Electrical systems
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Foreword

NORSOK is an acronym for the competitive position of the Norwegian continental shelf and comprise petroleum industry standards in Norway. The collaboration initiative in 1993 between the authorities and the petroleum industry initiated the development of NORSOK standards.

Reducing the project execution time and developing and operating cost for petroleum installations on the Norwegian shelf was the target.

The intention for the Petroleum industry is to develop and use standards providing good technical and cost effective solutions to ensure that the petroleum resources are exploited and managed in the best possible way by the industry and the authorities. The industry will actively contribute to the development and use of international standards in the global market.

The NORSOK standards shall:

• bridge the gap based on experiences from the Norwegian continental shelf where the international standards are unsatisfactorily;
• replace oil company specifications where possible;
• be available as references for the authorities’ regulations;
• be cost effective;
• promote the Norwegian sector as an attractive area for investments and activities.

Developing new NORSOK standards and regular maintenance of existing standards shall contribute to maintain the competitiveness both nationally and internationally for the Norwegian petroleum industry.

The NORSOK standards are developed by experts from the Norwegian petroleum industry and approved according to the consensus principles as laid down by the guidelines given in this NORSOK directive.

The NORSOK standards are owned by the Norwegian Oil and Gas Association, the Federation of Norwegian Industries and the Norwegian Shipowners’ Association. They are managed and published by Standards Norway.

Annex A in E-001 is normative.
Introduction

This NORSOK standard is based on equipment and practices, which are in current use, but it is not intended in any way to impede development of new or improved techniques.

This edition of E-001 gives requirements and recommendations in addition to the IEC 61892 series of standards.

The major revisions in Edition 6 of E-001 compared to Edition 5 July 2007 include:

- Updates to reflect the latest edition of PSA, i.e.: 4.1 General: new text included.
- Updates to reflect current edition of IEC 61892.
- Updated to include new experience from the industry.
- New 4.2 Living quarter.
- New 5.2.2 Essential source of power.
- New text in 5.4 AC distribution systems: “33 kV, 3-phase Main distribution voltage to be considered only if fault levels using 11 kV becomes too high”.
- New 5.6.3 Arc flash protection.
- All electrical data sheets (EDS) in Annex A (normative) have been reviewed and revised when appropriate i.e.; EDS-006 Convertors, EDS-009 Transformers ASDS, EDS-001 UPS data sheets. These are available from the NORSOK webpage.
- New EDS-013 Electric process heater has been included.
- Two figures from Edition 2007 were removed.
- Annex B from Edition 2007 was removed.

1 Scope

This NORSOK standard contains provisions for electrical installations at voltages up to and including 35 kV AC and 1 500 V DC to provide safety in the design of electrical systems, selection, and use of electrical equipment for generation, storage, distribution and utilization of electrical energy for all purposes in offshore units which are being used for the purpose of exploration or exploitation of petroleum resources.

This NORSOK standard is applicable for the voltages stated above, even if a different voltage limit may be given in some of the parts in the IEC 61892 series of standards. It is expected that the voltage levels in the IEC 61892 series of standards will be corrected as part of the maintenance cycle of this IEC standard.

2 Normative references

The following standards include provisions given in this NORSOK standard. Latest issue of the references shall be used unless otherwise defined. Other recognized standards may be used provided it can be shown that they meet the requirements of the referenced standards (should).

IEC 60034-1, Rotating electrical machines – Part 1: Rating and performance
IEC 60034-4, Rotating electrical machines – Part 4: Methods for determining synchronous machine quantities from tests
IEC 60034-8, Rotating electrical machines – Part 8: Terminal markings and direction of rotation
IEC 60034-9, Rotating electrical machines – Part 9: Noise limits
IEC 60034-14, Rotating electrical machines – Part 14: Mechanical vibration of certain machines with shaft heights 56 mm and higher – Measurement, evaluation and limits of vibration severity
IEC 60073, Basic and safety principles for man-machine interface, marking and identification – Coding principles for indicators and actuators
IEC 60076, Power transformers (all parts)