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Hexagon thin nuts (style 0), chamfered — Product grades A and B

Écrous bas hexagonaux chanfreinés (style 0) — Grades A et B

ICS: 21.060.20

ISO/CEN PARALLEL PROCESSING

This draft has been developed within the International Organization for Standardization (ISO), and processed under the **ISO lead** mode of collaboration as defined in the Vienna Agreement.

This draft is hereby submitted to the ISO member bodies and to the CEN member bodies for a parallel three month enquiry.

To expedite distribution, this document is circulated as received from the committee secretariat. ISO Central Secretariat work of editing and text composition will be undertaken at publication stage.

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Foreword

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The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

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For an explanation on the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the WTO principles in the Technical Barriers to Trade (TBT) see the following URL: Foreword - Supplementary information

The committee responsible for this document is ISO/TC 2, *Fasteners*, Subcommittee SC 12, *Fasteners with metric internal thread*.

This fifth edition cancels and replaces the fourth edition (ISO 4035:2012).

This standard differs from ISO 4035:2012 as follows:

— the Scope has been updated;

— a warning and a sentence have been added in the scope for the use of thin nuts;

— the thread M7 has been added;

— for steel nuts, quenching and tempering have been specified in accordance with ISO 898-2 as mandatory or optional;

— for stainless-steel nuts, property classes have been updated;

— non-ferrous metal nuts have been deleted as a consequence of withdrawal of ISO 8839.

Hexagon thin nuts (style 0), chamfered — Product grades A and B

1 Scope

This International Standard specifies the characteristics of hexagon thin nuts (style 0) with coarse pitch thread from nominal diameters M1,6 through M64, with product grade A for nominal diameters ≤ M16 and product grade B for nominal diameters > M16.

Thin nuts used as jam nuts shall be assembled together with a regular nut or a high nut. .

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

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. 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 262, *ISO general purpose metric screw threads — Selected sizes for screws, bolts and nuts*

ISO 724, *ISO general-purpose metric screw threads — Basic dimensions*

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

ISO 965-2, *ISO general purpose metric screw threads — Tolerances — Part 2: Limits of sizes for general purpose external and internal screw threads — Medium quality*

ISO 965-5, *ISO general-purpose metric screw threads — Tolerances — Part 5: Limits of sizes for internal screw threads to mate with hot-dip galvanized external screw threads with maximum size of tolerance position h before galvanizing*

ISO 3269, *Fasteners — Acceptance inspection*

ISO 3506-2, *Mechanical properties of corrosion-resistant stainless steel fasteners — Part 2: Nuts*

ISO 4042, *Fasteners — Electroplated coatings*

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

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

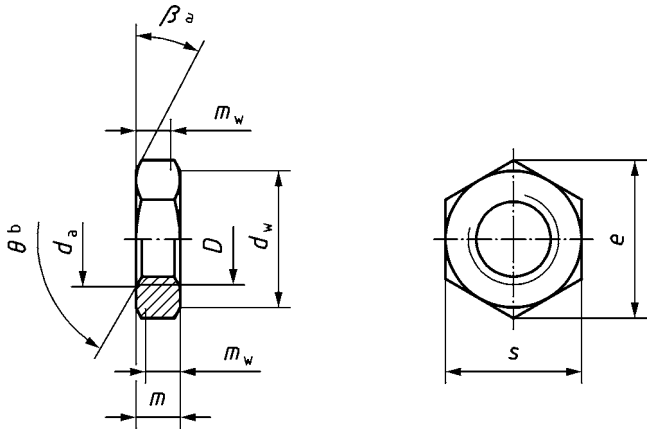
ISO 10684, *Fasteners — Hot dip galvanized coatings*

ISO 16048, *Passivation of corrosion-resistant stainless-steel fasteners*

3 Dimensions

See Figure 1 and Tables 1 and 2.

Symbols and descriptions of dimensions are specified in ISO 225.



[a] $\beta = 15°$ to $30°$.

[b] $\theta = 110°$ to $120°$.

Figure 1 — Dimensions

Table 1 – Preferred threads

Dimensions in millimetres

Thread, D		M1,6	M2	M2,5	M3	M4	M5	M6	M8	M10	M12
P[a]		0,35	0,4	0,45	0,5	0,7	0,8	1	1,25	1,5	1,75
d_a	max.	1,84	2,30	2,90	3,45	4,60	5,75	6,75	8,75	10,80	13,00
	min.	1,60	2,00	2,50	3,00	4,00	5,00	6,00	8,00	10,00	12,00
d_w	min.	2,42	3,07	4,07	4,57	5,88	6,88	8,88	11,63	14,63	16,63
e	min.	3,41	4,32	5,45	6,01	7,66	8,79	11,05	14,38	17,77	20,03
m	max.	1,00	1,20	1,60	1,80	2,20	2,70	3,20	4,00	5,00	6,00
	min.	0,75	0,95	1,35	1,55	1,95	2,45	2,90	3,70	4,70	5,70
m_w	min.	0,60	0,76	1,08	1,24	1,56	1,96	2,32	2,96	3,76	4,56
s	nom. = max.	3,20	4,00	5,00	5,50	7,00	8,00	10,00	13,00	16,00	18,00
	min.	3,02	3,82	4,82	5,32	6,78	7,78	9,78	12,73	15,73	17,73

Table 1 (continued)

Dimensions in millimetres

Thread, *D*		**M16**	**M20**	**M24**	**M30**	**M36**	**M42**	**M48**	**M56**	**M64**
P[a]		2	2,5	3	3,5	4	4,5	5	5,5	6
d_a	max.	17,30	21,60	25,90	32,40	38,90	45,40	51,80	60,50	69,10
	min.	16,00	20,00	24,00	30,00	36,00	42,00	48,00	56,00	64,00
d_w	min.	22,49	27,70	33,25	42,75	51,11	59,95	69,45	78,66	88,16
e	min.	26,75	32,95	39,55	50,85	60,79	71,30	82,60	93,56	104,86
m	max.	8,00	10,00	12,00	15,00	18,00	21,00	24,00	28,00	32,00
	min.	7,42	9,10	10,90	13,90	16,90	19,70	22,70	26,70	30,40
m_w	min.	5,94	7,28	8,72	11,12	13,52	15,76	18,16	21,36	24,32
s	nom. = max.	24,00	30,00	36,00	46,00	55,00	65,00	75,00	85,00	95,00
	min.	23,67	29,16	35,00	45,00	53,80	63,10	73,10	82,80	92,80

[a] *P* is the pitch of the thread.

Table 2 — Non-preferred threads

Dimensions in millimetres

Thread, *D*		**M3,5**	**M7**	**M14**	**M18**	**M22**	**M27**	**M33**	**M39**	**M45**	**M52**	**M60**
P[a]		0,6	1	2	2,5	2,5	3	3,5	4	4,5	5	5,5
d_a	max.	4,00	7,75	15,10	19,50	23,70	29,10	35,60	42,10	48,60	56,20	64,80
	min.	3,50	7	14,00	18,00	22,00	27,00	33,00	39,00	45,00	52,00	60,00
d_w	min.	5,07	9,53	19,64	24,85	31,35	38,00	46,55	55,86	64,70	74,19	83,41
e	min.	6,58	12,01	23,36	29,56	37,29	45,20	55,37	66,44	76,95	88,25	99,21
m	max.	2,00	3,70	7,00	9,00	11,00	13,50	16,50	19,50	22,50	26,00	30,00
	min.	1,75	3,34	6,42	8,42	9,90	12,40	15,40	18,20	21,20	24,70	28,70
m_w	min.	1,40	2,67	5,14	6,74	7,92	9,92	12,32	14,56	16,96	19,76	22,96
s	nom. = max.	6,00	11,00	21,00	27,00	34,00	41,00	50,00	60,00	70,00	80,00	90,00
	min.	5,82	10,63	20,67	26,16	33,00	40,00	49,00	58,80	68,10	78,10	87,80

[a] *P* is the pitch of the thread.

4 Requirements and reference International Standards

See Table 3.

Table 3 — Requirements and reference International Standards

<table>
<tr><th colspan="2">Material</th><th colspan="2">Steel</th><th colspan="2">Stainless steel</th><th>Non-ferrous metal</th></tr>
<tr><td>General requirements</td><td>International Standard</td><td colspan="4">ISO 8992</td><td></td></tr>
<tr><td rowspan="2">Thread</td><td>Tolerance class</td><td colspan="4">6H[a]</td><td></td></tr>
<tr><td>International Standards</td><td colspan="4">ISO 262, ISO 724, ISO 965-2, ISO 965-5</td><td></td></tr>
<tr><td rowspan="4">Mechanical properties</td><td rowspan="3">Property class</td><td colspan="2" rowspan="2">M5 ≤ D ≤ M39 04, 05[b]</td><td>M5 ≤ D ≤ M24</td><td>A2-035, A4-035, A4-040</td><td rowspan="3">Mechanical properties as agreed</td></tr>
<tr><td>M24 < D ≤ M39</td><td>A2-025, A2-035, A4-035, A4-040</td></tr>
<tr><td>D < M5 and D > M39</td><td>Mechanical properties as agreed [c]</td><td>D < M5 and D > M39</td><td>Mechanical properties as agreed</td></tr>
<tr><td>International Standards</td><td colspan="2">ISO 898-2</td><td colspan="2">ISO 3506-2</td></tr>
<tr><td rowspan="2">Tolerance</td><td>Product grade</td><td colspan="4">D ≤ M16: A
D > M16: B</td><td></td></tr>
<tr><td>International Standard</td><td colspan="4">ISO 4759-1</td><td></td></tr>
<tr><td colspan="2">Finish — Coating</td><td colspan="2">As processed
Requirements for electroplating are specified in ISO 4042.

Requirements for non-electrolytically applied zinc flake coatings are specified in ISO 10683.

Requirements for hot dip galvanized coatings are specified in ISO 10684.</td><td colspan="2">Clean and bright
A method for passivation is specified in ISO 16048.</td><td>As processed

Requirements for electroplating are specified in ISO 4042.</td></tr>
<tr><td colspan="7">Additional requirements or other finishes or coatings shall be agreed between the supplier and the purchaser.</td></tr>
<tr><td colspan="2">Surface integrity</td><td colspan="2">Limits for surface discontinuities are specified in ISO 6157-2.</td><td colspan="2">—</td><td>—</td></tr>
<tr><td colspan="2">Acceptability</td><td colspan="5">Acceptance inspection is specified in ISO 3269.</td></tr>
<tr><td colspan="7"></td></tr>
<tr><td colspan="7">[a] Other tolerance classes may be specified prior to coating, depending on the type of coating to be applied. For coated nuts, see relevant coating standards, e.g. ISO 4042, ISO 10683 and ISO 10684.
[b] Property class 05 shall be quenched and tempered in accordance with ISO 898-2.
[c] See ISO/TR 16224 for information.</td></tr>
</table>

5 Designation

EXAMPLE A chamfered hexagon thin nut (style 0) with nominal diameter M12 and property class 05 is designated as follows:

Hexagon thin nut ISO 4035 – M12 – 05

Bibliography

ISO/TR 16224, *Technical aspects of nut design*