BS ISO 3290-1:2014

BSI Standards Publication

Rolling bearings — Balls

Part 1: Steel balls

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National foreword

This British Standard is the UK implementation of ISO 3290-1:2014. It supersedes BS ISO 3290-1:2008 which is withdrawn.

The UK participation in its preparation was entrusted to Technical Committee MCE/7, Rolling bearings.

A list of organizations represented on this committee can be obtained on request to its secretary.

This publication does not purport to include all the necessary provisions of a contract. Users are responsible for its correct application.

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Rolling bearings — Balls —

Part 1: Steel balls

Roulements — Billes —

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Case postale 56 • CH-1211 Geneva 20
Tel. + 41 22 749 01 11
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Contents

Page

Foreword ..... **iv**

1 Scope **1**

2 Normative references **1**

3 Terms and definitions **1**

4 Symbols **4**

5 Requirements **4**
- 5.1 Ball size 4
- 5.2 Quality of geometry and surface 4
- 5.3 Sorting accuracy and ball gauges 5
- 5.4 Hardness 5

6 Dimensions and tolerances **5**
- 6.1 General 5
- 6.2 Shortened formats for nominal diameter identification 5

Annex A (normative) **Method for assessment of deviation from spherical form** **11**

Annex B (normative) **Illustration of ball gauges and sorting principles** **12**

Bibliography **14**

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Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (www.iso.org/directives).

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (www.iso.org/patents).

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

For an explanation on the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the WTO principles in the Technical Barriers to Trade (TBT) see the following URL: Foreword – Supplementary information.

The committee responsible for this document is ISO/TC 4, *Rolling bearings*, Subcommittee SC 12, *Ball bearings*.

This second edition cancels and replaces the first edition (ISO 3290-1:2008), which has been technically revised. It also incorporates Technical Corrigendum ISO 3290-1:2008/Cor.1:2009. In particular, "material", specified in Clause 6 of the first edition, has been deleted.

ISO 3290 consists of the following parts, under the general title *Rolling bearings — Balls*:

— *Part 1: Steel balls*

— *Part 2: Ceramic balls*

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INTERNATIONAL STANDARD ISO 3290-1:2014(E)

Rolling bearings — Balls —

Part 1:
Steel balls

1 Scope

This part of ISO 3290 specifies requirements for finished steel balls for rolling bearings.

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 1132-1, *Rolling bearings — Tolerances — Part 1: Terms and definitions*

ISO 4288, *Geometrical Product Specifications (GPS) — Surface texture: Profile method — Rules and procedures for the assessment of surface texture*

ISO 5593, *Rolling bearings — Vocabulary*

ISO 12181-1, *Geometrical product specifications (GPS) — Roundness — Part 1: Vocabulary and parameters of roundness*

ISO 15241, *Rolling bearings — Symbols for physical quantities*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 1132-1, ISO 5593, and the following apply.

3.1
ball gauge
amount by which the mean diameter of ball lot should differ from the nominal ball diameter, this amount being one of an established series

Note 1 to entry: Each ball gauge is a whole multiple of the ball gauge interval established for the ball grade in question.

Note 2 to entry: A ball gauge, in combination with the ball grade and nominal diameter, is considered as the most exact ball size specification to be used by a customer for ordering purposes.

[SOURCE: ISO 5593:1997, 05.04.09, modified — Notes 1 and 2 to entry have been added.]

3.2
ball gauge interval
absolute difference of two consecutive ball gauges

3.3
ball grade
specific combination of dimensional, form, surface roughness and sorting tolerances for balls

Note 1 to entry: Ball grade is identified by the letter G and a number, e.g. G 20.

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[SOURCE: ISO 5593:1997, 05.04.08, modified — Note 1 to entry has been added.]

3.4
ball lot
definite quantity of balls manufactured under conditions presumed uniform and which is considered as an entity

[SOURCE: ISO 5593:1997, 05.04.05]

3.5
ball subgauge
amount, of an established series of amounts, which is the nearest to the actual deviation from the ball gauge of a ball lot

Note 1 to entry: Each ball subgauge is a whole multiple of the ball subgauge interval established for the ball grade in question.

Note 2 to entry: The ball subgauge, in combination with the nominal ball diameter and the ball gauge, is used by ball manufacturers to denote the mean diameter of a ball lot and is not generally used by customers for ordering purposes.

[SOURCE: ISO 5593:1997, 05.04.11, modified — Notes 1 and 2 to entry have been added.]

3.6
ball subgauge interval
absolute difference of two consecutive ball subgauges

3.7
deviation from spherical ball surface
various types of deviation from the perfect spherical ball surface, uniformly or non-uniformly distributed and repeated around the ball surface

Note 1 to entry: The deviations to which limits can be attributed are

— deviation from spherical form,

— surface defect,

— surface roughness, and

— waviness.

3.7.1
deviation from spherical form
radial distance between the smallest circumscribed sphere and the greatest inscribed sphere, with their centres common to the least squares sphere centre

Note 1 to entry: This definition supersedes ISO 5593:1997, 05.06.03.

3.7.2
surface defect
element, irregularity, or group of elements and irregularities of the real surface, unintentionally or accidentally caused during manufacture, storage, handling or use of the surface

Note 1 to entry: These types of element or irregularity differ considerably from those constituting the surface roughness and are not considered during the measurement of the surface roughness.

Note 2 to entry: The limits for surface defects are not specified in this part of ISO 3290.

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