



SLOVENSKI STANDARD
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Naftna in plinska industrija, vključno z nizkoogljično energijo - Posebne zahteve za naftne ploščadi - 3. del: Strukture na palubi (ISO 19901-3:2024)

Oil and gas industries including lower carbon energy - Specific requirements for offshore structures - Part 3: Topsides structure (ISO 19901-3:2024)

Erdöl- und Erdgasindustrie - Spezielle Anforderungen an Offshore-Anlagen - Teil 3: Topsides structure (ISO 19901-3:2024)

Industries du pétrole et du gaz, y compris les énergies à faible teneur en carbone - Exigences spécifiques relatives aux structures en mer - Partie 3: Structures Top Sides (ISO 19901-3:2024)

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| | | |
|-----------|--|--|
| 75.180.10 | Oprema za raziskovanje, vrtanje in odkopavanje | Exploratory, drilling and extraction equipment |
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à faible teneur en carbone - Exigences spécifiques
relatives aux structures en mer - Partie 3: Structures
Top Sides (ISO 19901-3:2024)

Erdöl- und Erdgasindustrie - Spezielle Anforderungen
an Offshore-Anlagen - Teil 3: Topsides structure (ISO
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This European Standard was approved by CEN on 9 December 2023.

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European foreword

This document (EN ISO 19901-3:2024) has been prepared by Technical Committee ISO/TC 67 "Oil and gas industries including lower carbon energy" in collaboration with Technical Committee CEN/TC 12 "Oil and gas industries including lower carbon energy" the secretariat of which is held by NEN.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by July 2024, and conflicting national standards shall be withdrawn at the latest by July 2024.

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International Standard

ISO 19901-3

Oil and gas industries including lower carbon energy — Specific requirements for offshore structures —

Part 3: Topsides structure

Industries du pétrole et du gaz, y compris les énergies à faible teneur en carbone — Exigences spécifiques relatives aux structures en mer —

Partie 3: Structures Top Sides

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ISO copyright office
CP 401 • Ch. de Blandonnet 8
CH-1214 Vernier, Geneva
Phone: +41 22 749 01 11
Email: copyright@iso.org
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Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular, the different approval criteria needed for the different types of ISO document should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

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This document was prepared by Technical Committee ISO/TC 67, *Oil and gas industries including lower carbon energy*, Subcommittee SC 7, *Offshore structures*, in collaboration with the European Committee for Standardization (CEN) Technical Committee CEN/TC 12, *Oil and gas industries including lower carbon energy*, in accordance with the Agreement on technical cooperation between ISO and CEN (Vienna Agreement).

This third edition cancels and replaces the second edition (ISO 19901-3:2014), which has been technically revised.

The main changes are as follows:

- alignment of terminology with that of ISO 19900;
- a rational re-arrangement of the clauses content and numbering;
- adoption with modifications of IOGP supplementary requirements (S-631-04);
- ‘national or regional codes’ and ‘national or regional building codes’ have been replaced by ‘national building standards’ throughout the whole document;
- ‘supporting structure’ has been replaced by ‘substructure’ and definition of ‘substructure’ has been added to [Clause 3](#);
- ‘wave, wind and current’ has been replaced by ‘metocean’;
- ‘design assessment/situations’ has replaced ‘design situations’ according to ISO 19900;
- [5.2.1](#) has been updated distinguishing between ASD (Allowable strength design) associated to ANSI/AISC 360-22 and WSD (Working stress design) associated to AISC 335-89 and API RP 2A-WSD. Further guidance is provided for floating structures where the hull is typically designed using the WSD method. In [5.2.2](#) guidance on the application of K_c is given in case of WSD method.
- [subclause 5.7](#) on critical structures has been added;

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- in [6.5.2.4](#) the frequency range to avoid structural resonance has been changed according to NORSOK N-004:2022, F-2-9-6;
- [Table 2](#) has been updated with the introduction of ‘restricted access for inspection, maintenance and repair’ partial damage factors and reduction in case of full accessibility (with reference to ISO 19904-1, NORSOK N-004,^[32] Reference [\[30\]](#) and DNV-OS-C101^[31]). Guidance in case of dissimilar materials has been added;
- subclause [6.8.2](#) on ductility has been introduced, adapted from NORSOK N-004:2022, 7.2;
- addition of [Table A.1](#) with typical minimum values for local, primary and global design of operational actions (Q);
- subclause [7.3](#) has been re-ordered and updated;
- subclause [7.5](#) has been renamed ‘Indirect actions and resulting forces’ and updated according to the modifications and assumptions in [10.1](#) and [10.2](#);
- wind actions, [7.6.2](#) and [A.7.6.2](#), introduction of national building standards for the evaluation of the representative wind actions; alignment with ISO 19900 and ISO 19901-1 and addition of more guidance;
- alignment of minimum lateral acceleration for seismic ([7.7.2](#) and [A.7.7.2](#)) with ANSI/API RP 2TOP^[82].
- all sources of topsides accelerations collected ([7.9.9](#) and [A.7.9.9](#)) and aligned;
- technical review of the accidental events ([7.9](#) and [A.7.9](#)), with introduction of risk-informed and reliability-based approaches for fire and explosion in addition to the default semi-probabilistic approach;
- K_c correspondence factor ([8.1](#) and [A.8.1](#)) defined according to an equivalent reliability procedure for ANSI/AISC 360-22,^[12] CSA-S16:19^[14] and EN 1993-1-1^[13];
- bolted connection ([8.4.3](#) and [A.8.4.3](#)) have been modified according to IOGP supplementary specification S-631-04;
- [8.5](#) has been renamed as ‘Castings and forgings’, adding references to forgings;
- addition of [8.6](#) and [A.8.6](#) on design for structural stability in alignment with ANSI/API RP 2TOP^[82] and based on ANSI/AISC 360-22^[12] and EN 1993-1-1^[13] criteria;
- addition of [Clause 9](#) dedicated to the description of the limit state verification approaches including risk-informed and reliability-based approaches for fire and explosion ([9.2](#), [9.3](#), [A.9.2](#) and [A.9.3](#)) in addition to the default semi-probabilistic approach;
- in [10.2.1](#), an alternative method (method b) for the analysis of the topsides structures has been introduced with further guidance in [A.10.2.1](#). The associated [6.4](#), [7.5](#), [7.8](#) and [10.1](#) and [A.6.4](#), [A.7.5](#), [A.7.8](#) and [A.10.1](#) have been updated accordingly;
- helicopter landing facilities ([10.5](#)) updated according to CAP 437^[21] for emergency landing and addition of design load combinations ([Table 7](#)) adapted from NORSOK N-004:2022, Table F.5.^[32] Deletion of the previous Table A.5;
- crane support structure clauses, [10.6](#) and [A.10.6](#) have been reviewed. Crane support structure is to be designed according to API Spec 2C or EN 13852-1 and additional provisions reported. The simplified fatigue method has been aligned with ANSI/API RP 2TOP^[82];
- [Table 9](#) adapted with modifications from NORSOK N-004:2022, Table F.1^[32] and addition of some example figures for DC;
- former 12.1 to 12.3.5 have been deleted and moved to ISO 19902:2020, Clause 18.
- in [12.2](#) Welding requirements have been reviewed;
- in [12.5](#) provisions for dissimilar materials have been added, adapted from NORSOK N-004:2022, F.4.4;