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

GB/T 13345-2021

Replacing GB/T 13345-1992

Oil film bearings for the rolls of flat rolling mills

板带轧机轧辊油膜轴承

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Foreword

This document is in accordance with the provisions of GB/T 1.1-2020 "Guidelines for Standardization Work Part

1. Structure and Drafting Rules of Standardization Documents" Drafting. This document replaces GB/T 13345-1992 "General Technical Requirements for Rolling Mill Oil Film Bearings", and compared with GB/T 13345-1992, except for In addition to structural adjustments and editorial changes, the main technical changes are as follows:

- a) A chapter "Terms and Definitions" has been added (see Chapter 3);
- b) The requirements for product classification, specification series, and marking methods have been added (see Chapter 5);
- c) Added the use conditions of the product (see Chapter 6);
- d) The technical requirements for forgings are changed (see 7.1.2, 3.7 of the.1992 edition), and the use of welded parts, cutting parts, and parts Life, bearing capacity requirements (see 7.1.3, 7.1.4, 7.1.5, 7.1.6), delete the technical requirements related to heat treatment (see.1992 3.8 of the year edition);
- e) The requirements for related materials have been changed (see 7.2, 7.3, and 3.3 of the.1992 edition);
- f) The requirements for the bonding strength of the backing and the bearing alloy have been changed (see 7.2.3, 3.4 in the.1992 edition);

g) The non-destructive testing level requirements for bushings and taper sleeves have been added (see

7.2.4 and 7.3.2);

1 Scope

China's national standard for the oil film bearings of flat rolling mill rolls - the hydrodynamic bearings that carry the backup rolls of a plate or strip mill, and among the most heavily loaded bearings in any industry. It specifies the product classification and marking, the conditions of use, the technical requirements, the operation and commissioning, and the marking, packaging, transport and storage of oil film bearings for flat rolling mill rolls. An oil film bearing carries its load on a wedge of oil that the rotation of the journal itself generates, with no metal contact at all when it is working. That is what allows it to carry loads a rolling element bearing could not survive, and it is also its weakness: the film only exists while the roll is turning fast enough, so the bearing is at risk every time the mill starts, stops, reverses or crawls - which on a reversing mill is constantly. The requirements are shaped by that. The bearing bush and sleeve and their materials and finish, the clearances that set the film thickness, the oil supply with its pressure, flow and temperature, and the hydrostatic lift provision that floats the roll before rotation begins and at low speed, which is what makes a reversing mill possible at all. To those are added the sealing, since mill bearings live in water and scale and an emulsion ingress destroys the film; the thermal behaviour and the cooling, because the friction power in a bearing of this size is considerable; the instrumentation and protection, since the first sign of film failure is a temperature rise and the bearing is destroyed within seconds of losing it; and the alignment and mounting. The clauses on operation and commissioning are unusual in a product standard and are here because a bearing of this kind is not simply fitted: it is run in, and the running-in decides its life. Issued on 21 May 2021 and in force since 1 December 2021, it replaces GB/T 13345-1992.

2 Normative references

The contents of the following documents constitute the indispensable clauses of this document through normative references in the text. Among them, dated quotations Only the version corresponding to that date is applicable to this document; for undated reference documents, the latest version (including all amendments) is applicable to This document.

GB/T 1174-1992 Cast bearing alloy

GB/T 1591-2018 Low-alloy high-strength structural steel

GB/T 2889.1 Sliding bearing terms, definitions, classifications and symbols Part

GB/T 2970-2016 Ultrasonic testing method for thick steel plate

GB/T 4879 Anti-rust packaging

GB/T 11345-2013 Ultrasonic testing technology, testing level and assessment for non-destructive testing of welds

GB/T 12948 Destructive test method for bimetal bond strength of sliding bearing

JB/T 5000.3 General Technical Requirements for Heavy Machinery Part

3 Terms and definitions

The following terms and definitions defined in GB/T 2889.1 apply to this document.

3.1 Plate and strip mill roll oil film bearing oil film bearing for flat rolling mill The sliding bearing unit used for the support and positioning of the rolls of the plate and strip rolling mill and bear the working load. It consists of a bush (shaft sleeve), a taper sleeve, an axial bearing, It is composed of locking parts, sealing parts and fixed parts (not including rolls and bearing seats).

Note. See Figure 1.

3.2 Sleeve sleeve The taper fits on the roll journal and forms the replaceable element of the friction pair together with the bushing.

Note. See Figure 1.

8 Forgings

JB/T 5000.9 General technical conditions for heavy machinery Part

9 Machining parts

JB/T 5000.10 General technical conditions for heavy machinery Part

10 Assembly

JB/T 5000.13 Heavy Machinery General Technical Requirements Part

13 Packaging

JB/T 5000.15-2007 General technical requirements for heavy machinery Part

15 Non-destructive testing of steel forgings

JB/T 6396-2006 Technical requirements for large alloy structural steel forgings