SLOVENSKI STANDARD
oSIST prEN ISO 4032:2016

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Šestrobe matice (tip 1) - Razreda izdelave A in B (ISO/DIS 4032:2016)

Hexagon regular nuts (style 1) - Product grades A and B (ISO/DIS 4032:2016)

Sechskantmuttern (Typ 1) - Produktklassen A und B (ISO/DIS 4032:2016)

Écrous hexagonaux normaux (style 1) - Grades A et B (ISO/DIS 4032:2016)

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21.060.20 Matice Nuts

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Hexagon regular nuts (style 1) — Product grades A and B

Écrous hexagonaux normaux (style 1) — 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 4032:2012).

This standard differs from ISO 4032:2012 as follows:

— the Scope has been updated;

— the thread M7 has been added;

— $d_{w,\,min}$ and $m_{w,\,min}$ have been specified with two decimal place;

— for steel nuts, the mechanical properties and specified property classes have been revised in accordance with the diameter ranges;

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

— the reference to ISO/TR 16224 for nut design has been added;

— for stainless steel nuts, the property classes have been revised in accordance with the diameter ranges;

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

Hexagon regular nuts (style 1) — Product grades A and B

1 Scope

This International Standard specifies the characteristics of hexagon regular nuts (style 1) 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.

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*

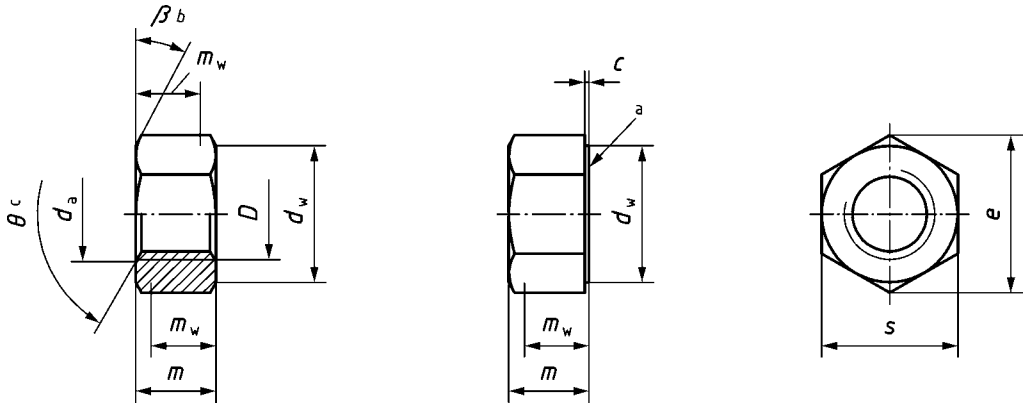
ISO 10684, *Fasteners — Hot dip galvanized coatings*

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 Unless otherwise specified at the time of order, the nuts are delivered without washer-face.

b $\beta = 15°$ to $30°$.

c $\theta = 90°$ 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
c	max.	0,20	0,20	0,30	0,40	0,40	0,50	0,50	0,60	0,60	0,60
	min.	0,10	0,10	0,10	0,15	0,15	0,15	0,15	0,15	0,15	0,15
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.	1,30	1,60	2,00	2,40	3,20	4,70	5,20	6,80	8,40	10,80
	min.	1,05	1,35	1,75	2,15	2,90	4,40	4,90	6,44	8,04	10,37
m_w	min.	0,84	1,08	1,40	1,72	2,32	3,52	3,92	5,15	6,43	8,30
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
c	max.	0,80	0,80	0,80	0,80	0,80	1,00	1,00	1,00	1,00
	min.	0,20	0,20	0,20	0,20	0,20	0,30	0,30	0,30	0,30
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.	14,80	18,00	21,50	25,60	31,00	34,00	38,00	45,00	51,00
	min.	14,10	16,90	20,20	24,30	29,40	32,40	36,40	43,40	49,10
m_w	min.	11,28	13,52	16,16	19,44	23,52	25,92	29,12	34,72	39,28
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
c	max.	0,40	0,60	0,60	0,80	0,80	0,80	0,80	1,00	1,00	1,00	1,00
	min.	0,15	0,15	0,15	0,20	0,20	0,20	0,20	0,30	0,30	0,30	0,30
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	7,00	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.	2,80	6,50	12,80	15,80	19,40	23,80	28,70	33,40	36,00	42,00	48,00
	min.	2,55	6,14	12,10	15,10	18,10	22,50	27,40	31,80	34,40	40,40	46,40
m_w	min.	2,04	4,91	9,68	12,08	14,48	18,00	21,92	25,44	27,52	32,32	37,12
s	nom. = max.	6,00	11,00	21,00	21,00	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

Material		Steel		Stainless steel		Non-ferrous metal
General requirements	International Standard	ISO 8992				
Thread	Tolerance class	6H[a]				
	International Standards	ISO 262, ISO 724, ISO 965-2, ISO 965-5				
Mechanical properties	Property class	$M5 \leq D \leq M16$	6, 8[b], 10[c]	$M5 \leq D \leq M24$	A2-70, A4-70, A4-80	Mechanical properties as agreed
		$M16 < D \leq M39$	6, 8[c], 10[c]	$M24 < D \leq M39$	A2-50, A2-70, A4-70, A4-80	
		$D < M5$ and $D > M39$	Mechanical properties as agreed[d]	$D < M5$ and $D > M39$	Mechanical properties as agreed	
	International Standards	ISO 898-2		ISO 3506-2		
Tolerance	Product grade	$D \leq M16$: A $D > M16$: B				
	International Standard	ISO 4759-1				
Finish — Coating		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.		Clean and bright A method for passivation is specified in ISO 16048.		As processed Requirements for electroplating are specified in ISO 4042.
		Additional requirements or other finishes or coatings shall be agreed between the supplier and the purchaser.				
Surface integrity		Limits for surface discontinuities are specified in ISO 6157-2.		—		—
Acceptability		Acceptance inspection is specified in ISO 3269.				

[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] May be quenched and tempered at the manufacturer's discretion, in accordance with ISO 898-2.

[c] Shall be quenched and tempered in accordance with ISO 898-2.

[d] See ISO/TR 16224 for information.

5 Designation

EXAMPLE A hexagon regular nut (style 1) with nominal diameter M12 and property class 8 is designated as follows:

Hexagon regular nut ISO 4032 – M12 – 8

