EUROPEAN STANDARD
NORME EUROPÉENNE
EUROPÄISCHE NORM

EN ISO 10513

November 1997

ICS 21.060.20

Descriptors: Fasteners, hexagon nuts, self-locking nuts.

English version

Prevailing torque type all-metal hexagon nuts, style 2, with metric fine pitch thread

Property classes 8, 10 and 12
(ISO 10513 : 1997)

Écrous hexagonaux autofreinés (tout métal), style 2, à filetage métrique à pas fin – Classes de qualité 8, 10 et 12
(ISO 10513 : 1997)

Sechskantmuttern mit Klemmteil (Ganzmetallmuttern) Typ 2, mit metrischem Feingewinde – Festigkeitsklassen 8, 10 und 12
(ISO 10513 : 1997)

This European Standard was approved by CEN on 1997-10-23.

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.

The European Standards exist 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, the Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, the Netherlands, Norway, Portugal, Spain, Sweden, Switzerland, and the 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

International Standard

ISO 10513 : 1997 Prevailing torque type all-metal hexagon nuts, style 2, with metric fine pitch thread – Property classes 8, 10 and 12,

which was prepared by ISO/TC 2 'Fasteners' of the International Organization for Standardization, has been adopted by Technical Committee CEN/TC 185 'Threaded and non-threaded mechanical fasteners and accessories', the Secretariat of which is held by DIN, as a European Standard.

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a national standard, either by publication of an identical text or by endorsement, and conflicting national standards withdrawn, by May 1998 at the latest.

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

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

Endorsement notice

The text of the International Standard ISO 10513 : 1997 was approved by CEN 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 characteristics of prevailing torque type all-metal hexagon nuts, of style 2, with metric fine pitch thread, with nominal thread diameters d from 8 mm up to and including 36 mm, in product grade A for sizes d up to and including 16 mm and product grade B for sizes d above 16 mm, and with property classes 8, 10 and 12.

NOTE — The dimensions of the nuts with the exception of the dimensions m_w and h_{max} correspond to those given in ISO 8674.

If other specifications are required, they should be selected from existing International Standards, for example ISO 261, ISO 965-2, ISO 2320 and ISO 4759-1.

2 Normative references

The following standards contain provisions which, through reference in this text, constitute provisions of this International Standard. At the time of publication, the editions indicated were valid. All standards are subject to revision, and parties to agreements based on this International Standard 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 225:1983, *Fasteners – Bolts, screws, studs and nuts – Symbols and designations of dimensions.*

ISO 261:–[1], *ISO general purpose metric screw threads – General plan.*

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

ISO 2320:1997, *Prevailing torque type steel hexagon nuts – Mechanical and performance properties.*

ISO 3269:1988, *Fasteners – Acceptance inspection.*

ISO 4042: –[3], *Fasteners – Electroplated coatings.*

ISO 4759-1: –[4], *Tolerances for fasteners – Part 1: Bolts, screws, studs and nuts – Product grades A, B and C.*

ISO 6157-2:1995, *Fasteners – Surface discontinuities – Part 2: Nuts.*

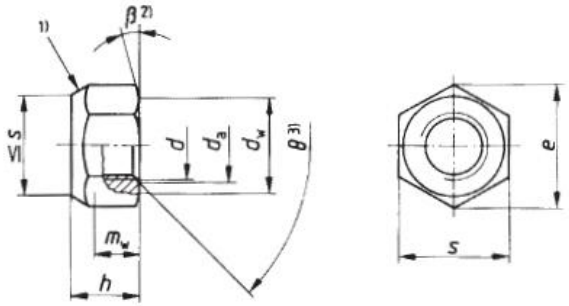
ISO 8992:1986, *Fasteners – General requirements for bolts, screws and nuts.*

1) To be published. (Revision of ISO 261:1973)
2) To be published. (Revision of ISO 965-2:1980)
3) To be published. (Revision of ISO 4042:1989)
4) To be published. (Revision of ISO 4759-1:1978)

3 Dimensions

See figure 1 and table 1.

Symbols and designations of dimensions are specified in ISO 225.



1) Prevailing torque element, shape optional

2) β = 15° to 30°

3) Θ = 90° to 120°

Figure 1

Table 1 — Dimensions

Dimensions in millimetres

Thread ($d \times P$ [1])		M8×1	M10×1 M10×1,25	M12×1,25 M12×1,5	(M14×1,5)[2]	M16×1,5	M20×1,5	M24×2	M30×2	M36×3
d_a	max.	8,75	10,8	13	15,1	17,3	21,6	25,9	32,4	38,9
	min.	8,00	10,0	12	14,0	16,0	20,0	24,0	30,0	36,0
d_w	min.	11,63	14,63	16,63	19,64	22,49	27,7	33,25	42,75	51,11
e	min.	14,38	17,77	20,03	23,36	26,75	32,95	39,55	50,85	60,79
h	max.	8,00	10,00	12,00	14,1	16,4	20,3	23,9	30,0	36,0
	min.	7,14	8,94	11,57	13,4	15,7	19,0	22,6	27,3	33,1
m_w [3]	min.	5,15	6,43	8,3	9,68	11,28	13,52	16,16	19,44	23,52
s	max.	13,00	16,00	18,00	21,00	24,00	30,00	36	46	55,0
	min.	12,73	15,73	17,73	20,67	23,67	29,16	35	45	53,8

1) P is the pitch of the thread.

2) The size in brackets should be avoided if possible.

3) Minimum wrenching height.

4 Requirements and reference International Standards

See table 2.

Table 2 — Requirements and reference International Standards

<table>
<tr><td>Material</td><td></td><td colspan="4">Steel</td></tr>
<tr><td>General requirements</td><td>International Standard</td><td colspan="4">ISO 8992</td></tr>
<tr><td rowspan="2">Thread</td><td>Tolerance</td><td colspan="4">6H</td></tr>
<tr><td>International Standards</td><td colspan="4">ISO 261, ISO 965-2</td></tr>
<tr><td rowspan="3">Mechanical and performance properties</td><td>Property class</td><td colspan="2">8</td><td>10</td><td>12</td></tr>
<tr><td>Style decisive for mechanical properties[1)]</td><td>$d \leq 16$ mm style 2</td><td>$d > 16$ mm style 1</td><td>style 2</td><td>$d \leq 16$ mm[2)] style 2</td></tr>
<tr><td>International Standard</td><td colspan="4">ISO 2320</td></tr>
<tr><td rowspan="2">Tolerances</td><td>Product grade</td><td colspan="4">For $d \leq 16$ mm : A
For $d > 16$ mm : B</td></tr>
<tr><td>International Standard</td><td colspan="4">ISO 4759-1</td></tr>
<tr><td>Finish</td><td colspan="5">As processed

Requirements for electroplated coatings are covered in ISO 4042.

If different electroplating requirements are desired or if requirements are needed for other finishes, they should be negotiated between customer and supplier.

Limits for surface discontinuities are covered in ISO 6157-2.</td></tr>
<tr><td>Acceptability</td><td colspan="5">For acceptance procedure, see ISO 3269.</td></tr>
</table>

1) Based on the nut height (dimensions h_{min}) nuts in accordance with this International Standard are of style 2. However, since for style 2 ISO 2320 does not specify mechanical properties for all property classes and sizes as specified in this International Standard, in some cases nuts have to be tested according to style 1.

2) For $d > 16$ mm property class 12 is not specified.

5 Designation

EXAMPLE
A prevailing torque type all-metal hexagon nut, style 2, with fine pitch thread M12 × 1,5 and property class 8 is designated as follows:

Prevailing torque type hexagon nut ISO 10513 – M12 × 1,5 – 8

Annex A
(informative)

Bibliography

[1] ISO 8674:1988, *Hexagon nuts, style 2, with metric fine pitch thread – Product grades A and B.*

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 are 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 225	1983	Fasteners - Bolts, screws, studs and nuts - Symbols and designations of dimensions	EN 20225	1991
ISO 2320	1997	Prevailing torque type steel hexagon nuts - Mechanical and performance requirements	EN ISO 2320	1997