

UDC 621.882.31

February 1985

M 8 to M 52 and M 8 × 1 to M 52 × 3
hexagon thin nuts
Product grades A and B

DIN
936

Flache Sechskantmuttern, Gewinde M 8 bis M 52 und M 8 × 1 bis M 52 × 3;
Produktklassen A und B

Supersedes November 1976
edition.

In keeping with current practice in standards published by the International Organization for Standardization (ISO), a comma has been used throughout as the decimal marker.

Hexagon thin nuts as specified in this standard shall not be used for new designs. For these, hexagon thin nuts (nominal height: 5 × thread diameter) as specified in DIN 439 Part 2 (ISO nuts) are recommended, for which, for sizes exceeding M 18 as well, property classes 04 and 05 with specified proof load values have been specified in ISO 898 Part 2. It is intended to substitute DIN 936 by DIN 439 Part 2 after a commensurate transition period.

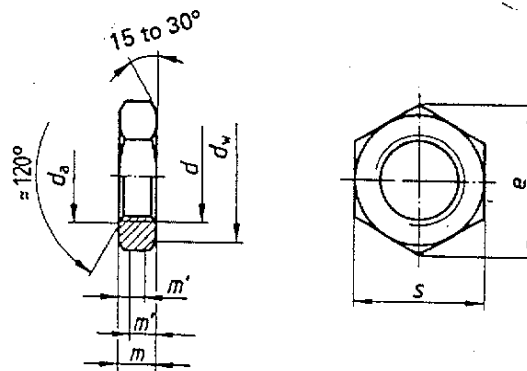
Dimensions in mm

1 Scope and field of application

This standard specifies product grade A and B metric hexagon thin nuts with 8 mm to 52 mm thread diameter (coarse and fine thread).

Where, for special purposes, the nuts are to meet requirements differing from those specified in the present standard, e.g. in respect of nominal length or property class, the specifications of the relevant standards shall be complied with.

2 Dimensions



m' is the minimum wrenching height.

Continued on pages 2 to 4

| Thread size <i>d</i> | M 8 | M 10 | M 12 | M 14 | M 16* | M 18* | M 20 | M 22 | M 24 | |
|------------------------------------------------------------|-----------------------------|----------------|----------------|---------------|---------------|---------------|---------------|---------------|---------------|------|
| | M 8 × 1 | M 10 × 1 | M 12 × 1,25 | M 14 × 1,5 | M 16 × 1,5 | M 18 × 1,5 | M 20 × 1,5 | M 22 × 1,5 | M 24 × 1,5 | |
| | - | M 10 × 1,25 | M 12 × 1,5 | - | - | M 18 × 2 | M 20 × 2 | M 22 × 2 | M 24 × 2 | |
| <i>P</i> ¹⁾ | 1,25 | 1,5 | 1,75 | 2 | 2 | 2,5 | 2,5 | 2,5 | 3 | |
| <i>d</i> _n | min. | 8 | 10 | 12 | 14 | 16 | 18 | 20 | 22 | 24 |
| | max. | 8,75 | 10,8 | 13 | 15,1 | 17,3 | 19,5 | 21,6 | 23,7 | 25,9 |
| <i>d</i> _w min. | 11,3 | 15,3 | 17,2 | 20,2 | 22,2 | 25,3 | 28,2 | 29,5 | 33,2 | |
| <i>e</i> min. | 14,38 | 18,90 | 21,1 | 24,49 | 26,75 | 29,56 | 32,95 | 35,03 | 39,55 | |
| <i>m</i> | max. = nominal dimension | 5 | 6 | 7 | 8 | 8 | 9 | 9 | 10 | 10 |
| | min. | 4,7 | 5,7 | 6,64 | 7,42 | 7,42 | 8,42 | 8,1 | 9,1 | 9,1 |
| <i>m'</i> min. | 3,8 | 4,6 | 5,3 | 5,9 | 5,9 | 6,7 | 6,5 | 7,3 | 7,3 | |
| <i>s</i> | max. = nominal dimension | 13 | 17 | 19 | 22 | 24 | 27 | 30 | 32 | 36 |
| | min. | 12,73 | 16,73 | 18,67 | 21,67 | 23,67 | 26,16 | 29,16 | 31 | 35 |
| Mass (7,85 kg/dm ³), in kg per 1000 units ≈ | 4 | 8,6 | 12,1 | 18,2 | 20,1 | 29,6 | 36,3 | 43,8 | 58 | |

| Thread size <i>d</i> | M 27 | M 30 | M 33 | M 36 | M 39 | M 42 | (M 45) | M 48 | M 52 | |
|------------------------------------------------------------|-----------------------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|------|
| | M 27 × 1,5 | M 30 × 1,5 | M 33 × 1,5 | M 36 × 1,5 | M 39 × 1,5 | M 42 × 1,5 | M 45 × 1,5 | M 48 × 1,5 | M 52 × 1,5 | |
| | M 27 × 2 | M 30 × 2 | M 33 × 2 | M 36 × 2 | M 39 × 2 | M 42 × 2 | M 45 × 2 | M 48 × 2 | M 52 × 2 | |
| | - | - | - | M 36 × 3 | M 39 × 3 | M 42 × 3 | M 45 × 3 | M 48 × 3 | M 45 × 3 | |
| <i>P</i> ¹⁾ | 3 | 3,5 | 3,5 | 4 | 4 | 4,5 | 4,5 | 5 | 5 | |
| <i>d</i> _a | min. | 27 | 30 | 33 | 36 | 39 | 42 | 45 | 48 | 52 |
| | max. | 29,1 | 32,4 | 35,6 | 38,9 | 42,1 | 45,4 | 48,6 | 51,8 | 56,2 |
| <i>d</i> _w min. | 38 | 42,7 | 46,6 | 51,1 | 55,9 | 60,6 | 64,7 | 69,4 | 74,2 | |
| <i>e</i> min. | 45,20 | 50,85 | 55,37 | 60,79 | 66,44 | 71,3 | 76,95 | 82,60 | 88,25 | |
| <i>m</i> | max. = nominal dimension | 12 | 12 | 14 | 14 | 16 | 16 | 18 | 18 | 20 |
| | min. | 10,9 | 10,9 | 12,9 | 12,9 | 14,9 | 14,9 | 16,9 | 16,9 | 18,7 |
| <i>m'</i> min. | 8,7 | 8,7 | 10,3 | 10,3 | 11,9 | 11,9 | 13,5 | 13,5 | 15 | |
| <i>s</i> | max. = nominal dimension | 41 | 46 | 50 | 55 | 60 | 65 | 70 | 75 | 80 |
| | min. | 40 | 45 | 49 | 53,8 | 58,8 | 63,1 | 68,1 | 73,1 | 78,1 |
| Mass (7,85 kg/dm ³), in kg per 1000 units ≈ | 90 | 110 | 155 | 190 | 260 | 307 | 400 | 460 | 580 | |

*) These sizes may also be ordered in accordance with DIN 439 Part 2.

¹⁾ *P* = pitch of coarse thread.

3 Technical delivery conditions

| Material | | Steel | Stainless steel | Nonferrous metal |
|------------------------------------------------------------------------------------------------------------|---------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------|------------------------------------------|
| General requirements | | As in DIN 267 Part 1. | | |
| Thread | Tolerance zone | 6H | | |
| | Standard | DIN 13 Part 15 | | |
| Mechanical properties ²⁾ | Property class (material) | ≤ M 18: 04, 05; > M 18: 17H, 22H. | ≤ M 20: A 2-70; > M 20 ≤ M 39: A 2-50; > M 39: subject to agreement. | CuZn = copper-zinc alloy ¹⁾ ; |
| | Standard | ISO 898 Part 2 DIN 267 Part 24 | DIN 267 Part 11 | DIN 267 Part 18 |
| Permissible dimensional deviations and deviations of form | Product grade | ≤ M 16: A (previously m); > M 16: B (previously mg). | | |
| | Standard | ISO 4759 Part 1 | | |
| Surface | | As processed. DIN 267 Part 2 shall apply with regard to surface roughness. DIN 267 Part 21 shall apply with regard to the widening test. DIN 267 Part 20 shall apply with regard to permissible surface discontinuities. DIN 267 Part 9 shall apply with regard to electroplating. DIN 267 Part 10 shall apply with regard to hot dip galvanizing. | Bright. | Bright. |
| Acceptance inspection | | DIN 267 Part 5 shall apply with regard to the acceptance inspection. | | |
| 1) Preferably CU2 or CU3 (as specified in DIN 267 Part 18), at the manufacturer's discretion. | | | | |
| 2) Other property classes or materials or a particular material grade, e.g. CU3, are subject to agreement. | | | | |

4 Designation

Designation of an M 20 hexagon thin nut assigned to property class (hardness class) 17 H:

Hexagon nut DIN 936 – M 20 – 17 H

If product grade A is required for sizes exceeding M 16, the product grade shall be incorporated in the designation, e.g.:

Hexagon nut DIN 936 – M 20 – 17 H – A

The DIN 4000 – 2 – 7 tabular layout for article characteristics shall apply for nuts specified in this standard.

Standards referred to

| | |
|-----------------|-------------------------------------------------------------------------------------------------------------------------------------|
| DIN 13 Part 15 | ISO metric screw thread; fundamental deviations and tolerances for threads from 1 mm diameter |
| DIN 267 Part 1 | Fasteners; technical delivery conditions; general requirements |
| DIN 267 Part 2 | Fasteners; technical delivery conditions; design and dimensional accuracy |
| DIN 267 Part 5 | Fasteners; technical delivery conditions; acceptance inspection |
| DIN 267 Part 9 | Fasteners; technical delivery conditions; electroplated components |
| DIN 267 Part 10 | Fasteners; technical delivery conditions; hot-dip galvanized parts |
| DIN 267 Part 11 | Fasteners; technical delivery conditions, with additions to ISO 3506; components made from corrosion-resistant and stainless steels |
| DIN 267 Part 18 | Fasteners; technical delivery conditions; components made from nonferrous metals |
| DIN 267 Part 20 | Fasteners; technical delivery conditions; widening test for nuts |
| DIN 267 Part 21 | Fasteners; technical delivery conditions; widening test on nuts |
| DIN 267 Part 24 | Fasteners; technical delivery conditions; property classes (hardness classes) for nuts |
| DIN 439 Part 2 | M 1,6 to M 52 and M 8 × 1 to M 52 × 3 hexagon thin nuts (modified version of ISO 4035) |
| DIN 4000 Part 2 | Tabular layouts for article characteristics for screws and nuts |
| ISO 898 Part 2 | Mechanical properties of fasteners; nuts with specified proof loads |
| ISO 4759 Part 1 | Tolerances for fasteners; bolts, screws and nuts with thread diameters from 1,6 to 150 mm, product grades A, B and C |

Previous editions

DIN Kr 752: 08.35, 12.37

DIN 936: 04.42, 04.46, 01.54, 10.59, 03.63, 06.66, 1.76

Amendments

The following amendments have been made in comparison with the November 1976 edition.

- The foreword has been amended to include a reference to DIN 439 Part 2.
- The intermediate sizes M 26 x 1,5, M 28 x 1,5, M 32 x 1,5, M 35 x 1,5, M 38 x 1,5, M 40 x 1,5 and M 50 x 1,5 have been deleted. They may, however, still be ordered in accordance with the November 1976 edition of this standard.
- The content of the standard has been editorially revised and brought into line with other DIN Standards on hexagon nuts.
- Designs m and mg as specified in DIN 267 Part 2 have been replaced by product grades A and B as specified in ISO 4759 Part 1.

Explanatory notes

In the November 1976 edition of DIN 936, reference was made to the fact that only hexagon nuts as specified in DIN 439 (now DIN 439 Part 2) should be used for new designs. The reasons for this reference and the connection between the two standards were stated in the Explanatory notes of the preceding edition.

This note is still valid. In spite of this, another revision of DIN 936 has been considered necessary since it is not yet known when it will be possible to finally withdraw the standard. In the following, some notes are given with respect to the present edition of the standard.

The International Organization for Standardization (ISO) has published international standards on hexagon bolts and hexagon nuts, for which ISO 272 has served as a basis for the widths across flats. These international standards have led to the revision of the relevant national standards or to the publication of new standards. Within this context, DIN 439 has been harmonized with ISO 4035 and ISO 4036 and divided up into Part 1 (modified version of ISO 4036) and Part 2 (modified version of ISO 4035).

Though DIN 936 is not directly affected by these international standards, it has been editorially revised to bring it into line with the new basic standards on fasteners.

However, the widths across flats for sizes with 10, 12, 14 and 22 mm thread diameter (see ISO 272) given in the international standards, which deviate from previous national specifications, have not been incorporated in DIN 936 because the standard is intended to be applied only for a transition period and will be substituted by DIN 439 Part 2 at a later stage.

Property classes (hardness classes) 17 H and 22 H previously specified in DIN 267 Part 4 have been incorporated in DIN 267 Part 24. The reference has been changed accordingly. Since the heights of the nuts up to and including 18 mm thread diameter meet the requirements

of nuts assigned to property classes 04 and 05 as specified in ISO 898 Part 2, both property classes have been given for this range.

Property class 06 has been replaced by property class 05, higher proof load values being specified, which ensure a higher resistance to stripping compared to the proof load values previously applied (see ISO 898 Part 2).

The previous designs m and mg as specified in DIN 267 Part 2 have been replaced by product grades A and B as specified in ISO 4759 Part 1 because it is intended that only these product grades should be applied in future. Product grades A and B are practically identical with the previous designs m and mg and, for manufacturing reasons, have been allocated to given thread sizes for standard designs.

The nominal thread diameters which are not specified in DIN 13 Part 12, series 1 and 2, have been deleted. This applies, for instance, to thread sizes M 26 x 1,5 and M 28 x 1,5. If required, hexagon nuts with this screw thread can be manufactured by cutting the thread into the nut body of the next highest standardized size. The nut body for M 27 shall be used in the case of M 26 x 1,5 and M 28 x 1,5 nuts, for example.

The bearing faces of the nuts have been specified by dimensions d_s and d_w .

In clause 3 of this standard, the relevant DIN Standards dealing with the technical delivery conditions, i. e. specifying mechanical and performance requirements, have been listed. Property classes for corrosion-resistant and stainless steels complying with DIN 267 Part 11 have been included and reference has been made to DIN 267 Part 18 with respect to nonferrous metals.

Reference has been made to DIN 267 Part 2 with regard to the peak-to-valley height because ISO 4759 Part 1 does not provide any information in this respect. Furthermore, the relevant DIN Standards on surface protection have been listed.

International Patent Classification

F 16 B 37/00