

JB

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

JB/T 10186-2010

Replacing JB/T 10186-2000

**Rolling bearings - Matched angular contact ball bearings -
Technical requirements**

滚动轴承 组配角接触球轴承 技术条件

(English Translation)

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1 Scope

This Standard specifies the specifications of matched angular contact ball bearings of which the dimensions are in accordance with GB/T 292 (hereinafter referred to as matched bearings).

This Standard is applicable to production inspection, user acceptance and application of the matched bearings.

2 Normative references

The following standards contain the provisions which, through reference in this

Standard, constitute the provisions of this Standard. For dated references, subsequent amendments (excluding corrections) or revisions do not apply to this Standard. However, the parties who enter into agreement based on this

Standard are encouraged to investigate whether the latest versions of these documents are applicable. For undated reference documents, the latest versions apply to this Standard.

GB/T 272-1993, Rolling bearing - Identification code

GB/T 275-1993, Shaft and housing fits for rolling bearings

GB/T 292-2007, Rolling bearings - Angular contact ball bearings - Boundary dimensions

GB/T 307.2-2005, Rolling bearings - Measuring and gauging principles and methods (ISO 1132-2:2001, Rolling bearings - Tolerances - Part 2:

Measuring and gauging principles and methods, MOD)

GB/T 307.3-2005, Rolling bearings - General technical regulations

GB/T 6930-2002, Rolling bearings - Vocabulary (ISO 5593:1997, IDT)

GB/T 7811-2007, Rolling bearings - Symbols for quantities (ISO 15241:2001, IDT)

GB/T 8597-2003, Rolling bearings - Rust proof packaging

JB/T 2974-2004, Rolling bearings - Identification code - Supplemental regulations

JB/T 3574-1997, Marking for Rolling Bearings Products

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

3 Terms and definitions

For the purposes of this document, the terms and definitions defined in GB/T 6930 as well as the followings apply.

3.1 matched face

end faces of the matched bearings that are close together under preload

3.2 universal matching

matching in any way such as back-to-back, face-to-face or in series

3.3 pre-clearance

axial clearance value preset in the group of bearings after the bearings are matched back-to-back and face-to-face

4 Symbols

The symbols given in GB/T 7811 as well as the followings apply to this document.

dmp1 -dmp2

Mutual difference of average inner diameter between individual bearings in matched bearings

Dmp1 -Dmp2

Mutual difference of average outer diameter between individual bearings in matched bearings

Kia1 -Kia2

Mutual difference of inner ring radial runout between individual bearings in matched bearings

Kea1 -Kea2

Mutual difference of outer ring radial runout between individual bearings in matched bearings

alpha 1 -alpha 2 Mutual difference of contact angle between individual bearings in matched bearings

delta

Protruding amount, i.e., after a preload is applied to an individual bearing, the distance between the end face of one ring and the end face of the other outer ring is at the same end face of the bearing. When protruding, the amount of protrusion is "+" value; when recessed, the amount of protrusion is "-" value.

6 Technical requirements

Matched bearings shall, in addition to GB/T 307.3, also meet the following technical requirements.

6.1.1

The individual bearing tolerance level in matched bearings shall, for bearings with $\alpha=15^\circ$ and $\alpha=25^\circ$, meet the requirements of over level 5 tolerance.

For bearings with $\alpha=40^\circ$, it shall meet the requirements of over level 6 tolerance.

6.1.2

The individual bearing in matched bearings shall be manufactured according to 6, 5, 4, 2 standard tolerance levels. In addition, it may be manufactured according to user requirements, according to special tolerance levels such as 4A, 2A (codenamed P4A, P2A). 2A, 4A tolerances are as specified in Annex A.

NOTE: Other technical requirements for level 4A and level 2A bearings are the same as for level 4 and level 2 bearings.

6.1.3

The mutual dimensional difference between individual bearings in matched bearings shall meet the followings:

a) the mutual difference between inner diameter and outer diameter $d_{mp1} - d_{mp2}$, $D_{mp1} - D_{mp2}$ shall not be greater than one-third of the dimensional tolerance of the inner and outer diameters;

b) the mutual difference of radial runout between inner ring and outer ring

$K_{ia1} - K_{ia2}$, $K_{ea1} - K_{ea2}$ shall be in accordance with Table 1;

c) the mutual difference of contact angle, for bearings with $\alpha=15^\circ$ and $\alpha=25^\circ$, $\alpha_1 - \alpha_2 \leq 1^\circ$; for bearings with $\alpha=40^\circ$, $\alpha_1 - \alpha_2 \leq 1.5^\circ$.

6.3 Matching

For the matching between matched bearing and shaft and housing, the bearing of level 6 tolerance shall be in accordance with GB/T 275. Refer to Annex B for recommended