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**Calibration specification for Gear Helix Measuring Instruments
(English Translation)**

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4.2 Parallelism of the vertical carriage relative to the top and bottom line (1)

4.3 The indication error of the micrometric system (1)

4.4 Helix shape deviation of instrument measurement curve (1)

4.5 Spiral tilt deviation of the instrument measurement curve and its left and right tooth surface difference (1)

9 Re-study interval (6)

Appendix A Calibration Certificate Page Format (7)

Gear spiral measuring instrument calibration specification this specification specifies calibration items and calibration methods for the spiral measurement of gear measuring instruments. When being measured by the gear when the instrument has multiple measurement functions, it should be used together with other specifications to fully evaluate the measurement of its different functions.

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1 Scope

This specification applies to the calibration of spiral measurements of various gear measuring instruments.

2 Citations

This specification refers to the following documents JJF 1001-1998 General measurement terms and definitions JJF 1059-1999 Measurement Uncertainty Evaluation and Representation GB/T 10095.1-2001 Involute cylindrical gear precision - Part 1. Determining the deviation of the flanks Righteous allowable value Use of this specification should be done with the current valid version of the above cited documents.

3 Overview

Gear measuring instruments are divided into mechanical and numerical control.

3.1 Mechanical gear measuring instrument spiral measurement principle Mechanical gear measuring instruments are single disc type, grading disc type and lever disc type, etc. It is based on gear spiral the principle of development, the theoretical helix is generated by the mechanical mechanism, and the actual curve of the device under test is compared with the theoretical spiral by the sensor.

The trajectory is compared, and the difference is input to the recorder to give a spiral deviation curve. Its structure is shown in Figure 1.

3.2 CNC gear measuring instrument spiral measurement principle the numerical control gear measuring instrument adopts the principle of coordinate measurement, through the angle measuring device (circular grating, etc.) and the length measuring device (long the grating, etc.) measures the coordinate position of the point on the actual curve of the device

under test, and compares it with the theoretical curve of the spiral to obtain a spiral Deviation curve. Its structure is shown in Figure 2.

4 Measurement characteristics 4.1 top and bottom coaxiality

4.2 Parallelism of the vertical carriage relative to the top and bottom line

4.3 The indication error of the micrometric system

4.4 The spiral shape deviation of the instrument measurement curve

4.5 The inclination deviation of the spiral of the instrument measurement curve and the difference between the left and right teeth

4.6 Total spiral deviation and repeatability of the instrument the above characteristics are listed in Table 1 for reference during calibration.