



SLOVENSKI STANDARD SIST EN ISO 15546:2011

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Nadomešča:
SIST EN ISO 15546:2007

Industrija za predelavo nafte in zemeljskega plina - Vrtalne cevi iz aluminijevih zlitin (ISO 15546:2011)

Petroleum and natural gas industries - Aluminium alloy drill pipe (ISO 15546:2011)

Erdöl- und Erdgasindustrie - Bohrröhre aus Aluminiumlegierungen (ISO 15546:2011)

Industries du pétrole et du gaz naturel - Tige de forage en alliage d'aluminium (ISO 15546:2011)

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77.150.10	Aluminijski izdelki	Aluminium products

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EUROPEAN STANDARD

EN ISO 15546

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Petroleum and natural gas industries - Aluminium alloy drill pipe (ISO 15546:2011)

Industries du pétrole et du gaz naturel - Tige de forage en
alliage d'aluminium (ISO 15546:2011)

Erdöl- und Erdgasindustrie - Bohrröhre aus
Aluminiumlegierungen (ISO 15546:2011)

This European Standard was approved by CEN on 14 September 2011.

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-CENELEC 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-CENELEC Management Centre has the same status as the official versions.

CEN members are the national standards bodies of Austria, Belgium, Bulgaria, Croatia, 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.

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Foreword

This document (EN ISO 15546:2011) 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 March 2012, and conflicting national standards shall be withdrawn at the latest by March 2012.

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.

This document supersedes EN ISO 15546:2007.

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, Croatia, 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.

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INTERNATIONAL STANDARD

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15546

Third edition
2011-09-15

Petroleum and natural gas industries — Aluminium alloy drill pipe

*Industries du pétrole et du gaz naturel — Tige de forage en alliage
d'aluminium*

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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.

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 15546 was prepared by Technical Committee ISO/TC 67, *Materials, equipment and offshore structures for petroleum, petrochemical and natural gas industries*.

This third edition cancels and replaces the second edition (ISO 15546:2007), which has been technically revised.

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Introduction

Users of this International Standard need to be aware that further or differing requirements could be needed for individual applications. This International Standard is not intended to inhibit a manufacturer from offering, or the purchaser from accepting, alternative equipment or engineering solutions for the individual application, this being particularly applicable where there is innovative or developing technology. Where an alternative is offered, the manufacturer will need to identify any variations from this International Standard and provide details.

This International Standard includes requirements of various nature. These are identified by the use of certain verbal forms:

- “shall” is used to indicate that a provision is mandatory;
- “should” is used to indicate that a provision is not mandatory, but recommended as good practice;
- “may” is used to indicate that a provision is optional.

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Petroleum and natural gas industries — Aluminium alloy drill pipe

1 Scope

This International Standard specifies the technical delivery conditions, manufacturing process, material requirements, configuration and dimensions, and verification and inspection procedures for aluminium alloy drill pipes with or without attached steel tool joints, for use in drilling and production operations in the petroleum and natural gas industries.

A typical drill pipe configuration is provided, showing main elements and lengths (see Figures 1 to 4). The main dimensions and masses of the grades of drill pipe are given in both SI units and USC units (see Annex A).

This International Standard does not consider performance properties.

NOTE 1 Reference can be made to ISO 10424-2 and ISO 27627 for the detailed requirements for the threading of drill pipe tool joints.

NOTE 2 Reference can be made to ISO 20312 for the performance properties of the drill pipe.

NOTE 3 Reference can be made to ISO 27627 for the “pipe body tool joint” thread connection gauging.

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2 Conformance

In this International Standard, data are expressed in both the International System (SI) of units and the United States Customary (USC) system of units.

Tables for data expressed in SI units are given in the body of this International Standard, whilst those expressed in USC units are given in Annex A. All figures in the body of this International Standard express data in both SI and USC units (the latter given in brackets), with the exception of Figure 11, which is reproduced as Figure A.1 using USC units. In the text, data in SI units are followed by data in USC units in brackets.

For a specific order item, it is intended that only one system of units be used, without combining data expressed in the other system.

Products manufactured to specifications expressed in either of these unit systems shall be considered equivalent and totally interchangeable. Consequently, compliance with the requirements of this International Standard as expressed in one system provides compliance with requirements expressed in the other system.

For data expressed in the SI system, a comma is used as the decimal separator and a space as the thousands separator. For data expressed in the USC system, a dot (on the line) is used as the decimal separator and a space as the thousands separator.

NOTE The procedures used to convert from SI units to USC units are given in Annex E.

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3 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 6892 (all parts), *Metallic materials — Tensile testing*

ISO 6506 (all parts), *Metallic materials — Brinell hardness test*

ISO 10893-10, *Non-destructive testing of steel tubes — Part 10: Automated full peripheral ultrasonic testing of seamless and welded (except submerged arc-welded) steel tubes for the detection of longitudinal and/or transverse imperfections*

ISO 10424-2, *Petroleum and natural gas industries — Rotary drilling equipment — Part 2: Threading and gauging of rotary shouldered thread connections*

ISO 11130, *Corrosion of metals and alloys — Alternate immersion test in salt solution*

ISO 11960:—¹⁾, *Petroleum and natural gas industries — Steel pipes for use as casing or tubing for wells*

ISO 11961, *Petroleum and natural gas industries — Steel drill pipe*

ASTM B594-09, *Standard Practice for Ultrasonic Inspection of Aluminum-Alloy Wrought Products for Aerospace Applications*

ASTM G1, *Standard Practice for Preparing, Cleaning, and Evaluating Corrosion Test Specimens*

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4 Terms, definitions and symbols [SIST EN ISO 15546:2011](#)

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4.1 Terms and definitions

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

4.1.1

aluminium alloy drill pipe

aluminium alloy drill pipe body with threaded steel tool joints

4.1.2

aluminium alloy drill pipe body

aluminium alloy pipe formed by extrusion, including any upsets and protector thickening

4.1.3

box

tool joint part that has internal tool joint thread

4.1.4

corrosion

adverse chemical alteration or destruction of a metal by air, moisture or chemicals

4.1.5

defect

imperfection of sufficient magnitude to warrant rejection of the product based on the criteria of this International Standard

1) To be published. (Revision of ISO 11960:2004.)

4.1.6**gauge plane**

imaginary plane, perpendicular to the thread axis of rotary shouldered connections, at which the pitch diameter at gauge point is measured

4.1.7**heat**

metal melted with one continuous operation of one metal batch

4.1.8**imperfection**

discontinuity in the product wall or on the product surface that can be detected by visual inspection or a non-destructive evaluation (NDE) method, as given in ISO 11960:—, Table C.42 or Table E.42

4.1.9**linear imperfection**

imperfection which includes, but is not limited to, seams, laps, cracks, plug scores, cuts and gouges

NOTE See API STD 5T1 for terminology on imperfections.

4.1.10**lot**

definite quantity of product manufactured under conditions that are considered uniform for the attribute being inspected

4.1.11**manufacturer**

firm, company or corporation responsible for marking the product

NOTE Marking by the manufacturer warrants that the product conforms to this International Standard, and it is the manufacturer who is responsible for compliance with all of its applicable provisions.

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4.1.12**pin**

tool joint part that has external tool joint thread

4.1.13**pipe mill**

firm, company or corporation that operates pipe-making facilities

4.1.14**plain pipe**

part of aluminium alloy pipe body excluding upsets and protector thickening

4.1.15**room temperature**

temperature between 5 °C and 50 °C

NOTE Between 41 °F and 122 °F.

4.1.16**seal gauge plane**

imaginary plane, perpendicular to the thread axis of rotary shouldered connections, at which the seal estimated diameter is measured

4.1.17**tool joint**

steel tool joint element for aluminium alloy drill pipes consisting of two parts (pin and box)