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

GB/T 10089-2018

Replacing GB/T 10089-1988

Accuracy of cylindrical worm and wormwheel

圆柱蜗杆、蜗轮精度

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Foreword

This standard was drafted in accordance with the rules given in GB/T 1.1-2009. This standard replaces GB/T 10089-1988 "Cylinder worm, worm gear accuracy". Compared with GB/T 10089-1988, the main changes of this standard are as follows:

--- Added standard preface;

--- Revised the scope of application of the standard (see Chapter 1, Chapter 1 of the 1988 edition);

--- Removed references to GB/T 1800, GB/T 10086 and GB/T 10087, added reference to GB/T 3374.2 (see section Chapter 2, Chapter 2 of the 1988 edition);

--- Modified the term definition and code of the worm and worm gear tooth size parameter deviation, which removes the worm-rotation spiral deviation, worm Accumulated deviation of axial pitch, accumulated deviation of k pitch of worm wheel, radial deviation of worm wheel, deviation of tooth thickness, center distance of worm pair Deviation, intermediate plane offset of the worm pair, deviation of the shaft angle of the worm pair, and the definition and code of the lash of the worm pair Definitions and codes for terms of adjacent pitch deviations (see Chapter 3, Chapter 3 of the 1988 edition);

- Added the chapter "Symbols" (see Chapter 4);
- Revised the requirements for the composition of the precision system, etc., which removed the provisions on the tolerance group (see Chapter 5, 1988 edition) Chapter 4);
- Removed the requirements for the tooth blank (Chapter 5 of the 1988 edition);
- Modified the formula for calculating the allowable value of the deviation (see Chapter 6, Appendix A of the 1988 edition);
- Added the chapter "Inspection Rules" (see Chapter 7);
- Modified the parameter segmentation and value in the deviation allowable value table (see Chapter 8, Chapter 6 of the 1988 edition);
- Removed the center distance deviation of the worm pair, the intermediate plane offset of the worm pair, the deviation of the shaft angle of the worm pair, and the backlash of the worm pair Requirements (see Chapters 7 and 8 of the 1988 edition);
- Removed the requirements for other instructions and graphic annotations (see Chapters 9, 10 of the 1988 edition). Please note that some of the contents of this document may involve patents. The issuing organization of this document is not responsible for identifying these patents. This standard is proposed and managed by the National Gear Standardization Technical Committee (SAC/TC52). This standard was drafted. Chongqing Machine Tool (Group) Co., Ltd., Zhengzhou Machinery Research Institute Co., Ltd., Beijing University of Technology. The main drafters of this standard. Li Xianguang, Li Yi, Yu Kebin, Zhang Yuanguo, Shi Zhaoyao, Zhang Liang, Long Lin, Li Mingyu, Xie Xiaoqing, Li Wu, Huang Guangrong, Wang Zhigang, and the army. The previous versions of the standards replaced by this standard are.
- GB/T 10089-1988. Cylindrical worm and worm gear accuracy

1 Scope

GB/T 10089-2018 is the Chinese national standard on accuracy of cylindrical worm and wormwheel, in the field of mechanical systems and components. The /T suffix marks it as a recommended standard: it is not compulsory by itself, but it becomes binding as soon as a contract, a tender or a customer specification calls it up - which in practice is how most foreign buyers meet it. It was issued on 14 May 2018 by the State Administration for Market Regulation; Standardization Administration of China, and has been in force since 1 December 2018. Classification: ICS 21.200, CCS J17. This page is published from the official record of the standard held by the Chinese standards administration: the identification, the dates, the classification and the issuing body are taken from there. The clause text, the tables and the numeric limits are in the document itself, which is delivered complete in English translation.

This standard specifies the accuracy of the cylindrical worm gear drive mechanism. This standard is applicable to cylindrical worms with shaft angle of intersection $S=90^\circ$, maximum modulus $m=40$ mm and maximum division circle diameter $d=2500$ mm. Worm gear drive mechanism. The cylindrical worm and worm gear transmission mechanism with the largest indexing circle diameter $d > 2500$ mm can be used with reference to this standard.

2 Normative references

The following documents are indispensable for the application of this document. For dated references, only dated versions apply to this article. Pieces. For undated references, the latest edition (including all amendments) applies to this document.

GB/T 3374.2 Terms and definitions of gears - Part 2. Definition of worm gear geometry

3 Terms and definitions

The following terms and definitions as defined in GB/T 3374.2 apply to this document.

3.1.1 Tooth profile total deviation total profile deviation F_{α}

1 In the range of the axial section $L_{\alpha 1}$ (working range of the tooth profile), the axis between the two design tooth profiles that contain the actual tooth profile trace T_o to the distance. An example is shown in Figure 1. Figure

1 Total tooth profile deviation $F_{\alpha 1}$ in the axial section of the ZC worm In the tooth profile inspection diagram (see Figure 2), the total tooth profile deviation $F_{\alpha 1}$ is the distance between the two design tooth profile traces (perpendicular to the design tooth profile trace) measuring).

Note. In Figure 2, the design of the tooth profile and the flank shape A, N, I, K and C of the worm are independent and marked with a straight line, and the actual tooth profile is included in the drawn range. Fig.

3.1.2 Tooth profile deviation profile form deviation $F_{f\alpha}$

1 In the range of the axial section $L_{\alpha 1}$, the distance between the two auxiliary lines that are parallel to the average tooth profile trace that encompasses the actual tooth profile trace (Vertically perpendicular to the design profile trace, see Figure 2).

Note. This standard does not give the allowable value of the tooth profile deviation $f_{f\alpha 1}$.

3.1.3 Tooth profile tilt deviation profile slope deviation $f_{H\alpha}$

1 The distance between two auxiliary lines parallel to the design tooth profile trace intersecting the average tooth profile trace within the range of the axial section L_{α}