

INTERNATIONAL  
STANDARD

ISO  
7042

Second edition  
1997-11-15

ISO 7042

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**Prevailing torque type all-metal hexagon  
nuts, style 2 — Property classes 5, 8, 10  
and 12**

*Écrous hexagonaux autofreinés tout métal, style 2 — Classes  
de qualité 5, 8, 10 et 12*



Reference number  
ISO 7042:1997(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 7042 was prepared by Technical Committee ISO/TC 2, *Fasteners*, Subcommittee SC 1, *Mechanical properties of fasteners*.

This second edition cancels and replaces the first edition (ISO 7042:1983), which has been technically revised.

Annex A of this International Standard is for information only.

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# Prevailing torque type all-metal hexagon nuts, style 2 — Property classes 5, 8, 10 and 12

## 1 Scope

This International Standard specifies the characteristics of prevailing torque type all-metal hexagon nuts, style 2, with threads from M5 up to and including M36, in product grade A for threads up to and including M16 and product grade B for threads above M16, and with property classes 5, 8, 10 and 12.

### NOTES

- 1 The dimensions of the nuts with the exception of the dimensions  $m_w$  and  $h_{max}$  correspond to those given in ISO 4033.
- 2 Nuts of property class 9 are dealt with in ISO 7720.

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:–<sup>1)</sup>, *ISO general purpose metric screw threads – General plan.*

ISO 965-2:–<sup>2)</sup>, *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:–<sup>3)</sup>, *Fasteners – Electroplated coatings.*

ISO 4759-1:–<sup>4)</sup>, *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.*

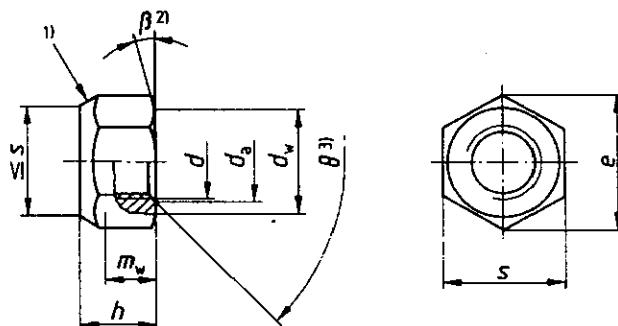
ISO 8992:1986, *Fasteners – General requirements for bolts, screws, studs and nuts.*

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- 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)  $\beta = 15^\circ$  to  $30^\circ$
- 3)  $\theta = 90^\circ$  to  $120^\circ$

Figure 1

Table 1 — Dimensions

Dimensions in millimetres

Thread (d)		M5	M6	M8	M10	M12	(M14) <sup>1)</sup>	M16	M20	M24	M30	M36
$p^2$		0,8	1	1,25	1,5	1,75	2	2	2,5	3	3,5	4
$d_s$	max.	5,75	6,75	8,75	10,8	13	15,1	17,3	21,6	25,9	32,4	38,9
	min.	5,00	6,00	8,00	10,0	12	14,0	16,0	20,0	24,0	30,0	36,0
$d_w$	min.	6,88	8,88	11,63	14,63	16,63	19,64	22,49	27,7	33,25	42,75	51,11
$e$	min.	8,79	11,05	14,38	17,77	20,03	23,36	26,75	32,95	39,55	50,85	60,79
$h$	max.	5,1	6,0	8,00	10,00	12,00	14,1	16,4	20,3	23,9	30,0	36,0
	min.	4,8	5,4	7,14	8,94	11,57	13,4	15,7	19,0	22,6	27,3	33,1
$m_w^3$	min.	3,52	3,92	5,15	6,43	8,3	9,68	11,28	13,52	16,16	19,44	23,52
$s$	max.	8,00	10,00	13,00	16,00	18,00	21,00	24,00	30,00	36	46	55,0
	min.	7,78	9,78	12,73	15,73	17,73	20,67	23,67	29,16	35	45	53,8

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

2)  $P$  is the pitch of the thread.

3) Minimum wrenching height.

## 4 Requirements and reference International Standards

See table 2.

Table 2 — Requirements and reference International Standards

<b>Material</b>		Steel				
<b>General requirements</b>	International Standard	ISO 8992				
<b>Thread</b>	Tolerance	6H				
	International Standards	ISO 261, ISO 965-2				
<b>Mechanical and performance properties</b>	Property class	5	8		10	12
	Style decisive for mechanical properties <sup>1)</sup>	style 1	$d \leq M16$ style 1	$M16 < d \leq M36$ style 2	style 1	style 2
	International Standard	ISO 2320				
<b>Tolerances</b>	Product grade	For $d \leq M16$ : A For $d > M16$ : B				
	International Standard	ISO 4759-1				
<b>Finish</b>	<p>As processed</p> <p>Requirements for electroplated coatings are covered in ISO 4042.</p> <p>If different electroplating requirements are desired or if requirements are needed for other finishes, they should be negotiated between customer and supplier.</p> <p>Limits for surface discontinuities are covered in ISO 6157-2.</p>					
<b>Acceptability</b>	For acceptance procedure, see ISO 3269.					
<p>1) Based on the nut height (dimension <math>h_{min}</math>) 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.</p>						

## 5 Designation

### EXAMPLE

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

Prevailing torque type hexagon nut ISO 7042 – M12 – 8

**Annex A**  
(informative)

**Bibliography**

- [1] ISO 4033:1979, *Hexagon nuts, style 2 – Product grades A and B.*
- [2] ISO 7720:1997, *Prevailing torque type all-metal hexagon nuts, style 2 – Property class 9.*

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**ICS 21.060.20**

**Descriptors:** fasteners, nuts (fasteners), hexagonal nuts, self-locking nuts, specifications, dimensions, designation.

Price based on 4 pages

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