
**Rolling bearings — Ceramic bearing
balls — Determination of strength by
notched ball test**

*Roulements — Billes en céramique — Détermination de la résistance
par test sur bille rainurée*

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ISO copyright office
CP 401 • Ch. de Blandonnet 8
CH-1214 Vernier, Geneva
Phone: +41 22 749 01 11
Fax: +41 22 749 09 47
Email: copyright@iso.org
Website: www.iso.org

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Foreword

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This document was prepared by Technical Committee ISO/TC 4, *Rolling bearings*, Subcommittee SC 12, *Ball bearings*.

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Introduction

To determine the strength of components, specially prepared test pieces are usually produced and then tested in flexure.

The transfer of the values measured on standard ceramic bending test pieces to the original components is possible only in some limited cases.

Since the surface finish of the ceramic balls should not be modified, the notched ball test may be successfully applied as a component test for quality control. Moreover, influences of the manufacturing process and service can be quantified.

This testing method is applicable to process and material development, quality assurance, materials characterization and selection, and the determination of design parameters. The measured strength is determined under the following conditions:

- a) linear-elastic material behaviour (stress-strain relation);
- b) homogeneous and isotropic material behaviour.

This testing method is intended to be conducted at a laboratory using precise processing equipment, measurement device and testing machine. It is intended to be applied by experienced operators paying considerable attention to notch processing and measurement on notch parameters to perform mechanical testing.

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