

Rubber — Tolerances for products —

Part 1: Dimensional tolerances

ICS 83.140.01

Committees responsible for this British Standard

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- British Rubber Manufacturers' Association Ltd.
- British Structural Bearing Manufacturers' Association
- Building Employers Confederation
- Department of Transport (Highways Agency)
- Institute of Biomedical Science
- Ministry of Defence
- Royal Society of Chemistry
- Tun Abdul Razak Research Centre

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Foreword

This Part of BS 3734 has been prepared by Technical Committee PRI/73 and is identical with ISO 3302-1:1996, *Rubber — Tolerances for products — Part 1: Dimensional tolerances*, including amendment A1:2001, published by the International Organization for Standardization (ISO). It supersedes BS 3734:1978 which is withdrawn.

Cross-references

The British Standards which implement international or European publications referred to in this document may be found in the BSI Standards Catalogue under the section entitled “International Standards Correspondence Index” or by using the “Find” facility of the BSI Standards Electronic Catalogue.

The Technical Committee has reviewed the provisions of ISO 2230:1973 to which normative reference is made in the text, and has decided that they are acceptable for use in conjunction with this standard. It is recommended however that reference be also made to BS 3574:1989 *Specification for the controlled storage and packaging of vulcanized rubber and rubber products* which is being used as the basis for the revision of the 1973 edition of ISO 2230.

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Summary of pages

This document comprises a front cover, an inside front cover, pages i and ii, pages 1 to 9 and a back cover.

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Introduction

Rubber products are subject to changes in their dimensions after processing and vulcanization. This may be due to a variety of factors, such as mould shrinkage or relaxation of die swell.

These changes should be determined and allowed for when designing such items as moulds and dies used in the manufacture of a given product.

The closer tolerance classes outlined in this specification should not be demanded unless required by the final application and should be restricted to those dimensions deemed to be critical. The greater the degree of accuracy demanded, the closer the control which must be exercised during manufacture, and hence the higher the costs.

When particular physical properties are required in the product, it may not always be possible to provide them in a mix which is capable of fabrication to close tolerances. It is advisable, in these circumstances, that consultation should take place between the interested parties. In general, softer vulcanizates (i.e. those of hardness below 50 IRHD — see ISO 48) need greater tolerances than harder ones.

1 Scope

This part of ISO 3302 specifies classes of dimensional tolerances, and their values, for moulded, extruded and calendered solid rubber products. The relevant test methods necessary for the establishment of compliance with this International Standard are also specified.

The tolerances are primarily intended for use with vulcanized rubber but may also be suitable for products made of thermoplastic rubbers.

This part of ISO 3302 does not apply to precision toroidal sealing rings or to calendered composite products such as rubber-coated fabrics or products where a rubber coating is applied by the process of topping or skim coating.

2 Normative references

The following standards contain provisions which, through reference in this text, constitute provisions of this part of ISO 3302. At the time of publication, the editions indicated were valid. All standards are subject to revision, and parties to agreements based on this part of ISO 3302 are encouraged to investigate the possibility of applying the most recent editions of the standards listed below. Members of IEC and ISO maintain registers of currently valid International Standards.

ISO 3:1973, *Preferred numbers — Series of preferred numbers*.

ISO 48:1994, *Rubber, vulcanized or thermoplastic — Determination of hardness (hardness between 10 IRHD and 100 IRHD)*.

ISO 471:1995, *Rubber — Temperatures, humidities and times for conditioning and testing*.

ISO 2230:1973, *Vulcanized rubber — Guide to storage*.

ISO 4648:1991, *Rubber, vulcanized or thermoplastic — Determination of dimensions of test pieces and products for test purposes*.

3 Measurement of dimensions

3.1 General

For solid products, measurements of dimensions shall not be made until 16 h have elapsed after vulcanization, this minimum time being extended to 72 h in cases of dispute. Measurements shall be completed within 3 months after the date of despatch to the purchaser or before the product is put into use, whichever is the shorter time. Measurements shall be made at standard temperature, after conditioning (see ISO 471). Care shall be taken to ensure that the products are not subjected to adverse storage conditions (see ISO 2230) and that they are not distorted during measurement.