INTERNATIONAL STANDARD

ISO 3303-1

First edition
2012-08-15

Rubber- or plastics-coated fabrics — Determination of bursting strength —

Part 1: Steel-ball method

Supports textiles revêtus de caoutchouc ou de plastique — Détermination de la résistance à l'éclatement —

Partie 1: Méthode utilisant une bille d'acier

Reference number
ISO 3303-1:2012(E)

ISO copyright office
Case postale 56 • CH-1211 Geneva 20
Tel. + 41 22 749 01 11
Fax + 41 22 749 09 47
E-mail copyright@iso.org
Web www.iso.org

Published in Switzerland

Contents

Page

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 3303-1 was prepared by Technical Committee ISO/TC 45, *Rubber and rubber products*, Subcommittee SC 4, *Products (other than hoses)*.

Together with Part 2, it cancels and replaces ISO 3303:1990, which has been split into two parts and at the same time technically revised.

ISO 3303 consists of the following parts, under the general title *Rubber- or plastics-coated fabrics — Determination of bursting strength*:

— *Part 1: Steel-ball method*

— *Part 2: Hydraulic method*

Introduction

The bursting strength of coated fabrics is often used as a measure of the multidirectional modulus of the material, as opposed to tensile properties which only provide guidance to the coated-fabric strength in one plane. In addition, bursting strength is more appropriate for testing materials prone to necking, such as coated fabrics with knitted substrates.

The method described in this part of ISO 3303, which employs a steel ball, is useful as it represents an impact failure typical of one which would be experienced in service.

Rubber- or plastics-coated fabrics — Determination of bursting strength —

Part 1:
Steel-ball method

1 Scope

This part of ISO 3303 specifies a method for the determination of the bursting strength of rubber- or plastics-coated fabrics, using a mechanically operated steel ball.

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 2231, *Rubber- or plastics-coated fabrics — Standard atmospheres for conditioning and testing*

3 Principle

A test piece is securely clamped between rigid coaxial apertures. A polished steel ball traversing at a fixed speed is pressed against the test piece until failure occurs. The force required to cause failure and the displacement of the polished steel ball at failure are recorded.

4 Apparatus

4.1 Test machine, power-driven and equipped with a suitable dynamometer. It shall be capable of maintaining a substantially constant rate of traverse of the moving head during the test and be fitted with an autographic recorder. An inertialess dynamometer (of electrical or optical type, for example) should preferably be used. A pendulum-type inertia dynamometer might in fact give different results because of the effects of friction and inertia. When the use of an inertia dynamometer is unavoidable, information shall be obtained in the following way. The capacity of the machine or the measuring scale selected, when a variable-range machine is involved, shall be such that the bursting force is between 15 % and 85 % of the rated capacity. The accuracy of the machine shall be such that the error in the force measurement as shown and recorded does not exceed 2 % of the force or 0,5 % of the maximum of the scale, whichever is the greater.

4.2 Bursting attachment (see Figure 1), such that the test piece is held securely by a ring mechanism of internal diameter 45 mm ± 0,5 mm, with the centre of the test piece pressed against a polished steel ball of diameter 25,2 mm ± 0,02 mm until the test piece ruptures. The direction of motion of the ring-clamp or steel ball shall be at right angles to the plane of the fabric.The clamping surfaces of the upper and lower clamps shall be grooved concentrically such that the crowns of the grooves of one plate fit the grooves of the other. The grooves shall be not less than 0,8 mm apart and not less than 0,15 mm deep. The grooves shall start no further than 3 mm from the edge of the aperture and shall be rounded to a radius of not greater than 0,4 mm. The lower inner edge of the upper clamp and the upper inner edge of the lower clamp shall be rounded off to a radius of 0,5 mm.

An alternative ball size of 38 mm ± 0,02 mm (see EN 12332-1) may be used, but the results might not be comparable.