



DPC: 25/30494269 DC

BSI Group Headquarters

389 Chiswick High Road London W4 4AL

Tel: +44 (0)20 8996 9000

Fax: +44 (0)20 8996 7400

www.bsigroup.com

Date: 17 April 2025

Origin: International

Latest date for receipt of comments: 10 June 2025

Project No. 2024/01645

Responsible committee: MCE/7 Rolling bearings

Interested committees:

Title: BS ISO 281 Draft of :2007/Amd 1 Rolling bearings — Dynamic load ratings and rating life. AMENDMENT 1.

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Introduction

This draft standard is based on national and international discussions. Your comments on this draft are invited and will assist in the preparation of the consequent standard.

For international standards, comments will be reviewed by the relevant UK national committee before sending the consensus UK vote and comments to the international committee, which will then decide appropriate action. If the international standard is approved, it is usual for the text to be published as a British Standard.

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UK Vote

Please indicate whether you consider the UK should submit a negative (with supporting technical reasons) or positive vote on this draft. Please indicate if you are aware of any reason why this draft standard should not be published as a British Standard.

Submission of Comments

- **Annotated drafts are not acceptable and will be rejected.**
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Template for comments and secretariat observations

Date: xx/xx/20xx	Document: ISO/DIS xxxx
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1	2	(3)	4	5	(6)	7
MB	Clause No./ Subclause No./Annex (e.g. 3.1)	Paragraph/ Figure/Table/Note	Type of comment	Comment (justification for change) by the MB	Proposed change by the MB	Secretariat observations on each comment submitted
	3.1	Definition 1	ed	Definition is ambiguous and needs clarifying.	Amend to read '...so that the mains connector to which no connection...'	
	6.4	Paragraph 2	te	The use of the UV photometer as an alternative cannot be supported as serious problems have been encountered in its use in the UK.	Delete reference to UV photometer.	



DRAFT Amendment

ISO 281:2007/DAM 1

Rolling bearings — Dynamic load ratings and rating life

AMENDMENT 1

Roulements — Charges dynamiques de base et durée nominale
AMENDEMENT 1

ICS: 21.100.20

ISO/TC 4/SC 8

Secretariat: **DIN**

Voting begins on:
2025-04-17

Voting terminates on:
2025-07-10

This document is circulated as received from the committee secretariat.

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Reference number
ISO 281:2007/DAM 1:2025(en)

Full document details: 25/30494269 DC

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CP 401 • Ch. de Blandonnet 8
CH-1214 Vernier, Geneva
Phone: +41 22 749 01 11
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Published in Switzerland

Foreword

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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 (see www.iso.org/directives).

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This document was prepared by Technical Committee ISO/TC 4, *Rolling bearings*, Subcommittee SC 8, *Load ratings and life*.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.

Rolling bearings — Dynamic load ratings and rating life

AMENDMENT 1

1 Modifications throughout the document

Replace “equation(s)” with “formula(e)”

2 Modifications to the Introduction

third paragraph

Delete “TS”

Replace “introduced” with “defines”

Last paragraph: Add “1281-1”

3 Modifications to Clause 1, Scope

Replace the first paragraph with the following:

“This document specifies methods of calculating the basic dynamic radial and axial load rating of rolling bearings within the size ranges shown in the relevant ISO publications, manufactured from contemporary, commonly used, high quality hardened bearing steel, in accordance with good manufacturing practice and basically of conventional design as regards the shape of rolling contact surfaces.”

4 Modifications to Clause 2, Normative references

Add:

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

ISO/TR 1281-1:2021, *Rolling bearings — Explanatory notes on ISO 281 — Part 1: Basic dynamic load rating and basic rating life*”

5 Modifications to Clause 3, Terms and definitions

Add:

3.6

basic dynamic load rating

generic term for basic dynamic radial load rating of radial bearings, and for basic dynamic axial load rating of thrust bearings”

3.10

dynamic axial load factor

multiplication factor applied to the axial load for the calculation of dynamic equivalent radial or axial load"

3.11

dynamic radial load factor

multiplication factor applied to the radial load for the calculation of dynamic equivalent radial or axial load"

3.13

fatigue stress limit

Subsurface stress, below which, under ideal conditions, no material fatigue will occur

3.14

roller diameter

<applicable in the calculation of load ratings> theoretical diameter in a radial plane through the middle of the roller length for a symmetrical roller

Note 1 to entry: For a tapered roller, the applicable diameter is equal to the mean value of the diameters at the imaginary sharp corners at the large end and at the small end of the roller.

Note 2 to entry: For an asymmetrical convex roller, the applicable diameter is an approximation of the diameter at the point of contact between the roller and the ribless raceway at zero load.

Note 3 to entry: For a symmetrical roller, the applicable diameter is the diameter at the middle of the length of the roller

3.15

effective roller length

<applicable in the calculation of load ratings> theoretical maximum length of contact between a roller and that raceway where the contact is shortest

Note 1 to entry: This is normally taken to be either the distance between the theoretically sharp corners of the roller minus the roller chamfers or the raceway width, excluding the grinding undercuts, whichever is the smaller. For cylindrical rollers, needles, and spherical rollers, this distance is measured parallel to the roller axis while for tapered rollers, it is measured along the lateral surface."

3.23

reference-viscosity

kinematic viscosity of the lubricant, at which the central film thickness at the inner ring contact is equal to the composite surface roughness of roller and raceway in run-in condition"

Adjust numbering of terms accordingly.

6 Modifications to clause 4, Symbols

Replace the following paragraph:

"

L_{nm} modified rating life corresponding to n percent probability of failure, in million revolutions

"

Delete the following paragraph:

"

n Subscript for probability of failure, in percent

"

7 Modifications to clause 5, Radial ball bearings

In 5.1.1, replace the last two paragraphs with the following:

“The load-carrying ability of a bearing is not necessarily increased by the use of a smaller groove radius, but it is reduced by the use of a groove radius larger than those indicated in the previous paragraph. In the latter case, a correspondingly reduced value of f_c shall be used. Calculation of this reduced value of f_c can be carried out by means of Formula (15) given in ISO/TR 1281-1:2021.

NOTE Smaller groove radii lead to increased differential-slip in the rolling contact, which causes additional traction forces and subsurface stresses. The load carrying ability will only increase if roller and raceway surfaces are designed to accommodate for this.”

In 5.1.2.1, replace the text with the following:

“When calculating the basic dynamic radial load rating for two single-row radial contact ball bearings of identical dimensions mounted side by side on the same shaft, such that they operate as a unit (paired mounting), the pair is considered as one double-row radial contact ball bearing.”

In 5.1.2.2, replace the text with the following:

“When calculating the basic dynamic radial load rating for two single-row angular contact ball bearings of identical dimensions mounted side by side on the same shaft, such that they operate as a unit (paired mounting) in a back-to-back or a face-to-face arrangement, the pair is considered as one double-row angular contact ball bearing.”

Table 3

Delete:

“For this type, use the X, Y and e values applicable to single row radial contact ball bearings” and replace it with “0,56”

In column right next to it add the following values:

“2,3

1,99

1,71

1,55

1,45

1,31

1,15

1,04

1”