
**Fine ceramics (advanced ceramics,
advanced technical ceramics) —
Silicon nitride materials for rolling
bearing balls and rollers**

*Céramiques techniques — Matériaux en nitrure de silicium pour billes
utilisées dans les roulements à billes*

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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 (see www.iso.org/directives).

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For an explanation on the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT) see the following URL: www.iso.org/iso/foreword.html.

This document was prepared by Technical Committee ISO/TC 206, *Fine ceramics*.

This second edition cancels and replaces the first edition (ISO 26602:2009), which has been technically revised.

The main changes compared to the previous edition are as follows:

- the title has been revised;
- [Clauses 1, 2, 3, 5, 6](#) have been revised;
- [Annex A](#) has been revised;
- [Table B.1](#) has been revised;
- bibliography has been revised.

Fine ceramics (advanced ceramics, advanced technical ceramics) — Silicon nitride materials for rolling bearing balls and rollers

1 Scope

This document specifies the requirements for preprocessed silicon nitride materials for rolling bearing balls and rollers.

This document provides a classification defining physical and mechanical properties of silicon nitride preprocessed bearing rolling element materials. The materials are classified in three categories by the specification of characteristics and microstructures. Methods for sample preparation and observation of microstructures are provided in [Annex A](#).

NOTE 1 The silicon nitride product means the sintered body of which the main component is silicon nitride material.

NOTE 2 This document can be used for processed rolling bearing balls and rollers upon consultation between the parties concerned.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements 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 14627, *Fine ceramics (advanced ceramics, advanced technical ceramics) — Test method for fracture resistance of silicon nitride materials for rolling bearing balls at room temperature by indentation fracture (IF) method*

ISO 14704, *Fine ceramics (advanced ceramics, advanced technical ceramics) — Test method for flexural strength of monolithic ceramics at room temperature*

ISO 14705, *Fine ceramics (advanced ceramics, advanced technical ceramics) — Test method for hardness of monolithic ceramics at room temperature*

ISO 17561, *Fine ceramics (advanced ceramics, advanced technical ceramics) — Test method for elastic moduli of monolithic ceramics at room temperature by sonic resonance*

ISO 17562, *Fine ceramics (advanced ceramics, advanced technical ceramics) — Test method for linear thermal expansion of monolithic ceramics by push-rod technique*

ISO 18754, *Fine ceramics (advanced ceramics, advanced technical ceramics) — Determination of density and apparent porosity*

ISO 20501, *Fine ceramics (advanced ceramics, advanced technical ceramics) — Weibull statistics for strength data*

ISO 20507, *Fine ceramics (advanced ceramics, advanced technical ceramics) — Vocabulary*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 20507 and the following apply.