International Standard

ISO 10511

Fasteners — Prevailing torque hexagon nuts — Thin nuts (with non-metallic insert)

Fixations — Écrous hexagonaux autofreinés — Écrous bas (à anneau non métallique)

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ISO copyright office
CP 401 • Ch. de Blandonnet 8
CH-1214 Vernier, Geneva
Phone: +41 22 749 01 11
Email: copyright@iso.org
Website: www.iso.org

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Foreword

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This document was prepared by Technical Committee ISO/TC 2, *Fasteners*, Subcommittee SC 12, *Fasteners with metric internal thread,* in collaboration with the European Committee for Standardization (CEN) Technical Committee CEN/TC 185, *Fasteners*, in accordance with the Agreement on technical cooperation between ISO and CEN (Vienna Agreement).

This third edition cancels and replaces the second edition (ISO 10511:2012) which has been technically revised.

The main changes are as follows:

— the design principles of these nuts have been clarified in Scope (see Note);

— the use of thin nuts and a warning in relation to lower stripping resistance have been added in Scope;

— nuts with D < M5 (not included in ISO 898-2 and ISO 3506-2) have been dealt with in Annex A;

— for steel nuts, quenching and tempering conditions have been specified in Clause 5 in accordance with ISO 898-2 (see Table 3);

— stainless steel nuts have been added in accordance with ISO 3506-2;

— M7, M18, M22, M27, M33 and M39 have been added;

— the countersink angle θ has been improved from 90° – 120° to 110° – 120°;

— $d_{a,max}$ and $d_{w,min}$ have been specified with two decimal places;

— $d_{w,min}$ for sizes $D \leq$ M5 has been changed from s_{min} – IT16 to s_{min} – IT15 in order to have a larger bearing surface area and thus less contact pressure;

— h_{max} for M20 and M36 has been increased so that regular, high and thin nuts have an identical room for the prevailing torque feature ($h_{max} - m_{min}$) to accommodate the non-metallic insert; h_{min} has therefore been increased in accordance with the specified tolerance (see Table 2);

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— specifications for marking and labelling have been added as Clause 6.

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Fasteners — Prevailing torque hexagon nuts — Thin nuts (with non-metallic insert)

1 Scope

This document specifies the characteristics of prevailing torque hexagon thin nuts (with non-metallic insert), in steel and stainless steel, with metric coarse pitch thread M3 to M39, and with product grades A and B.

NOTE These nuts are designed with an overall height equal to m_{min} (as specified in ISO 898-2 and ISO 4035 for style 0) plus the prevailing torque feature. The height of the prevailing torque feature ($h_{max} - m_{min}$) for the non-metallic insert is identical for regular, high and thin nuts for a given diameter.

Nuts with sizes D < M5 and design principles in accordance with style 0 are specified in Annex A.

WARNING — Thin nuts (style 0) have a reduced loadability compared to regular or high nuts, they are not designed to provide resistance to thread stripping (see ISO 898-2).

If in certain cases other specifications are requested, stainless steel grades and property classes can be selected from ISO 3506-2.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements 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 225, *Fasteners — Bolts, screws, studs and nuts — Symbols and descriptions of dimensions*

ISO 898-2, *Fasteners — Mechanical properties of fasteners made of carbon steel and alloy steel — Part 2: Nuts with specified property classes*

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

ISO 1891-4, *Fasteners — Vocabulary — Part 4: Control, inspection, delivery, acceptance and quality*

ISO 2320, *Fasteners — Prevailing torque steel nuts — Functional properties*

ISO 3269, *Fasteners — Acceptance inspection*

ISO 3506-2, *Fasteners — Mechanical properties of corrosion-resistant stainless steel fasteners — Part 2: Nuts with specified grades and property classes*

ISO 4042, *Fasteners — Electroplated coating systems*

ISO 4759-1, *Tolerances for fasteners — Part 1: Bolts, screws, studs and nuts — Product grades A, B and C*

ISO 6157-2, *Fasteners — Surface discontinuities — Part 2: Nuts*

ISO 8991, *Designation system for fasteners*

ISO 8992, *Fasteners — General requirements for bolts, screws, studs and nuts*

ISO 10683, *Fasteners — Non-electrolytically applied zinc flake coating systems*

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