
**Prevailing torque type all-metal hexagon
nuts with flange with metric fine pitch
thread, style 2 — Product grades A and B**

*Écrous hexagonaux à embase, autofreinés, tout métal, à filetage
métrique à pas fin, style 2 — Grades A et B*





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ISO copyright office
Case postale 56 • CH-1211 Geneva 20
Tel. + 41 22 749 01 11
Fax + 41 22 749 09 47
E-mail copyright@iso.org
Web www.iso.org

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Foreword

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ISO 12126 was prepared by Technical Committee ISO/TC 2, *Fasteners*, Subcommittee SC 12, *Fasteners with metric internal thread*.

This second edition cancels and replaces the first edition (ISO 12126:1997), of which it constitutes a minor revision.

Prevailing torque type all-metal hexagon nuts with flange with metric fine pitch thread, style 2 — Product grades A and B

1 Scope

This International Standard specifies the characteristics of prevailing torque type all metal hexagon nuts with flange (style 2), and metric fine pitch thread with nominal thread diameters, D , from 8 mm up to and including 20 mm, in product grade A for sizes $D \leq 16$ mm and product grade B for sizes $D > 16$ mm, and with property classes 6, 8 and 10.

NOTE The dimensions of the nuts correspond to those given in ISO 10663 plus prevailing torque feature.

If other specifications are required, they can be selected from existing International Standards, for example ISO 261, ISO 724, ISO 898-2, ISO 965-2, ISO 2320 and ISO 4759-1.

2 Normative references

The following referenced documents are indispensable for the application 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 261, *ISO general purpose metric screw threads — General plan*

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 2320, *Prevailing torque type steel nuts — Mechanical and performance properties*

ISO 3269, *Fasteners — Acceptance inspection*

ISO 4042, *Fasteners — Electroplated coatings*

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

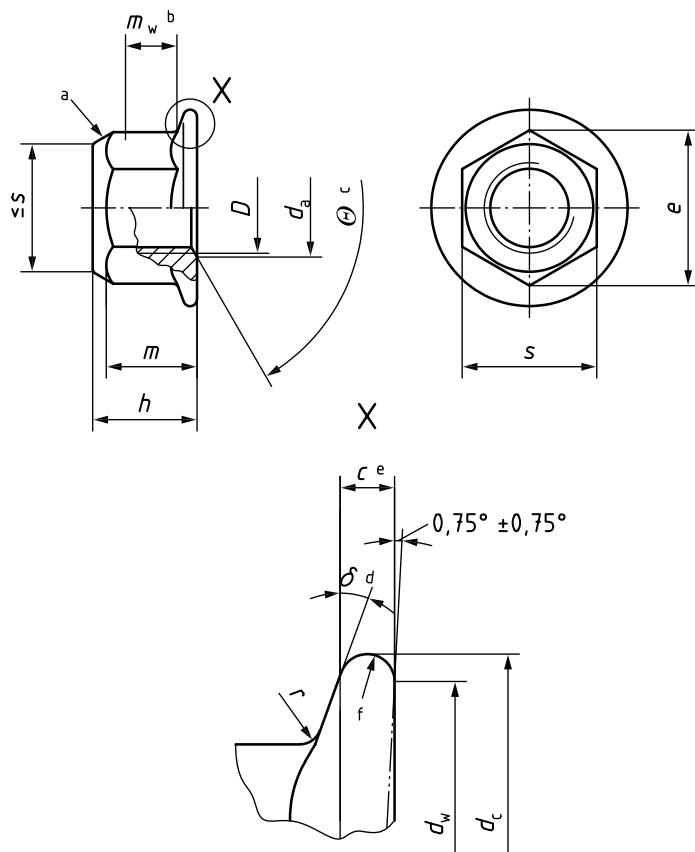
ISO 6157-2, *Fasteners — Surface discontinuities — Part 2: Nuts*

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

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

3 Dimensions

See Figure 1 and Table 1. Symbols and descriptions of dimensions are specified in ISO 225.



- a Prevailing torque element, shape is at the discretion of the manufacturer.
- b m_w is the wrenching height; see note to Table 1.
- c $\theta = 90^\circ$ to 120° .
- d $\delta = 15^\circ$ to 25° .
- e c is measured at $d_{w,\min}$.
- f Contour of the edge is at the discretion of the manufacturer.

Figure 1

Table 1 — Dimensions

Dimensions in millimetres

Thread ($D \times P^a$)		M8 × 1	M10 × 1 (M10 × 1,25) ^b	M12 × 1,5 (M12 × 1,25) ^b	(M14 × 1,5) ^b	M16 × 1,5	M20 × 1,5
c	min.	1,2	1,5	1,8	2,1	2,4	3,0
	max.	8,75	10,80	13,00	15,10	17,30	21,60
d_a	min.	8,00	10,00	12,00	14,00	16,00	20,00
	max.	17,9	21,8	26,0	29,9	34,5	42,8
d_c	min.	15,8	19,6	23,8	27,6	31,9	39,9
e	min.	14,38	16,64	20,03	23,36	26,00	32,95
h	max.	9,40	11,40	13,80	15,90	18,30	22,40
	min.	8,74	10,34	12,57	14,80	17,20	20,30
m^c	min.	7,64	9,64	11,57	13,30	15,30	18,70
m_w	min.	4,6	5,6	6,8	7,7	8,9	10,7
s	max.	13,00	15,00	18,00	21,00	24,00	30,00
	min.	12,73	14,73	17,73	20,67	23,67	29,16
r^d	max.	0,5	0,6	0,7	0,9	1,0	1,2
NOTE If the product passes the gauging given in Annex A, the requirements for dimensions e , c and m_w are satisfied.							
^a P is the pitch of the thread.							
^b The size in parentheses should be avoided if possible.							
^c m is the minimum thread height.							
^d Radius, r , applies both at the corners and the flats of the hexagon.							

4 Requirements and reference International Standards

See Table 2.

Table 2 — Requirements and reference International Standards

Material		Steel
General requirements	International Standard	ISO 8992
Thread	Tolerance class	6H
	International Standards	ISO 261, ISO 724, ISO 965-2
Mechanical and performance properties	Property class	6, 8, 10
	International Standards	ISO 898-2, ISO 2320
Tolerance	Product grade	For $D \leq 16$ mm: A For $D > 16$ mm: 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. 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.

5 Designation

EXAMPLE A prevailing torque type hexagon all-metal nut with flange, with thread $M12 \times 1,5$ and of property class 8, is designated as follows:

Prevailing torque type hexagon nut with flange ISO 12126 - $M12 \times 1,5$ - 8

Annex A (informative)

Gauging of hexagon nuts with flange

A.1 Recommended method for gauging of hexagon

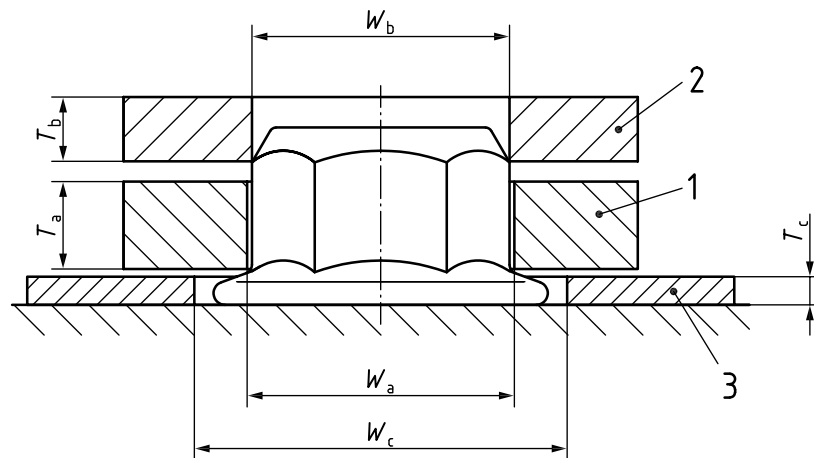
See Figure A.1 and Table A.1.

The nut shall be gauged using two plain ring gauges, A and B, to demonstrate the coincidental acceptability of hexagon height, wrenching height, corner fill and width across corners. Gauge A shall be placed over the hexagon and shall be seated on the flange. Gauge B shall be placed on the top of the nut normal to the nut axis. The two gauges shall not be in contact.

A.2 Recommended method for gauging flange thickness

See Figure A.1 and Table A.1.

Gauge C is a flat feeler or ring gauge. It is used to prove that the flange thickness at the junction of the gauge with the hexagon portion is equal to or greater than specified values. The acceptance criterion is that gauge C fits under gauge A without contact where the nut is seated on a flat plate.



Key

- 1 gauge A
- 2 gauge B
- 3 gauge C

NOTE

- $W_{a,\min} = e_{\text{theoretical}}$
- $W_{b,\max} = e_{\min} - 0,01 \text{ mm}$
- $T_{a,\max} = m_{w,\min}$

Figure A.1

Table A.1

Dimensions in millimetres

Nominal thread diameter <i>D</i>	Gauge A				Gauge B			Gauge C		
	W_a		T_a		W_b		T_b	W_c	T_c	
	max.	min.	max.	min.	max.	min.	min.	min.	max.	min.
8	15,02	15,01	4,60	4,59	14,37	14,36	4	20	1,31	1,30
10	17,33	17,32	5,60	5,59	16,63	16,62	5	24	1,81	1,80
12	20,79	20,78	6,80	6,79	20,02	20,01	5	29	2,20	2,19
14	24,26	24,25	7,70	7,69	23,35	23,34	6	32,5	2,55	2,54
16	27,72	27,71	8,90	8,89	26,74	26,73	6	37	2,96	2,95
20	34,65	34,64	10,70	10,69	32,94	32,93	6	45	3,70	3,69

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