BS ISO 12090-1:2011

BSI Standards Publication

Rolling bearings — Profiled rail guides for linear motion rolling bearings

Part 1: Boundary dimensions and tolerances for series 1, 2 and 3

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National foreword

This British Standard is the UK implementation of ISO 12090-1:2011.

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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Part 1: Boundary dimensions and tolerances for series 1, 2 and 3

Roulements — Guidages sur rail profilé pour roulements pour mouvement linéaire —

Partie 1: Dimensions d'encombrement et tolérances pour les séries 1, 2 et 3

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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.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

The main task of technical committees is to prepare International Standards. Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

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.

ISO 12090-1 was prepared by Technical Committee ISO/TC 4, *Rolling bearings*, Subcommittee SC 11, *Linear motion rolling bearings*.

ISO 12090 consists of the following parts, under the general title *Rolling bearings — Profiled rail guides for linear motion rolling bearings*:

— *Part 1: Boundary dimensions and tolerances for series 1, 2 and 3*

— *Part 2: Boundary dimensions and tolerances for series 4 and 5*

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INTERNATIONAL STANDARD ISO 12090-1:2011(E)

Rolling bearings — Profiled rail guides for linear motion rolling bearings —

Part 1:
Boundary dimensions and tolerances for series 1, 2 and 3

1 Scope

This part of ISO 12090 establishes the boundary dimensions and tolerances for series 1, 2 and 3 of linear motion rolling bearings, profiled rail guides.

These bearings consist of profiled rails with carriages, which can support forces from all perpendicular directions and moments around all axes and consist of recirculating rolling elements. The internal design of these profiled rail guides is at the discretion of the manufacturer.

An assembly, as specified by the manufacturer, can comprise one or more carriages on a profiled rail. Therefore, the interchange or combination of these elements can only be carried out within the limits permitted by the manufacturer.

2 Normative references

The following referenced documents are indispensable for the application of this document. 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 5593, *Rolling bearings — Vocabulary*

ISO 15241, *Rolling bearings — Symbols for quantities*

ISO 24393, *Rolling bearings — Linear motion rolling bearings — Vocabulary*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 1132-1, ISO 5593, ISO 24393 and the following apply.

3.1
linear rail guide
profiled rail guide
⟨monorail guidance system⟩ linear motion rolling bearing unit consisting of a profiled rail or profiled guideway and one or more ball carriages or roller carriages

NOTE Adapted from ISO 24393:2008, definition 02.02.01.

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3.2
ball carriage profiled rail guide
linear rail guide consisting of one or more ball carriages and a profiled rail or profiled guideway

[ISO 24393:2008, definition 02.02.03]

NOTE The amount of linear movement (stroke length) is unlimited as the ball carriage has a ball recirculating feature.

3.3
roller carriage profiled rail guide
linear rail guide consisting of one or more roller carriages and a profiled rail or profiled guideway

[ISO 24393:2008, definition 02.02.04]

NOTE The amount of linear movement (stroke length) is unlimited as the roller carriage has a roller recirculating feature.

3.4
ball carriage
linear bearing subassembly consisting of a ball carriage body and a number of closed loops of recirculating balls, which is designed to achieve unlimited motion along a profiled rail or profiled guideway

[ISO 24393:2008, definition 03.01.02]

3.5
roller carriage
linear bearing subassembly consisting of a roller carriage body and a number of closed loops of recirculating rollers, which is designed to achieve unlimited motion along a profiled rail or profiled guideway

[ISO 24393:2008, definition 03.01.03]

3.6
profiled rail
profiled guideway
rail or guideway having a profiled cross-section incorporating a number of raceways along which a ball carriage or a roller carriage traverses

NOTE Adapted from ISO 24393:2008, definition 04.01.15.

3.7
nominal carriage width
A
distance between the two faces of a carriage

3.8
reference face of a carriage
face of a carriage designated as the reference face by the manufacturer of the guide and which can be the datum for measurements

3.9
reference face of a profiled rail
face of a profiled rail designated as the reference face by the manufacturer of the guide and which can be the datum for measurements

3.10
nominal distance between the reference face of carriage and the reference face of the rail
A_1
distance between the two reference faces of the carriage and profiled rail (of profiled rail guide)

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