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**NATIONAL STANDARD OF THE
PEOPLE'S REPUBLIC OF CHINA**

GB/T 3098.2-2025

Mechanical properties of fasteners - Part 2: Nuts

紧固件机械性能 第2部分：螺母

(English Translation)

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Foreword

GB/T 3098 "Mechanical properties of fasteners" is composed of the following parts.

- GB/T 3098.1 Mechanical properties of fasteners - Bolts, Screws and studs - GB/T 3098.2 Mechanical properties of fasteners - Nuts;
- GB/T 3098.3 Mechanical properties of fasteners - Set screws;
- GB/T 3098.5 Mechanical properties of fasteners - Tapping screws;
- GB/T 3098.6 Mechanical properties of fasteners - stainless steel bolts, screws and studs;
- GB/T 3098.7 Mechanical properties of fasteners - Thread rolling screws - GB/T 3098.8 Mechanical properties of fasteners - Components for bolted connections made mainly from materials with a high temperature strength;
- GB/T 3098.9 Mechanical properties of fasteners - Prevailing torque type steel hexagon nuts;
- GB/T 3098.10 Mechanical properties of fasteners - Bolts, screws, studs, and nuts made of non-ferrous metals;
- GB/T 3098.11 Mechanical properties of fasteners - Self-drilling tapping screws;
- GB/T 3098.12 Mechanical properties of fasteners - Cone proof load test on nuts;

- GB/T 3098.13 Mechanical properties of fasteners - Torsional test and minimum torques for bolts and screws with nominal diameters 1mm to 10mm - GB/T 3098.14 Mechanical properties of fasteners - Fasteners - Mechanical properties - Widening test on nuts;
- GB/T 3098.15 Mechanical properties of fasteners - Nuts made of stainless steel;
- GB/T 3098.16 Mechanical properties of fasteners - Stainless steel set screws;
- GB/T 3098.17 Mechanical properties of fasteners - Preloading test for the detection of hydrogen embrittlement - Parallel bearing surface method;
- GB/T 3098.18 Mechanical properties of fasteners - Blind rivets testing;
- GB/T 3098.19 Mechanical properties of fasteners - Blind rivets with break pull mandrel;
- GB/T 3098.20 Mechanical properties of fasteners - Wing nuts with specified proof torque;
- GB/T 3098.21 Mechanical properties of fasteners - Stainless steel tapping screws;
- GB/T 3098.22 Mechanical properties of fasteners made of the fine grain non-heat treatment steel - Bolts, screws and studs;

This part is part 2 of GB/T 3098.

This part was drafted in accordance with the rules given in GB/T 1.1-2009.

This part replaces GB/T 3098.2-2000 "Mechanical properties of fasteners -Nuts - Coarse thread" and GB/T 3098.4-2000 "Mechanical properties of fasteners - Nuts - Fine pitch thread".

As compared with GB/T 3098.2-2000 and GB/T 3098.4-2000, the main changes of this part are as follows.

- COMBINE the two standards, MODIFY the standard name;
- ADD the examples for selection and application of low temperature and high temperature steel, AND it may make reference to the contents of EN 10269, ASTM F 2281 and ASTM A 320/A 320M (SEE note 2 of Clause 1);
- SPECIFY the code used in this part (SEE Clause 3);
- SPECIFY the three types of nuts and their markings based on nut height (SEE 4.1);
- ADD the design requirements for the bolt-nut connection (SEE Clause 5, Appendix A);
- ADD that "when a thin nut is used as a lock nut, it shall be used together with a regular nut or high nut. During installation, it shall firstly tighten the thin nut on the assembly part, AND then tighten the regular nut or high nut on the thin nut"; (SEE Clause 5);
- CANCEL the style 1 grade 4 coarse thread nuts (SEE Table 1 ~ Table 6);
- MAKE the following requirements for the coarse thread 04, 5, 6, 8 (style 2), 8 (style 1, D

$\leq M16$), and grade 9 AND the fine pitch thread 04, 5, 6 ($D \leq M16$) and grade 8 nuts "it may be quenched and tempered at the discretion of the manufacturer"; (SEE footnote d of Table 3);

- ADD the requirements "it shall have sufficient hardenability" for the product material requiring "quenching and tempering"; (SEE footnote e of Table 3);

- Not SPECIFY the proof stress, thread stress cross-sectional area, and the thin nut failure load (SEE Table 7; Table 3, Table 5, Table 6 and Table 7 of 2000 version);

- ADD Brinell hardness and Rockwell hardness indicators (SEE Table 6, Table 7);

- ADD the provisions that the manufacturer, supplier and purchaser may choose their own method to test the quality of products (SEE Clause 8);

- ADD the requirements for testing machines and fixtures (SEE 9.1.3);

- ADD that "The sample shall be such nuts as passing the size inspections, the GB/T 228.1 is referred, the separation rate of the test machine chuck shall not exceed 3 mm/min, AND during the test, it shall limit the conditions exceeding the proof load value at the minimum degree" (SEE 9.1.5);

- This part specifies that the minimum load for the Vickers hardness test is 98 N, and adds the Brinell hardness test load (SEE 9.2.3.1);

- In this part, USE the "Appendix A. Design principles of nuts" to replace the "Appendix A. Bolt connection bearing capacity" of GB/T 3098.2-2000, and ADJUST comprehensively the relevant content;

- In this part, "Failure mode of bolt-nut connection" does not contain "looseness of nuts and screws" (SEE A.1; 3.1 of 2000 version);

- In this part, ADD the "Appendix B. Test mandrel thread size".

This part, through the re-drafting method, modifies and adopts the ISO 898-2:2012 "Mechanical properties of fasteners made of carbon steel and alloy steel - Part 2: Nuts with specified property classes - Coarse thread and fine pitch thread" (English version).

As compared with ISO 898-2:2012, the main changes are as follows.

- CHNAGE the standard name;

- In the reference documents, USE Chinese standards to replace international standards (SEE Clause 2);

- ISO 898-2 makes reference to "ISO286-2 Geometrical product specifications (GPS) - ISO code system for tolerances on linear sizes -Part 2: Tables of standard tolerance grades and

limit deviations for holes and shafts" (SEE Clause 2);

- In ISO 898-2, it specifies that "These tests shall be carried out in the manufacturing process or in the final inspection", which is in contradiction with the provisions of 8.1 for the manufacturer's inspection, so it is not adopted in this part (SEE Clause 7, 8.1);

- In ISO 898-2, it does not specify the basis for hardness conversion; in this part, it specifies that if using the Brinell or Rockwell hardness test, it shall conduct conversion in accordance with ISO 18265:2013 (SEE 9.2.2).

This part was proposed by the China Machinery Industry Federation.

This part shall be under the jurisdiction of the National Standardization Technical Committee on Fasteners (SAC/TC 85).

The responsible drafting organization of this part. China Machine Productivity Promotion Center.

This participating drafting organizations of this part. Haiyan Yuxing Nut Co., Ltd., Shanghai Shenguang High Strength Bolt Co., Ltd., Shanghai Jinma High Strength Fastener Co., Ltd., Hebei Xinde Power Accessories Co., Ltd., Ningbo Jiulong Fastener Manufacturing Co., Ltd. Shandong Gaoqiang Fasteners Co., Ltd., Zhejiang Huarui Standard Parts Co., Ltd., Jinyi Industrial Co., Ltd., Machinery Industry General Parts Product Quality Supervision and Testing Center, Ningbo Mingli Fasteners Co., Ltd.

As for this part, the Secretariat of the National Standardization Technical Committee for Fasteners is responsible for interpretation.

This part replaces the standard previously issued as follows.

- GB/T 3098.2-1982, GB/T 3098.2-2000.

- GB/T 3098.4-1986, GB/T 3098.4-2000.

Mechanical properties of fasteners - Nuts

1 Scope

This part of GB/T 3098 specifies the mechanical and physical properties of the nuts with coarse thread and fine pitch thread made of carbon steel or alloy steel when tested at ambient temperature range of 10 °C to 35 °C.

2 Normative references

The following documents are essential to the application of this document. For the dated documents, only the versions with the dates indicated are applicable to this document; for the undated documents, only the latest version (including all the amendments) are applicable to this document.