixed equipment for medical purposes,
- electrical installations of tankers, and
- control of ignition sources other than those created by electrical equipment.

NOTE 1 For medical rooms, IEC 60364-7-710 provides specific requirements. Requirements for tankers are given in IEC 60092-502.

NOTE 2 Guidance on protection of non-electrical equipment can be found in ISO 80079-36, ISO 80079-37 and IMO 2009 MODU Code, 6.7.

NOTE 3 Attention is drawn to further requirements concerning electrical installations on such mobile offshore units contained in the IMO MODU Code.