SLOVENSKI STANDARD
SIST EN ISO 3506-1:2001

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Mehanske lastnosti veznih elementov iz nerjavnega jekla - 1. del: Vijaki, zatiļ i in stebelni vijaki (ISO 3506-1:1997)

Mechanical properties of corrosion-resistant stainless-steel fasteners - Part 1: Bolts, screws and studs (ISO 3506-1:1997)

Mechanische Eigenschaften von Verbindungselementen aus nichtrostenden Stählen - Teil 1: Schrauben (ISO 3506-1:1997)

Caractéristiques mécaniques des éléments de fixation en acier inoxydable résistant a la corrosion - Partie 1: Vis et goujons (ISO 3506-1:1997)

Ta slovenski standard je istoveten z: **EN ISO 3506-1:1997**

ICS:

21.060.10 Sorniki, vijaki, stebelni vijaki Bolts, screws, studs

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Mechanical properties of corrosion-resistant stainless-steel fasteners - Part 1: Bolts, screws and studs (ISO 3506-1:1997)

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This European Standard was approved by CEN on 23 October 1997.

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 Central Secretariat 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 Central Secretariat has the same status as the official versions.

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

Central Secretariat: rue de Stassart, 36 B-1050 Brussels

Foreword

The text of the International Standard ISO 3506-1:1997 has been prepared by Technical Committee ISO/TC 2 "Fasteners" in collaboration with Technical Committee CEN/TC 185 "Threaded and non-threaded mechanical fasteners and accessories", the secretariat of which is held by DIN.

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of an identical text or by endorsement, at the latest by June 1998, and conflicting national standards shall be withdrawn at the latest by June 1998.

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, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and the United Kingdom.

Endorsement notice

The text of the International Standard ISO 3506-1:1997 was approved by CEN as a European Standard without any modification.

NOTE: Normative references to International Standards are listed in annex ZA (normative).

Annex ZA (normative)
Normative references to international publications with their relevant European publications

This European Standard incorporates by dated or undated reference, provisions from other publications. These normative references cited at the appropriate places in the text and the publications are listed hereafter. For dated references, subsequent amendments to or revisions of any of these publications apply to this European Standard only when incorporated in it by amendment or revision. For undated references the latest edition of the publication referred to applies.

Publication	Year	Title	EN	Year
ISO 898-1	1988	Mechanical properties of fasteners - Part 1: Bolts, screws and studs	EN 20898-1	1991
ISO 6507-1	1997	Metallic materials - Vickers hardness test - Part 1: Test method	EN ISO 6507-1	1997

INTERNATIONAL STANDARD

ISO 3506-1

First edition
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Mechanical properties of corrosion-resistant stainless-steel fasteners —

Part 1:
Bolts, screws and studs

Caractéristiques mécaniques des éléments de fixation en acier inoxydable résistant à la corrosion —

Partie 1: Vis et goujons

Reference number
ISO 3506-1:1997(E)

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.

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.

International Standard ISO 3506-1 was prepared by Technical Committee ISO/TC 2, *Fasteners*, Sub-Committee SC 1, *Mechanical properties of fasteners*.

This first edition, together with ISO 3506-2 and ISO 3506-3, cancels and replaces ISO 3506:1979, which has been technically revised.

ISO 3506 consists of the following parts, under the general title *Mechanical properties of corrosion-resistant stainless-steel fasteners*.

— *Part 1: Bolts, screws and studs*

— *Part 2: Nuts*

— *Part 3: Set screws and similar fasteners not under tensile stress*

Annex A forms an integral part of this part of ISO 3506. Annexes B to I are for information only.

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Introduction

In the preparation of this part of ISO 3506 special attention has been given to the fundamentally different property characteristics of the stainless steel fastener grades compared with those of carbon steel and low-alloy steel fasteners. Ferritic and austenitic stainless steels are strengthened only by cold working and consequently the components do not have as homogeneous a condition as hardened and tempered parts. These special features have been recognized in the elaboration of the property classes and the test procedures for mechanical properties. The latter differ from the carbon steel and low-alloy steel fastener test procedures with regard to the measurement of the stress at 0,2 % permanent strain (yield stress) and ductility (total extension after fracture).

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Mechanical properties of corrosion-resistant stainless-steel fasteners —

Part 1:
Bolts, screws and studs

1 Scope

This part of ISO 3506 specifies the mechanical properties of bolts, screws and studs made of austenitic, martensitic and ferritic grades of corrosion-resistant stainless steels when tested over an ambient temperature range of 15 °C to 25 °C. Properties will vary at higher or lower temperatures.

It applies to bolts, screws and studs

— with nominal thread diameter (d) up to and including 39 mm;

— of triangular ISO metric threads with diameters and pitches in accordance with ISO 68-1, ISO 261 and ISO 262;

— of any shape.

It does not apply to screws with special properties such as weldability.

This part of ISO 3506 does not define corrosion or oxidation resistance in particular environments, however some information on materials for particular environments is given in annex E. Regarding definitions of corrosion and corrosion resistance see ISO 8044.

The aim of this part of ISO 3506 is a classification into property classes of corrosion resistant stainless steel fasteners. Some materials can be used at temperatures down to – 200 °C, some can be used at temperatures up to + 800 °C in air. Information on the influence of temperature on mechanical properties is found in annex F.

Corrosion and oxidation performances and mechanical properties for use at elevated or sub-zero temperatures must be the subject of agreement between user and manufacturer in each particular case. Annex G shows how the risk of intergranular corrosion at elevated temperatures depends on the carbon content.

All austenitic stainless steel fasteners are normally non-magnetic in the annealed condition; after cold working, some magnetic properties may be evident (see annex H).

2 Normative references

The following standards contain provisions which, through reference in this text, constitute provisions of this part of ISO 3506. At the time of publication, the editions indicated were valid. All standards are subject to revision, and parties to agreements based on this part of ISO 3506 are encouraged to investigate the possibility of applying the most recent editions of the normative documents indicated below. Members of IEC and ISO maintain registers of currently valid International Standards.

ISO 68-1:—[1], *ISO general purpose screw threads – Basic profile – Part 1: Metric screw threads.*

ISO 261:—[2], *ISO general purpose metric screw threads – General plan.*

1) To be published. (Revision of ISO 68:1973)

2) To be published. (Revision of ISO 261:1973)

ISO 262:—[3], *ISO general purpose metric screw threads – Selected sizes for screws, bolts and nuts.*

ISO 724:1993, *ISO general purpose metric screw threads – Basic dimensions.*

ISO 898-1:—[4], *Mechanical properties of fasteners made of carbon steel and alloy steel – Part 1: Bolts, screws and studs.*

ISO 3651-1:—[5], *Determination of resistance to intergranular corrosion stainless steels – Part 1: Austenitic and ferritic-austenitic (duplex) stainless steels – Corrosion test in nitric acid medium by measurement of loss in mass (Huey test).*

ISO 3651-2:—[6], *Determination of resistance to intergranular corrosion stainless steels – Part 2: Ferrictic, austenitic and ferritic-austenitic (duplex) stainless steels – Corrosion test in media containing sulfuric acid.*

ISO 6506:1981, *Metallic materials – Hardness test – Brinell test.*

ISO 6507-1:1997, *Metallic materials – Hardness test – Vickers test – Part 1: Test method.*

ISO 6508:1986, *Metallic materials – Hardness test – Rockwell test (scales A – B – C – D – E – F– G – H – K).*

ISO 6892:—[7], *Metallic materials – Tensile testing at ambient temperature.*

ISO 8044:—[8], *Corrosion of metals and alloys – Basic terms and definitions.*

3 Designation, marking and finish

3.1 Designation

The designation system for stainless steel grades and property classes for bolts, screws and studs is shown in figure 1. The designation of the material consists of two blocks which are separated by a hyphen. The first block designates the steel grade, the second block the property class.

The designation of the steel grade (first block) consists of the letters

A for austenitic steel or

C for martensitic steel or

F for ferritic steel

which indicate the group of steel and a digit which indicates a range of chemical compositions within this steel group.

The designation of the property class (second block) consists of 2 digits which indicates 1/10 of the tensile strength of the fastener.

Examples:

1) **A2-70** indicates:

   austenitic steel, cold worked, minimum 700 N/mm^2 (700 MPa) tensile strength.

2) **C4-70** indicates:

   martensitic steel, hardened and tempered, minimum 700 N/mm^2 (700 MPa) tensile strength.

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3) To be published. (Revision of ISO 262:1973)

4) To be published. (Revision of ISO 898-1:1988)

5) To be published. (Revision of ISO 3651-1:1976)

6) To be published. (Revision of ISO 3651-2:1976)

7) To be published. (Revision of ISO 6892:1984)

8) To be published. (Revision of ISO 8044:1988)