SLOVENSKI STANDARD
SIST EN ISO 13624-1:2010

01-januar-2010

Industrija za predelavo nafte in zemeljskega plina - Vrtalna in proizvodna oprema - 1. del: Naļrtovanje in delovanje dvigne opreme za vrtine na morju (ISO 13624-1:2009)

Petroleum and natural gas industries - Drilling and production equipment - Part 1: Design and operation of marine drilling riser equipment (ISO 13624-1:2009)

Erdöl- und Erdgasindustrien - Bohr- und Förderanlagen - Auslegung und Betrieb von Bohrförderanlagen auf See (ISO 13624-1:2009)

Industries du pétrole et du gaz naturel - Équipement de forage et de production - Partie 1: Conception et exploitation des tubes prolongateurs pour les forages en mer (ISO 13624-1:2009)

Ta slovenski standard je istoveten z: **EN ISO 13624-1:2009**

ICS:

75.180.10	Oprema za raziskovanje in odkopavanje	Exploratory and extraction equipment

SIST EN ISO 13624-1:2010 **en,fr**

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN ISO 13624-1

November 2009

ICS 75.180.10

English Version

Petroleum and natural gas industries - Drilling and production equipment - Part 1: Design and operation of marine drilling riser equipment (ISO 13624-1:2009)

Industries du pétrole et du gaz naturel - Équipement de forage et de production - Partie 1: Conception et exploitation des tubes prolongateurs pour les forages en mer (ISO 13624-1:2009)

Erdöl- und Erdgasindustrien - Bohr- und Förderanlagen - Auslegung und Betrieb von Bohrförderanlagen auf See (ISO 13624-1:2009)

This European Standard was approved by CEN on 29 September 2009.

CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration. Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the CEN Management Centre or to any CEN member.

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 CEN Management Centre has the same status as the official versions.

CEN members are the national standards bodies of Austria, Belgium, Bulgaria, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland and United Kingdom.

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

Management Centre: Avenue Marnix 17, B-1000 Brussels

Contents

Page

Foreword

This document (EN ISO 13624-1:2009) has been prepared by Technical Committee ISO/TC 67 "Materials, equipment and offshore structures for petroleum, petrochemical and natural gas industries" in collaboration with Technical Committee CEN/TC 12 “Materials, equipment and offshore structures for petroleum, petrochemical and natural gas industries” the secretariat of which is held by AFNOR.

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 May 2010, and conflicting national standards shall be withdrawn at the latest by May 2010.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN [and/or CENELEC] shall not be held responsible for identifying any or all such patent rights.

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

Endorsement notice

The text of ISO 13624-1:2009 has been approved by CEN as a EN ISO 13624-1:2009 without any modification.

INTERNATIONAL STANDARD

ISO 13624-1

First edition
2009-11-15

Petroleum and natural gas industries — Drilling and production equipment —

Part 1: Design and operation of marine drilling riser equipment

Industries du pétrole et du gaz naturel — Équipement de forage et de production —

Partie 1: Conception et exploitation des tubes prolongateurs pour les forages en mer

Reference number
ISO 13624-1:2009(E)

PDF disclaimer

This PDF file may contain embedded typefaces. In accordance with Adobe's licensing policy, this file may be printed or viewed but shall not be edited unless the typefaces which are embedded are licensed to and installed on the computer performing the editing. In downloading this file, parties accept therein the responsibility of not infringing Adobe's licensing policy. The ISO Central Secretariat accepts no liability in this area.

Adobe is a trademark of Adobe Systems Incorporated.

Details of the software products used to create this PDF file can be found in the General Info relative to the file; the PDF-creation parameters were optimized for printing. Every care has been taken to ensure that the file is suitable for use by ISO member bodies. In the unlikely event that a problem relating to it is found, please inform the Central Secretariat at the address given below.

COPYRIGHT PROTECTED DOCUMENT

ISO copyright office
Case postale 56 • CH-1211 Geneva 20
Tel. + 41 22 749 01 11
Fax + 41 22 749 09 47
E-mail copyright@iso.org
Web www.iso.org

Published in Switzerland

Contents

Page

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.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights.

ISO 13624-1 was prepared by Technical Committee ISO/TC 67, *Materials, equipment and offshore structures for petroleum, petrochemical and natural gas industries*, Subcommittee SC 4, *Drilling and production equipment*.

ISO 13624 consists of the following parts, under the general title *Petroleum and natural gas industries — Drilling and production equipment*:

— *Part 1: Design and operation of marine drilling riser equipment*

— *Part 2: Deepwater drilling riser methodologies, operations, and integrity technical report* (Technical Report)

Introduction

Since the first edition of API RP 16Q was first issued in November, 1993, hydrocarbon exploration in deep-water environments has increased significantly. As a consequence of this, the need has been identified to update that code of practice to address the issues of deep-water drilling risers in sufficient detail to supplement API RP 16Q for drilling in water depths up to 3 048 m (10 000 ft).

Under the auspices of the DeepStar programme, substantial work was commissioned during 1999 and 2000 by the DeepStar Drilling Committee 4502 and lead to the development by several contractors of *Deep-water Drilling Riser Methodologies, Operations, and Integrity Guidelines* in February 2001. These guidelines were intended to supplement the existing text of API RP 16Q (1993). In a subsequent Joint Industry Project funded by DeepStar 5500 and in collaboration with API, these guidelines were supplemented with other identified revisions to produce a draft update second edition of API RP 16Q and an associated API Technical Report 16TR1, designed to be read in conjunction with the revised API RP 16Q and to supplement its contents, by providing additional guidance on recommended riser analysis methodologies through detailed explanations, step-by-step procedures and worked examples.

API publications can be used by anyone desiring to do so. Every effort has been made to assure the accuracy and reliability of the data contained in them. It is the responsibility of the users of this part of ISO 13624 to ensure that its use does not result in any loss or damage or in the violation of any federal, state, or municipal regulation.

Annex A through Annex E are informative.

Petroleum and natural gas industries — Drilling and production equipment —

Part 1: Design and operation of marine drilling riser equipment

1 Scope

This part of ISO 13624 pertains to the design, selection, operation and maintenance of marine riser systems for floating drilling operations. Its purpose is to serve as a reference for designers, for those who select system components, and for those who use and maintain this equipment. It relies on basic engineering principles and the accumulated experience of offshore operators, contractors, and manufacturers.

NOTE Technology is advancing in this field and improved methods and equipment are continually evolving. Each owner and operator is encouraged to observe the recommendations outlined herein and to supplement them with other proven technology that can result in more cost effective, safer, and/or more reliable performance.

The marine drilling riser is best viewed as a system. It is necessary that designers, contractors, and operators realize that the individual components are recommended and selected in a manner suited to the overall performance of that system. For the purposes of this part of ISO 13624, a marine drilling riser system includes the tensioner system and all equipment between the top connection of the upper flex/ball joint and the bottom of wellhead conductor outer casing. It specifically excludes the diverter. Also, the applicability of this part of ISO 13624 is limited to operations with a subsea BOP stack deployed at the seafloor.

Clauses 1 through 7 of this part of ISO 13624 are directly applicable to most floating drilling operations. Special situations are addressed in 8.1 and 8.4 dealing with deep-water drilling and collapse. The special considerations required for guidelineless drilling are addressed in 8.2. In addition, 8.3 and 8.5 address operations in cold-weather conditions and H_2S considerations.

It is important that all riser primary-load-path components addressed in this part of ISO 13624 be consistent with the load classifications specified in ISO 13625.

2 Normative references

The following referenced documents are indispensable for the application 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.

ISO 13625, *Petroleum and natural gas industries — Drilling and production equipment — Marine drilling riser couplings*

BS 7910, *Guide to methods for assessing the acceptability of flaws in metallic structures*

3 Terms, definitions, and abbreviations

3.1 Terms and definitions

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

3.1.1
accumulator
⟨BOP⟩ pressure vessel charged with gas (nitrogen) over liquid and used to store hydraulic fluid under pressure for operation of blowout preventers

3.1.2
accumulator
⟨riser tensioner⟩ pressure vessel charged with gas (generally nitrogen) over liquid that is pressurized on the gas side from the tensioner high-pressure gas supply bottles and supplies high-pressure hydraulic fluid to energize the riser tensioner cylinder

3.1.3
actuator
mechanism for the remote or automatic operation of a valve or choke

3.1.4
air-can buoyancy
tension applied to the riser string by the net buoyancy of an air chamber created by a closed top, open-bottom cylinder forming an air-filled annulus around the outside of the riser pipe

3.1.5
annulus
space between two pipes when one pipe is inside the other

3.1.6
apparent weight
effective weight
submerged weight
weight minus buoyancy

NOTE Apparent weight is commonly referred to as weight in water, wet weight, submerged weight, or effective weight.

3.1.7
auxiliary line
conduit (excluding choke-and-kill lines) attached to the outside of the riser main tube

EXAMPLE Hydraulic supply line, buoyancy-control line, mud-boost line.

3.1.8
back pressure
pressure resulting from restriction of fluid flow downstream

3.1.9
ball joint
ball-and-socket assembly that has a central through-passage equal to or greater than the riser internal diameter and that may be positioned in the riser string to reduce local bending stresses

3.1.10
blowout
uncontrolled flow of well fluids from the wellbore

3.1.11
blowout preventer
BOP
device attached immediately above the casing, which can be closed to shut in the well

3.1.12
blowout preventer
⟨annular type⟩ remotely controlled device which can form a seal in the annular space around any object in the wellbore or upon itself

NOTE Compression of a reinforced elastomer packing element by hydraulic pressure effects the seal.

3.1.13
BOP stack
assembly of well-control equipment, including BOPs, spools, valves, hydraulic connectors and nipples, that connects to the subsea wellhead

NOTE Common usage of this term sometimes includes the lower marine riser package (LMRP).

3.1.14
bottom-hole assembly
BHA
assembly composed of the bit, stabilizers, reamers, drill collars, various types of subs, etc., that is connected to the bottom of a string of drillpipe

3.1.15
box
female member of a riser coupling, C&K line stab assembly or auxiliary line stab assembly

3.1.16
breech-block coupling
coupling that is engaged by rotation of one member into an interlock with another member by an angle of rotation of 90 ° or less

3.1.17
buoyancy-control line
auxiliary line dedicated to controlling, charging or discharging air-can buoyancy chambers

3.1.18
buoyancy equipment
devices added to riser joints to reduce their apparent weight, thereby reducing riser top tension requirements

NOTE The devices normally used for risers take the form of syntactic foam modules or open-bottom air chambers.

3.1.19
choke-and-kill line
C&K line
kill line
external conduit arranged laterally along the riser pipe and used for circulation of fluids into and out of the wellbore to control well pressure

3.1.20
control pod
assembly of subsea valves and regulators that, when activated from the surface, directs hydraulic fluid through special porting to operate BOP equipment

3.1.21
coupling
mechanical means for joining two sections of riser pipe in an end-to-end engagement