

**Kinnitusdetailide mehaanilised
omadused. Osa 2: Etteantud
proovikoormusnäitajatega mutrid.
Jämekeere**

Mechanical properties of fasteners - Part 2: Nuts
with specified proof load values - Coarse thread

EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

<p>Käesolev Eesti standard EVS-EN 20898-2:1999 sisaldab Euroopa standardi EN 20898-2:1993 ingliskeelset teksti.</p> <p>Käesolev dokument on jõustatud 23.11.1999 ja selle kohta on avaldatud teade Eesti standardiorganisatsiooni ametlikus väljaandes.</p> <p>Standard on kättesaadav Eesti standardiorganisatsioonist.</p>	<p>This Estonian standard EVS-EN 20898-2:1999 consists of the English text of the European standard EN 20898-2:1993.</p> <p>This document is endorsed on 23.11.1999 with the notification being published in the official publication of the Estonian national standardisation organisation.</p> <p>The standard is available from Estonian standardisation organisation.</p>
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<p>Käsitlusala: See rahvusvaheline standard määrab kindlaks etteantud proovikoormusnäitajatega mutrite mehaanilised omadused katsetatuna toatemperatuuril (vt ISO 1). Omadused võivad erineda kõrgemal ja madalamal temperatuuril.</p>	<p>Scope:</p>
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ICS 21.060.20

Võtmesõnad: jämekeermed, katsed, kinnitusdetailid, mehaanilised omadused, mutrid, märgistamine, tehnilised andmed, tähistus

UDC 621.882.3

Supersedes EN 20898-2:1991.

Descriptors: Fasteners, nuts, coarse thread, specifications, mechanical properties, tests, designation, marking.

English version

Mechanical properties of fasteners

Part 2: Nuts with specified proof load values

Coarse thread

(ISO 898-2:1992)

Caractéristiques mécaniques des éléments de fixation. Partie 2: Ecrous avec charges d'épreuve spécifiées, filetages à pas gros (ISO 898-2:1992)

Mechanische Eigenschaften von Verbindungselementen. Teil 2: Muttern mit festgelegten Prüfkraften; Regelgewinde (ISO 898-2:1992)

This European Standard was approved by CEN on 1993-12-16 and is identical to the ISO Standard as referred to.

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.

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

CEN

European Committee for Standardization
Comité Européen de Normalisation
Europäisches Komitee für Normung

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

Foreword

In 1993, CEN/TC 185 'Threaded and unthreaded fasteners and accessories', the Secretariat of which is held by DIN, decided to submit ISO 898-2 to the Unique Acceptance Procedure. The result was positive.

This European Standard supersedes EN 20898-2:1992.

NOTE: The International Standard ISO 6157-2 'Surface discontinuities of nuts' (see subclause 8.3) is not yet available; in the interim, reference shall be made to EN 493 'Fasteners; surface discontinuities; nuts'.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, and conflicting national standards withdrawn, by June 1994 at the latest.

In accordance with the CEN/CENELEC Internal Regulations, the following countries are bound to implement this European Standard:

Austria, Belgium, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and United Kingdom.

Endorsement notice

The text of the International Standard ISO 898-2:1992 was approved as a European Standard without any modification.

NOTE: Normative references to international publications are listed in annex ZA (normative).

1 Scope

This International Standard specifies the mechanical properties of nuts with specified proof load values when tested at room temperature (see ISO 1). Properties will vary at higher and lower temperature.

It applies to nuts

- with nominal thread diameters up to and including 39 mm;
- of triangular ISO thread and with diameters and pitches according to ISO 68 and ISO 262 (coarse thread);
- with diameter/pitch combinations according to ISO 261 (coarse thread);
- with thread tolerances 6H according to ISO 965-1 and ISO 965-2;
- with specific mechanical requirements;
- with widths across flats as specified in ISO 272 or equivalent;
- with nominal heights greater than or equal to $0,5D^*)$;
- made of carbon steel or low alloy steel.

It does not apply to nuts requiring special properties such as

- locking abilities (see ISO 2320);
- weldability;

— corrosion resistance (see ISO 3506);

— ability to withstand temperatures above + 300 °C or below – 50 °C.

NOTES

1 Nuts made from free-cutting steel should not be used above + 250 °C.

2 For special products such as nuts for high-strength structural bolting, and overtapped nuts for use with hot-dipped galvanized bolts, see the product standards for appropriate values

3 For assemblies with threads having tolerances wider than 6H/6g, there is an increased risk of stripping; see also table 1.

4 In the case of thread tolerances other or larger than 6H, a decrease of the stripping strength should be considered (see table 1).

Table 1 — Reduction in thread strength

Thread		Test load, %		
greater than	less than or equal to	Thread tolerances		
		6H	7H	6G
—	M2,5	100	—	95,5
M2,5	M7	100	95,5	97
M7	M16	100	96	97,5
M16	M39	100	98	98,5

*) D is the nominal diameter of the internal thread in accordance with ISO 724.

2 Normative references

The following standards contain provisions which, through reference in this text, constitute provisions of this part of ISO 898. 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 898 are encouraged to investigate the possibility of applying the most recent editions of the standards indicated below. Members of IEC and ISO maintain registers of currently valid International Standards.

ISO 1:1975, *Standard reference temperature for industrial length measurements*.

ISO 68:1973, *ISO general purpose screw threads — Basic profile*.

ISO 261:1973, *ISO general purpose metric screw threads — General plan*.

ISO 262:1973, *ISO general purpose metric screw threads — Selected sizes for screws, bolts and nuts*.

ISO 272:1982, *Fasteners — Hexagon products — Widths across flats*.

ISO 286-2:1988, *ISO system of limits and fits — Part 2: Tables of standard tolerance grades and limit deviations for holes and shafts*.

ISO 724:1978, *ISO metric screw threads — Basic dimensions*.

ISO 965-1:1980, *ISO general purpose metric screw threads — Tolerances — Part 1: Principles and basic data*.

ISO 965-2:1980, *ISO general purpose metric screw threads — Tolerances — Part 2: Limits of sizes for general purpose bolt and nut threads — Medium quality*.

ISO 4964:1984, *Steel — Hardness conversions*.

ISO 6157-2:—¹⁾, *Fasteners — Surface discontinuities — Part 2: Nuts with threads M5 to M39*.

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

ISO 6507-1:1982, *Metallic materials — Hardness test — Vickers test — Part 1: HV 5 to HV 100*.

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

3 Designation system

3.1 Nuts with nominal heights $\geq 0,8D$ (effective lengths of thread $\geq 0,6D$)

Nuts with nominal heights $\geq 0,8D$ (effective lengths of thread $\geq 0,6D$) are designated by a number to indicate the maximum appropriate property class of bolts with which they may be mated.

Failure of threaded fasteners due to over-tightening can occur by bolt shank fracture or by stripping of the threads of the nut and/or bolt. Shank fracture is sudden and therefore easily noticed. Stripping is gradual and therefore difficult to detect and this introduces the danger of partly failed fasteners being left in assemblies.

It would therefore be desirable to design threaded connections so that their mode of failure would always be by shank fracture but, unfortunately, because of the many variables which govern stripping strength (nut and bolt material strengths, thread clearances, across-flats dimensions, etc.), nuts would have to be objectionably thick to guarantee this mode in all cases.

A bolt or screw of thread M5 to M39 assembled with a nut of the appropriate property class, in accordance with table 2, is intended to provide an assembly capable of being tightened to the bolt proof load without thread stripping occurring.

However, should tightening beyond bolt proof load take place, the nut design is intended to ensure at least 10 % of the over-tightened assemblies fail through bolt breakage in order to warn the user that the installation practice is not appropriate.

NOTE 5 For more detailed information on the strength of screw thread assemblies, see annex A.

1) To be published.