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

GB/T 40310.2-2021

**Ball splines - Part 2: Dynamic and static load ratings and rating
life**

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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 2 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 amend and adopt ISO 23848-2.2009 "Machine Tool Rolling Spline Pair Part 2.Dynamic and Static

Constant load and rated life".

This part has structural changes with ISO 23848-2.2009, adding 5.1 overview and 6.1 overview.

The technical differences between this part and ISO 23848-2.2009 and the reasons are as follows.

---Regarding normative reference documents, this section has made adjustments with technical differences to adapt to my country's technical conditions and adjustments.

The situation is collectively reflected in Chapter 2 "Normative Reference Documents", with specific adjustments as follows.

* Replace ISO 23848-1 with GB/T 40310.1-2021, which is modified to adopt international standards.

---Hardness is closely related to the load-bearing performance of spline pairs, so the "hardness" requirement of 5.5 in ISO 23848-1:2009 is adjusted to

Within the scope of Chapter 1;

---Chapter 1 adds "prerequisites" including reference to other rolling elements, these four conditions are closely related to the load and life of the rolling spline pair

Related;

---In Chapter 5 and Chapter 6, the description "bm and lambda given here are the maximum values, the manufacturer can use the smaller value" description. Refer to

GB/T 21559.1-2008 changes the description of these two values, and does not make mandatory provisions for them, leaving a

Surplus.

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 basic dynamic load rating and basic static load rating of Type AI, Type AII and Type R rolling spline pairs

Calculation of load, calculation of basic rated life, and calculation of basic rated dynamic and static torque of AI and AII rolling spline pairs.

This section is used under the following preconditions.

---The ball and raceway are elastically deformed;

---The hardness of the raceway is greater than 58HRC;

---The steel used for the rolling spline pair is bearing steel or other similar alloy steel;

--- Use proper lubrication.

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 40310.1-2021 Rolling spline pair Part 1.General characteristics and requirements (ISO 23848-1.2009, MOD)

3 Terms and definitions

The following terms and definitions defined in GB/T 40310.1-2021 apply to this document.

3.1

Basic dynamic load rating

The constant radial load that the rolling spline pair can withstand theoretically under the condition of a basic rating life of 50km.

3.2

Basic dynamic torque rating

CT

The constant torque that the rolling spline pair can withstand theoretically under the condition of a basic rating life of 50km.

3.3

Basic rating life

L10

A set of rolling spline pairs operating under the same conditions can achieve the specified life when the probability of no fatigue is 90%.

3.4

Basic static load rating

C0

The static radial load corresponding to the calculated Hertzian contact stress at the center of the contact surface at the maximum ball load position is shown in Table 1.