



Technical Specification

ISO/TS 20444

Rubber and plastics hoses — Determination of abrasion resistance of the outer cover

*Tuyaux en caoutchouc et en plastique — Détermination de la
résistance à l'abrasion du revêtement extérieur*

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Contents

	Page
Foreword.....	iv
1 Scope.....	1
2 Normative references.....	1
3 Terms and definitions.....	1
4 Principle.....	1
5 Apparatus.....	1
6 Test pieces.....	3
7 Conditioning of test pieces.....	3
8 Procedure.....	3
9 Test report.....	4
10 Identification statement (reference to this document).....	4
Bibliography.....	5

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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 document 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 45, *Rubber and rubber products*, Subcommittee SC 1, *Rubber and plastics hoses and hose assemblies*.

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.

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Rubber and plastics hoses — Determination of abrasion resistance of the outer cover

WARNING — People using this document should be familiar with normal laboratory practice. This document does not purport to address all of the safety problems, if any, associated with its use. It is the responsibility of the user to establish appropriate safety and health practices.

1 Scope

This document specifies a method for the determination of the abrasion resistance of the outer cover of rubber and plastics hoses.

This test method is suitable for hoses with inside diameters from 10 mm to 38 mm.

This method is not intended for predicting product abrasion life but is suitable for the comparison of like-cover material products.

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 8330, *Rubber and plastics hoses and hose assemblies — Vocabulary*

ISO 23529, *Rubber — General procedures for preparing and conditioning test pieces for physical test methods*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 8330 apply.

ISO and IEC maintain terminology databases for use in standardization at the following addresses:

- ISO Online browsing platform: available at <https://www.iso.org/obp>
- IEC Electropedia: available at <https://www.electropedia.org/>

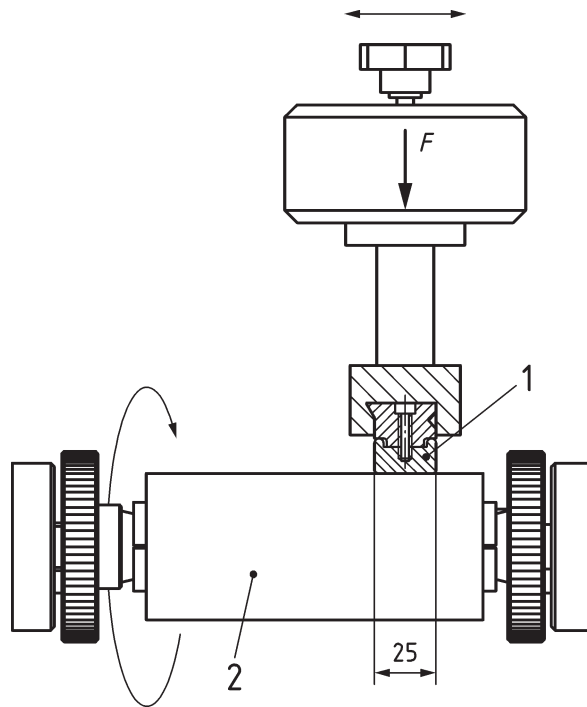
4 Principle

Test pieces are abraded by the abrading tool and evaluated in accordance with the number of cycles completed or the number of cycles to the reinforcement exposure.

5 Apparatus

5.1 The abrasion test machine shall be capable of moving the abrading tool (75 ± 5) mm back and forth along the test piece with rotation at $(1,3 \pm 0,033)$ Hz [(78 ± 2) rpm]] with the machine synchronized for the lateral movement (back and forth) to be completed at the same cycle rate [one cycle equals one back and

forth movement for a total of (150 ± 10) mm of travel and 360° of rotation]. A typical arrangement is shown in [Figure 1](#).



Key

- 1 abrasion tool of (25×75) mm (see [Figure 2](#))
- 2 hose sample of (140 ± 15) mm in length

Figure 1 — Typical test apparatus

The traversing arrangement shall be designed to ensure that:

- a) the mid-point of the traversed length is coincident with the mid-point of the assembled hose and mandrel;
- b) the axes of the abrading tool and hose are mutually perpendicular at the mid-point;
- c) the plane of travel is parallel to the longitudinal axis of the test piece.

5.2 A recording device, capable of recording the number of cycles completed and of being pre-set to terminate the test after completion of the specified number of cycles.

5.3 A means of applying a vertical force, F , to the abrading tool at the point of contact with the test piece.

5.4 A mandrel, of appropriate length for the test apparatus, on to which the test piece fits tightly. It is essential that the mandrel is a tight fit in the test piece to prevent distortion of the test piece under the action of the abrading tool.

For accurate determinations, the mandrel should be made of lightweight materials and should have a hollow section, so that it can support the abrading load but its mass is kept to an absolute minimum.

5.5 Abrading material, of (25 ± 2) mm \times (75 ± 2) mm, P80 grit, coarse, Al_2O_3 , fastened to a smooth hard surface as shown in [Figure 2](#).

NOTE Information about P80 grit can be found in ISO 6344-2.