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**Prevailing torque type hexagon nuts (with  
non-metallic insert), style 2 — Property  
classes 9 and 12**

*Écrous hexagonaux autofreinés (à anneau non métallique), style 2 —  
Classes de qualité 9 et 12*

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## Foreword

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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 7041 was prepared by Technical Committee ISO/TC 2, *Fasteners*, Subcommittee SC 12, *Fasteners with metric internal thread*.

This fourth edition cancels and replaces the third edition (ISO 7041:2002), of which it constitutes a minor revision.

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# Prevailing torque type hexagon nuts (with non-metallic insert), style 2 — Property classes 9 and 12

## 1 Scope

This International Standard specifies the characteristics of prevailing torque type hexagon nuts (with non-metallic insert), 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 above M16, and with property classes 9 and 12.

NOTE The dimensions of the nuts correspond to those given in ISO 4033 plus prevailing torque feature.

If other specifications are required, they can be selected from existing International Standards, e.g. 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*

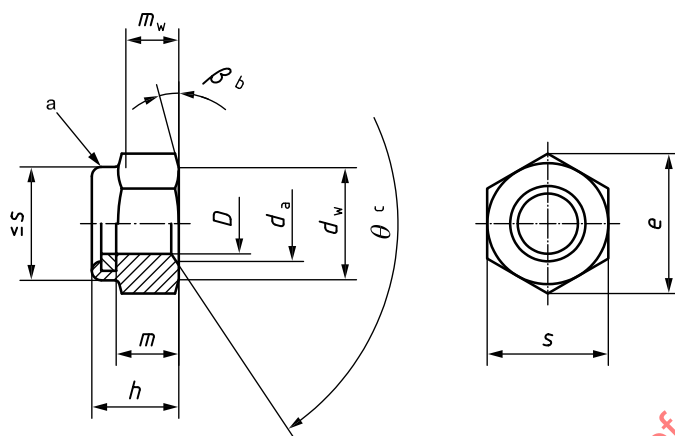
ISO 8992, *Fasteners — General requirements for bolts, screws, studs and nuts*

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; the shape is 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<br><i>D</i>               |      | M5   | M6    | M8    | M10   | M12   | (M14) <sup>a</sup> | M16   | M20   | M24   | M30   | M36   |
|----------------------------------|------|------|-------|-------|-------|-------|--------------------|-------|-------|-------|-------|-------|
| <i>p<sup>b</sup></i>             |      | 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. | 7,20 | 8,50  | 10,20 | 12,80 | 16,10 | 18,30              | 20,70 | 25,10 | 29,50 | 35,60 | 42,60 |
|                                  | min. | 6,62 | 7,92  | 9,50  | 12,10 | 15,40 | 17,00              | 19,40 | 23,00 | 27,40 | 33,10 | 40,10 |
| <i>m<sup>c</sup></i>             | 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><sup>d</sup></i> | 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 |

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

<sup>b</sup> *P* is the pitch of the thread.

<sup>c</sup> Minimum thread height.

<sup>d</sup> Minimum wrenching height.

## 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          | 9, 12                                                                                                                                                                                                                                                                                         |
|                                              | International Standards | ISO 898-2, ISO 2320                                                                                                                                                                                                                                                                           |
| <b>Tolerance</b>                             | Product grade           | For $D \leq M16$ : A<br>For $D > M16$ : B                                                                                                                                                                                                                                                     |
|                                              | International Standard  | ISO 4759-1                                                                                                                                                                                                                                                                                    |
| <b>Finish — Coating</b>                      |                         | As processed.<br>Requirements for electroplating are specified in ISO 4042.<br>Requirements for non-electrolytically applied zinc flake coatings are specified in ISO 10683.<br>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 nut, style 2, with non-metallic insert, thread M12 and property class 12, is designated as follows:

**Prevailing torque type hexagon nut ISO 7041 - M12 - 12**

## Bibliography

- [1] ISO 4033, *Hexagon nuts, style 2 — Product grades A and B*

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