

JIS

JAPANESE INDUSTRIAL STANDARD

Wheel nuts for automobiles

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In the event of any doubt arising,
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Wheel nuts for automobiles

D 2701-1993

1. Scope This Japanese Industrial Standard specifies the wheel nuts to be used for fastening the disc wheels for automobiles (hereafter referred to as "nuts").

Remarks 1. The shape and dimension of small size nut (spherical seat) is specified in Annex 1, the shape and dimension of the nut for disc wheel made of light alloy in Annex 2, the shape and dimension of ISO Flat attachment wheel fixing nut in Annex 3 and the shape and dimension of the nut with flat seat in Annex 4.

2. The following standards are cited in this Standard:

JIS B 0101 Glossary of terms relating to fasteners

JIS B 0211 Limits of sizes and tolerances for metric fine screw threads

JIS B 0401 System of limits and fits

JIS B 1002 Dimensions of widths across flats

JIS B 1052 Mechanical properties of steel nuts

JIS D 0201 General rules of electroplating for automobile parts

JIS D 4220 Fastening methods and dimensions of disc wheels for automobiles

JIS G 4051 Carbon steels for machine structural use

3. The following is the International Standard corresponding to this Standard:

ISO 7575-1993 Commercial road vehicles - Flat attachment wheel fixing nuts

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D 2701-1993

2. Classification The classification of nuts shall be as shown in Table 1.

Table 1. Classification of nuts

Classification	Figure	Remarks
Small size nut (taper seat)	Attached Fig. 1	Mainly for passenger cars, light cars and small type trucks
Single wheel nut	Attached Fig. 2	Mainly for single wheel of trucks and buses
Outer nut	Attached Fig. 2	Mainly for trucks and buses
Inner nut	Attached Fig. 3	Mainly for double wheels of trucks and buses

3. Mechanical properties The mechanical properties of nuts, as a rule, shall conform to the division of strength specified in JIS B 1052 shown in Table 2 when tested in accordance with 9.

Table 2. Mechanical properties of nuts

Class	Division of strength
Small size nut (taper seat)	8 or more
Single wheel nut	8 or more
Outer nut	4 or more ⁽¹⁾
Inner nut	8 or more ⁽¹⁾

Note ⁽¹⁾ The test condition and judgment criteria for assessment of strength of outer nut and inner nut may be based on the agreement between the parties concerned with delivery.

4. Shape and dimensions The shape and dimensions of nuts shall be as given in Attached Figs. 1 to 3.

The numerical values in the Table indicate the standard values with the exception of the dimensions indicated as maximum or minimum.

5. Screw thread The precision of screw thread shall be 6H of JIS B 0211 or Grade 2 of its Annex (limits of sizes and tolerances for Grade 1, Grade 2 and Grade 3 of M1 × 0.2 to M300 × 4).

6. Appearance The surface of nuts shall be smooth and free from cracks, harmful flaws, burrs, rust and the like, and be well finished.

The permissible limit of surface discontinuity should be in accordance with the Informative reference (permissible limit for surface discontinuities of threaded fasteners) of JIS B 0101.

7. Material The material for nut shall be the carbon steel specified in JIS G 4051 or the one equivalent or superior thereto.

8. Surface treatment The surface of nuts shall be treated by plating or other methods. However, when plating, it shall be that specified in JIS D 0201, or equivalent or superior thereto and a treatment to improve the fragility shall be performed, as required.

9. Test on mechanical properties The test on mechanical properties of nuts shall be performed in accordance with the method of 4.2.1 (Proof load test) specified in JIS B 1052 and the load shall be applied as shown Fig. 1 and Fig. 2.

Fig. 1. Test by tension in the axial direction

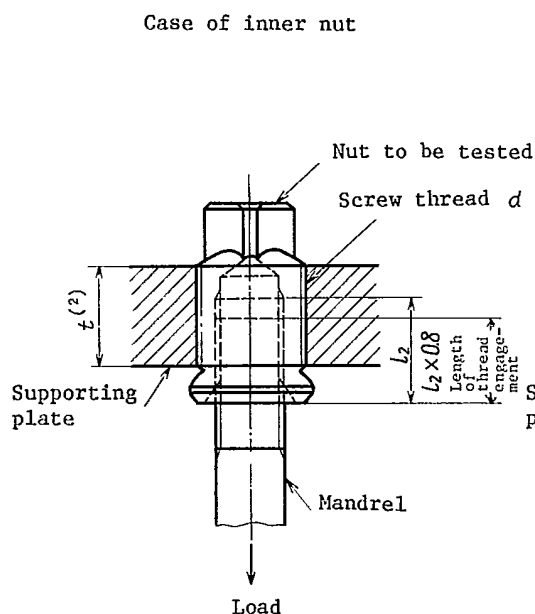
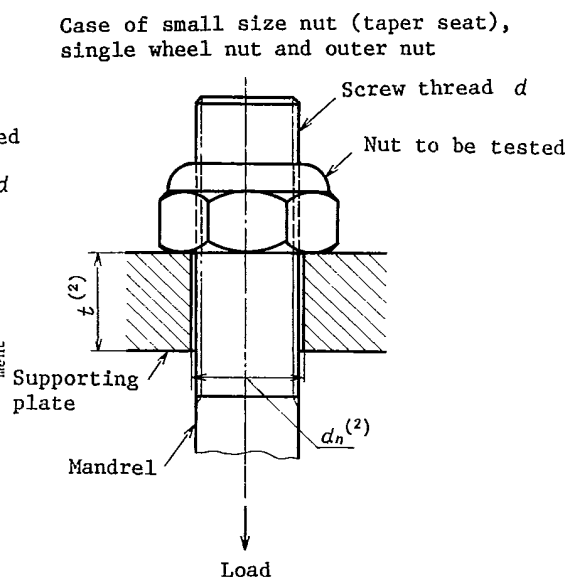


Fig. 2. Test by tension in the axial direction



Note (2) The thickness of supporting plate (t) shall be equal to or more than the nominal diameter of screw thread d and the bore d_n shall be the dimension made by adding the tolerance of D11 in JIS B 0401 to the nominal diameter of screw thread d .

Remarks 1. The supporting plate shall be subjected to the treatment of quenching and tempering and HRC 45 or over in hardness.

2. The hardness of mandrel shall be HRC 45 or more and the precision of screw threads of mandrel shall meet the requirements in the Attached Table 2 (Precision of mandrel screw threads) of JIS B 1052.

Further, if a bolt satisfies this condition, the bolt may be used in place of the mandrel.

10. Inspection

10.1 Inspection item The inspection items of nuts shall be as follows:

- (1) Mechanical properties inspection
- (2) Dimension inspection
- (3) Screw threads inspection
- (4) Appearance inspection
- (5) Surface treatment inspection

10.2 Inspection method The inspection method for nuts shall be the sampling inspection based on the sampling inspection method in accordance with the agreement between the parties concerned.

11. Designation The nut shall be designated by the number or title of this Standard, type, nominal diameter of thread⁽³⁾ (d_0 in the case of inner nut).

In the case of left-hand threads, the symbol "L" for it shall be attached.

Note ⁽³⁾ The nominal diameter and pitch of screw thread in the case where the thread of small size nut (taper seat) is M12, and the nominal diameter of thread d_0 and the nominal diameter of thread d in the case where the thread d_0 of inner nut is M18.

example 1. JIS D 2701 Small size nut (taper seat) 14-L

example 2. Wheel nut for automobile, inner nut 18-26

12. Marking Each nut shall be marked with the following information. However, (1) may be marked only on the package.

- (1) Manufacturer's name or abbreviation
- (2) Symbol of L or R where the nuts are classified into left-hand and right-hand threads. However, the symbol R for right-hand threads may be omitted.