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**Prevailing torque type all-metal hexagon  
nuts, style 2 — Property class 9**

*Écrous hexagonaux autofreinés tout métal, style 2 — Classe de qualité 9*

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Tel. + 41 22 749 01 11  
Fax + 41 22 749 09 47  
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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.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

The main task of technical committees is to prepare International Standards. 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.

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 7720 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 7720:1997), which has been technically revised.

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# Prevailing torque type all-metal hexagon nuts, style 2 — Property class 9

## 1 Scope

This International Standard specifies the characteristics of prevailing torque type all-metal hexagon nuts, of 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 over M16, and with property class 9.

NOTE 1 The dimensions of the nuts, with the exception of the dimensions  $m_w$  and  $h_{max}$ , correspond to those given in ISO 4033.

NOTE 2 Nuts of property classes 5, 8, 10 and 12 are dealt with in ISO 7042.

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 hexagon 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*

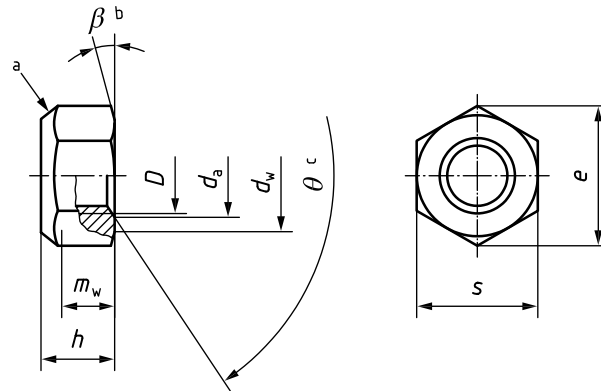
ISO 8992, *Fasteners — General requirements for bolts, screws, studs and nuts*

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

### 3 Dimensions

For 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  $\beta = 15^\circ$  to  $30^\circ$ .
- c  $\theta = 90^\circ$  to  $120^\circ$ .

**Figure 1**  
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**Table 1 — Dimensions**

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Dimensions in millimetres

Thread <i>D</i>	M5	M6	M8	M10	M12	(M14) <sup>a</sup>	M16	M20	M24	M30	M36	
<i>p</i> <sup>b</sup>	0,8	1	1,25	1,5	1,75	2	2	2,5	3	3,5	4	
<i>d<sub>a</sub></i>	max.	5,75	6,75	8,75	10,80	13,00	15,10	17,30	21,60	25,90	32,40	38,90
	min.	5,00	6,00	8,00	10,00	12,00	14,00	16,00	20,00	24,00	30,00	36,00
<i>d<sub>w</sub></i>	min.	6,88	8,88	11,63	14,63	16,63	19,64	22,49	27,70	33,25	42,75	51,11
<i>e</i>	min.	8,79	11,05	14,38	17,77	20,03	23,36	26,75	32,95	39,55	50,85	60,79
<i>h</i>	max.	5,30	6,70	8,00	10,50	13,30	15,40	17,90	21,80	26,40	31,80	38,50
	min.	4,80	5,40	7,14	8,94	11,57	13,40	15,70	19,00	22,60	27,30	33,10
<i>m<sub>w</sub></i> <sup>c</sup>	min.	3,84	4,32	5,71	7,15	9,26	10,70	12,60	15,20	18,10	21,80	26,50
<i>s</i>	max.	8,00	10,00	13,00	16,00	18,00	21,00	24,00	30,00	36,00	46,00	55,00
	min.	7,78	9,78	12,73	15,73	17,73	20,67	23,67	29,16	35,00	45,00	53,80

- a The size in parentheses (brackets) should be avoided, if possible.
- b *P* is the pitch of the thread.
- c 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 class	6H
	International Standards	ISO 261, ISO 724, ISO 965-2
<b>Mechanical and performance properties</b>	Property class	9
	International Standard	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.

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## 5 Designation

EXAMPLE A prevailing torque type all-metal hexagon nut, of style 2, with thread M12 and property class 9 is designated as follows:

**Prevailing torque type hexagon nut ISO 7720 - M12 - 9**

## Bibliography

- [1] ISO 4033, *Hexagon nuts, style 2 — Product grades A and B*
- [2] ISO 7042, *Prevailing torque type all-metal hexagon nuts, style 2 — Property classes 5, 8, 10 and 12*

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