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**Prevailing torque type hexagon thin nuts  
(with non-metallic insert)**

*Écrous hexagonaux bas autofreinés (à anneau non métallique)*



Reference number  
ISO 10511:2012(E)

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## 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.

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Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights.

ISO 10511 was prepared by Technical Committee ISO/TC 2, *Fasteners*, Subcommittee SC 12, *Fasteners with metric internal thread*.

This third edition cancels and replaces the second edition (ISO 10511:1997), of which it constitutes a minor revision.

# Prevailing torque type hexagon thin nuts (with non-metallic insert)

## 1 Scope

This International Standard specifies the characteristics of prevailing torque type hexagon thin nuts (with non-metallic insert) with thread from M3 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 04 and 05.

NOTE The dimensions of the nuts correspond to those given in ISO 4035 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 documents, in whole or in part, are normatively referenced in this document and are indispensable to its application. 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*

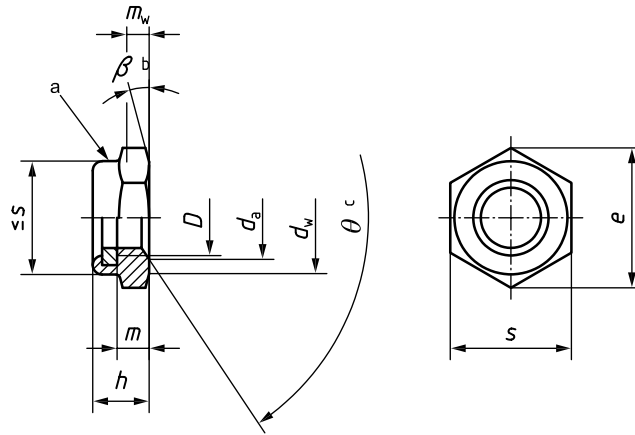
ISO 8992, *Fasteners — General requirements for bolts, screws, studs and nuts*

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 at the discretion of the manufacturer.
- b  $\beta = 15^\circ$  to  $30^\circ$ .
- c  $\theta = 90^\circ$  to  $120^\circ$ .

Figure 1

Table 1 — Dimensions

Dimensions in millimetres

Thread $D$	M3	M4	M5	M6	M8	M10	M12	(M14) <sup>a</sup>	M16	M20	M24	M30	M36	
$p^b$	0,5	0,7	0,8	1	1,25	1,5	1,75	2	2	2,5	3	3,5	4	
$d_a$	max.	3,45	4,60	5,75	6,75	8,75	10,80	13,00	15,10	17,30	21,60	25,90	32,40	38,90
	min.	3,00	4,00	5,00	6,00	8,00	10,00	12,00	14,00	16,00	20,00	24,00	30,00	36,00
$d_w$	min.	4,56	5,90	6,90	8,90	11,60	14,60	16,60	19,60	22,50	27,70	33,20	42,80	51,10
$e$	min.	6,01	7,66	8,79	11,05	14,38	17,77	20,03	23,35	26,75	32,95	39,55	50,85	60,79
$h$	max.	3,90	5,00	5,00	6,00	6,76	8,56	10,23	11,32	12,42	14,90	17,80	22,20	25,50
	min.	3,42	4,52	4,52	5,52	6,18	7,98	9,53	10,22	11,32	13,10	16,00	20,10	23,40
$m$	min.	1,55	1,95	2,45	2,90	3,70	4,70	5,70	6,42	7,42	9,10	10,90	13,90	16,90
$m_w$	min.	1,24	1,56	1,96	2,32	2,96	3,76	4,56	5,14	5,94	7,28	8,72	11,12	13,52
$s$	max.	5,50	7,00	8,00	10,00	13,00	16,00	18,00	21,00	24,00	30,00	36,00	46,00	55,00
	min.	5,32	6,78	7,78	9,78	12,73	15,73	17,73	20,67	23,67	29,16	35,00	45,00	53,80

<sup>a</sup> The size in parentheses should be avoided if possible.

<sup>b</sup>  $p$  is the pitch of the thread.

## 4 Requirements and reference International Standards

See Table 2.

**Table 2 — Requirements and reference International Standards**

<b>Material</b>	Nut body	Steel
	Insert	For example, polyamide
<b>General requirements</b>	International Standard	ISO 8992
<b>Thread</b>	Tolerance class	6H
	International Standards	ISO 261, ISO 724, ISO 965-2
<b>Mechanical and performance properties</b>	Property class	04, 05
	International Standards	ISO 898-2, ISO 2320
<b>Tolerance</b>	Product grade	For $D \leq M16$ : A For $D > M16$ : B
	International Standard	ISO 4759-1
<b>Finish — Coating</b>		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.
<b>Surface integrity</b>		Limits for surface discontinuities are specified in ISO 6157-2.
<b>Acceptability</b>		Acceptance inspection is specified in ISO 3269.

## 5 Designation

EXAMPLE A prevailing torque type hexagon thin nut, with non-metallic insert, thread M12 and property class 04 is designated as follows:

**Prevailing torque type hexagon thin nut ISO 10511 - M12 - 04**

## Bibliography

- [1] ISO 4035, *Hexagon thin nuts chamfered (style 0) — Product grades A and B*





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