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

GB/T 40310.1-2021

Ball splines - Part 1: General characteristics and requirements

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Foreword

GB/T 40310 "Rolling Spline Pair" is divided into the following two parts.

---Part 1.General characteristics and requirements;

---Part 2.Dynamic and static rated load and rated life.

This part is Part 1 of GB/T 40310.

This section was drafted in accordance with the rules given in GB/T 1.1-2009.

This part uses the redrafting method to modify and adopt ISO 23848-1.2009 "Machine Tool Rolling Spline Pair Part 1.General Features and

Claim".

Compared with ISO 23848-1.2009, this part has more structural adjustments. The structure number changes between the two documents are compared.

See Appendix A for the table.

Compared with ISO 23848-1.2009, this part has many technical differences.

The margin position is marked with a vertical vertical line (|), and Appendix B gives a list of related technical differences and their reasons.

This part was proposed by China Machinery Industry Federation.

This part is under the jurisdiction of the National Standardization Technical Committee for Metal Cutting Machine Tools (SAC/TC22).

Drafting organizations of this section. Nanjing Process Equipment Manufacturing Co., Ltd., National Machine Tool Quality Supervision and Inspection Center.

1 Scope

This part of GB/T 40310 specifies the general characteristics and requirements of rolling spline pairs.

This section applies to rolling spline pairs.

2 Normative references

The following documents are indispensable for the application of this document. For dated reference documents, only the dated version applies to this article

Pieces. For undated reference documents, the latest version (including all amendments) is applicable to this document.

GB/T 17421.1-1998 General rules for inspection of machine tools Part 1. Geometric accuracy of machine tools under no-load or finishing conditions (eqv

ISO 230-1:1996)

3 Terms and definitions

The following terms and definitions apply to this document.

3.1

Rolling spline vice balspline

A mechanical element composed of a spline shaft, a spline sleeve pair, etc., is used to realize linear motion and transmit torque.

3.2

Effective stroke length of rolling spline

lu

The part of the stroke with specified accuracy and load requirements. (That is, the length of the spline shaft raceway minus the length of the spline sleeve)

3.3

Groovetwist

The amount of rotation of the spline sleeve relative to the spline shaft within the effective stroke.

3.4

Nominal diameter

d_0

It is used to identify the size value of the rolling spline pair specification (without tolerance). Generally, the outer diameter value of the spline shaft is taken, and the pitch circle diameter DPW can also be taken.

Note. The pitch circle diameter DPW refers to the diameter of the cylinder enveloped by the sphere when the ball, spline shaft and spline sleeve are at the theoretical contact point.

3.5

Raceway splinegroove

A groove designed on the spline shaft or spline sleeve for the axial movement of the ball and transfer the load.

3.6

Splineoutrance

A component composed of spline sleeves, circulation devices, balls and other accessories.