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Rolling bearings - Tapered roller - Technical specifications

滚动轴承 圆锥滚子 技术条件

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Rolling bearings - Tapered roller - Technical specifications

1 Scope

This standard specifies the tolerance grades, technical requirements, measurement and inspection methods, inspection rules, marking and packaging of tapered rollers.

This standard applies to the production, inspection, user acceptance of tapered rollers, which match the rolling bearing, AND the commercial tapered rollers (hereinafter referred to as rollers).

2 Normative references

The provisions in following documents become the provisions of this Standard through reference in this Standard. The versions indicated at the time of publication of this standard are valid. All standards are subjected to revision, AND parties who reach an agreement based on this Standard are encouraged to study if the latest versions of these documents are applicable.

GB/T 307.3-1996 Rolling bearings - General technical regulations

GB/T 4380-1984 Assessment of departure from roundness - Two and three point methods

GB/T 6930-1986 Rolling bearings - Vocabulary

JB/T 1255-2001 Specification for heat-treatment of rolling bearing parts made from high carbon chromium steel

JB/T 3034-1993 Rolling bearings - Oil seal rust prevention packaging

JB/T 6642-1993 Rolling bearing parts - Methods for the measurement and assessment of departure from roundness and waviness

JB/T 7051-1993 Rolling bearing parts - Methods for the measurement and assessment of surface roughness

JB/T 7361-1994 Rolling bearings - Test method for hardness of parts

JB/T 8196-1996 Rolling bearings - Residual magnetism and its assessment method

JB/T 8881-2001 Specifications for carburizing heat treatment of rolling bearing parts

JB/T 8921-1999 Rolling bearings and commercial parts - Inspection rules

3 Terms, symbols, definitions

The following terms, that are not defined, are in accordance with the provisions of GB/T 6930.

3.1 Nominal diameter of roller, D_w

The maximum theoretical diameter of the roller's big end, in the radial plane, including the imaginary sharp corners.

3.2 Roller's single diameter, D_{ws}

3.3 Roller's single plane average diameter, D_{wmp}

3.4 Roller's single plane diameter variation, V_{Dmp}

3.5 Nominal roller length, L_w

3.6 Cone angle, 2ϕ

3.7 Cone angle deviation, $\Delta 2\phi$

In any axial plane of the roller, the difference -- BETWEEN the angle between the two elements of the tapered surface of the roller AND the nominal cone angle of the roller.

3.8 Roundness error ΔC_{ir}

3.9 Roller's reference end face circular runout, S_{Dw}

The difference, between the maximum and minimum axial distances, FROM each point on a circle -- on the reference end face of the roller, at a distance of 1.2 times the maximum chamfering dimension of the roller, where the center of the circle is on the axis of the roller -- TO a radial plane.

3.10 Roller's gauge value

In the radial plane in the middle of the roller length, the diameter deviation range, which is defined by the upper and lower deviations of the average diameter of the single plane of the roller, as deviated from the nominal diameter.

3.11 Gauge batch

A batch of rollers of the same tolerance grade and the same nominal size, whose single-plane average diameter D_{wmp} and taper angle are within the same

6.8 Cracks

The roller crack inspection shall be carried out, according to the method specified in JB/T 1255.

7 Markings

7.1 Contents of the marking

- a) Type: Tapered roller.
- b) Nominal size of roller: $D_w \times L_w \times 2\phi$, unit (mm) not marked.
- c) Roller tolerance grade: According to (0), I, II, III signs, respectively.
- d) Roller gauge value: Expressed by the upper and lower deviation, unit (μm) not marked.
- e) Standard number and supplementary technical condition code to which the roller conforms.

7.2 Method of marking

In the order form, certificate of conformity and packaging of the rollers, where it needs to be marked, mark them in the order of the contents in 7.1, with a space between each item.

7.3 Examples of markings

Tapered roller $9.437 \times 12.48 \times 4^\circ$ III-1/-4 JB/T 10235-2001

Indicates the tapered roller, which conforms to JB/T 10235-2001, has a nominal diameter of 9.437 mm, a nominal length of 12.48 mm, a taper angle of 4° , a tolerance grade III, a gauge value of -1, -4 μm , a diameter variation of the gauge batch of 3 μm .

8 Inspection rules

The inspection rules for finished rollers are in accordance with the provisions of JB/T 8921.

9 Packaging and storage

9.1 Packaging

9.1.1 Commodity rollers, that have passed the inspection, shall have rust-proof

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