



**SLOVENSKI STANDARD
SIST EN ISO 19900:2004**

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Petroleum and natural gas industries - General requirements for offshore structures (ISO 19900:2002)

Petroleum and natural gas industries - General requirements for offshore structures (ISO 19900:2002)

Erdöl- und Erdgasindustrie - Allgemeine Anforderungen an Offshore-Bauwerke (ISO 19900:2002)

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ICS:

75.180.10	Oprema za raziskovanje in odkopavanje	Exploratory and extraction equipment
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EUROPEAN STANDARD
NORME EUROPÉENNE
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EN ISO 19900

December 2002

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English version

Petroleum and natural gas industries - General requirements for offshore structures (ISO 19900:2002)

Industries du pétrole et du gaz naturel - Exigences générales pour les structures en mer (ISO 19900:2002)

This European Standard was approved by CEN on 12 November 2002.

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This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CEN member into its own language and notified to the Management Centre has the same status as the official versions.

CEN members are the national standards bodies of Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Malta, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and United Kingdom.

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EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

Management Centre: rue de Stassart, 36 B-1050 Brussels

EN ISO 19900:2002 (E)**Foreword**

This document (EN ISO 19900:2002) has been prepared by Technical Committee ISO/TC 67 "Materials, equipment and offshore structures for petroleum and natural gas industries" in collaboration with Technical Committee CEN/TC 12 "Materials, equipment and offshore structures for petroleum and natural gas industries", the secretariat of which is held by AFNOR.

This document supersedes EN ISO 13819-1:1997.

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 June 2003, and conflicting national standards shall be withdrawn at the latest by June 2003.

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Malta, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and the United Kingdom.

NOTE FROM CMC The foreword is susceptible to be amended on reception of the German language version. The confirmed or amended foreword, and when appropriate, the normative annex ZA for the references to international publications with their relevant European publications will be circulated with the German version.

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Endorsement notice

The text of ISO 19900:2002 has been approved by CEN as EN ISO 19900:2002 without any modifications.

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Petroleum and natural gas industries — General requirements for offshore structures

*Industries du pétrole et du gaz naturel — Exigences générales pour les
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Contents

Page

Foreword.....	v
Introduction	vii
1 Scope.....	1
2 Terms and definitions.....	1
3 Symbols and abbreviated terms.....	5
3.1 Symbols	5
3.2 Abbreviated terms.....	6
4 General requirements and conditions	6
4.1 Fundamental requirements.....	6
4.2 Durability, maintenance and inspection	6
4.3 Hazards	7
4.4 Design basis	7
4.5 Service requirements.....	8
4.6 Operating requirements	8
4.7 Special requirements.....	8
4.8 Location and orientation.....	8
4.9 Structural configuration.....	9
4.10 Environmental conditions.....	10
4.11 Construction.....	14
4.12 Decommissioning and removal.....	14
5 Principles of limit states design.....	14
5.1 Limit states	14
5.2 Design	16
6 Basic variables	16
6.1 General	16
6.2 Actions	16
6.3 Properties of materials and soils	19
6.4 Geometrical parameters	19
7 Analyses — calculations and testing.....	19
7.1 General	19
7.2 Calculation	20
7.3 Model testing	20
7.4 Prototype testing.....	20
7.5 Existing reference	20
8 Design format of partial factors.....	20
8.1 Principles	20
8.2 Actions and their combinations	21
8.3 Properties of materials and soils	23
8.4 Geometrical parameters	24
8.5 Uncertainties of calculation models	24
8.6 Determination of values for partial factors.....	24
9 Quality control.....	24
9.1 General	24
9.2 Responsibilities.....	25
9.3 Inspection and testing.....	25
9.4 In-service inspection, maintenance and repair.....	25
9.5 Records and documentation.....	25

ISO 19900:2002(E)

10	Assessment of existing structures.....	26
10.1	General	26
10.2	Condition assessment	26
10.3	Action assessment.....	27
10.4	Resistance assessment.....	27
10.5	Component and system failure consequences and mitigation.....	27
10.6	Fatigue.....	27
	Bibliography.....	28

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[SIST EN ISO 19900:2004](https://standards.iteh.ai/catalog/standards/sist/36915c91-cc2a-44f8-bd7f-375ec56b5bad/sist-en-iso-19900-2004)

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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.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

The main task of technical committees is to prepare International Standards. Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

ISO 19900 was prepared by Technical Committee ISO/TC 67, *Petroleum and natural gas industries*, Subcommittee SC 7, *Offshore structures*.

This first edition of ISO 19900 cancels and replaces ISO 13819-1:1995, which has been editorially revised.

ISO 19900 is one of a series of standards for offshore structures. The full series consists of the following International Standards:

ISO 19900, *Petroleum and natural gas industries* — *General requirements for offshore structures*

ISO 19901-4, *Petroleum and natural gas industries* — *Specific requirements for offshore structures* — *Part 4: Geotechnical and foundation design considerations*

ISO 19901-5, *Petroleum and natural gas industries* — *Specific requirements for offshore structures* — *Part 5: Weight control during engineering and construction*

The following International Standards are under preparation:

ISO 19901-1, *Petroleum and natural gas industries* — *Specific requirements for offshore structures* — *Part 1: Meteorological design and operating considerations*

ISO 19901-2, *Petroleum and natural gas industries* — *Specific requirements for offshore structures* — *Part 2: Seismic design procedures and criteria*

ISO 19901-3, *Petroleum and natural gas industries* — *Specific requirements for offshore structures* — *Part 3: Topsides structure*

ISO 19901-6, *Petroleum and natural gas industries* — *Specific requirements for offshore structures* — *Part 6: Marine operations*

ISO 19902, *Petroleum and natural gas industries* — *Fixed steel offshore structures*

ISO/TS 19903, *Petroleum and natural gas industries* — *Fixed concrete offshore structures*

ISO 19904, *Petroleum and natural gas industries* — *Floating offshore structures including stationkeeping*

ISO 19905-1, *Petroleum and natural gas industries* — *Site-specific assessment of mobile offshore units* — *Part 1: Jack-ups*

ISO 19900:2002(E)

ISO/TR 19905-2, *Petroleum and natural gas industries — Site-specific assessment of mobile offshore units — Part 2: Jack-ups commentary*

ISO 19906, *Petroleum and natural gas industries — Arctic offshore structures*

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Introduction

The offshore structures International Standards ISO 19900 to ISO 19906 constitute a common basis covering those aspects that address design requirements and assessments of all structures used by the petroleum and natural gas industries worldwide. Through their application the intention is to achieve reliability levels appropriate for manned and unmanned offshore structures, whatever the nature or combination of the materials used.

It is important to recognize that structural integrity is an overall concept comprising models for describing actions, structural analyses, design rules, safety elements, workmanship, quality control procedures and national requirements, all of which are mutually dependent. The modification of one aspect of design in isolation can disturb the balance of reliability inherent in the overall concept or structural system. The implications involved in modifications, therefore, need to be considered in relation to the overall reliability of all offshore structural systems.

The offshore structures International Standards are intended to provide a wide latitude in the choice of structural configurations, materials and techniques without hindering innovation. Sound engineering judgement is therefore necessary in the use of these International Standards.

ISO 19900 applies to offshore structures and is in accordance with the principles of ISO 2394 (see Reference [1] in the Bibliography). It includes, where appropriate, additional provisions that are specific to offshore structures.

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Petroleum and natural gas industries — General requirements for offshore structures

1 Scope

This International Standard specifies general principles for the design and assessment of structures subjected to known or foreseeable types of actions. These general principles are applicable worldwide to all types of offshore structures including bottom-founded structures as well as floating structures and to all types of materials used including steel, concrete and aluminium.

This International Standard specifies design principles that are applicable to the successive stages in construction (namely fabrication, transportation and installation), to the use of the structure during its intended life and to its decommissioning. Generally, the principles are also applicable to the assessment or modification of existing structures. Aspects related to quality control are also addressed.

This International Standard is applicable to the design of complete structures including substructures, topsides structures, vessel hulls, foundations and mooring systems.

2 Terms and definitions

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

2.1

action

external load applied to the structure (direct action) or an imposed deformation or acceleration (indirect action)

EXAMPLE An imposed deformation can be caused by fabrication tolerances, settlement, temperature change or moisture variation.

NOTE An earthquake typically generates imposed accelerations.

2.2

action effect

effect of actions on structural components

EXAMPLE Internal force, moment, stress or strain.

2.3

air gap

clearance between the highest water surface that occurs during the extreme environmental conditions and the lowest exposed part not designed to withstand wave impingement

2.4

appurtenance

part of the structure that is installed to assist installation, to provide access or protection, or for transfer of fluids