
International Standard



6123/1

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Rubber or plastics covered rollers — Specifications — Part 1 : Requirements for hardness

Cylindres revêtus de caoutchouc ou de plastique — Spécifications — Partie 1 : Spécifications de dureté

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Foreword

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Draft International Standards adopted by the technical committees are circulated to the member bodies for approval before their acceptance as International Standards by the ISO Council.

International Standard ISO 6123/1 was developed by Technical Committee ISO/TC 45, *Rubber and rubber products*, and was circulated to the member bodies in January 1981.

It has been approved by the member bodies of the following countries:

Australia	Hungary	South Africa, Rep. of
Austria	India	Spain
Belgium	Italy	Sri Lanka
Brazil	Korea, Dem. P. Rep. of	Sweden
Canada	Korea, Rep. of	Switzerland
Czechoslovakia	Netherlands	Thailand
Denmark	Poland	United Kingdom
Egypt, Arab Rep. of	Portugal	USA
Germany, F. R.	Romania	USSR

The member body of the following country expressed disapproval of the document on technical grounds:

France

Rubber or plastics covered rollers — Specifications —

Part 1 : Requirements for hardness

0 Introduction

Covered rollers are cylindrical cores, generally of metal, with a cover of rubber or plastics for a particular use. They are manufactured in a wide variety of sizes and hardness grades depending on the intended use.

Requirements for surface characteristics and dimensional tolerances will form the subjects of parts 2 and 3 of this International Standard respectively.

1 Scope and field of application

This part of ISO 6123 specifies requirements for the measured hardness of rubber or plastics covered rollers.

2 References

ISO 471, *Rubber — Standard temperatures, humidities and times for the conditioning and testing of test pieces.*

ISO 7267, *Rubber covered rollers — Determination of apparent hardness*

Part 1 : IRHD method.¹⁾

Part 2 : Shore durometer method.¹⁾

Part 3 : Pusey and Jones indentation method.¹⁾

3 Specification of hardness

The hardness of rubber or plastics covered rollers shall be specified in one of the following units, as agreed between the interested parties :

- international rubber hardness degrees (IRHD);
- Shore hardness degrees (Shore A or Shore D);
- Pusey and Jones indentation values.

As hardness can be affected by temperature, the application temperature should be specified, if necessary.

NOTES

1 A basic correlation is recognized between IRHD, Shore hardness degrees and Pusey and Jones indentation values for a determined quality. An equivalence exists between IRHD and Shore A hardness degrees. If medium accuracy is required, the use of a Shore A durometer instead of an IRHD hardness tester is possible, but it should be noted that the values are not in any case identical, due to differences in the intervals between taking readings.

2 All hand-operated hardness meters are subject to variations in reading from one operator to another. With meters of the IRHD or the Pusey and Jones type, the reading is influenced by the rate of application of the load and whether or not the force applied has a component other than perpendicular. With spring-loaded meters of the Shore type, the reading is additionally dependent on the pressure exerted.

3 Since hardness is measured by indentation, the thickness of the rubber or plastics material can affect the hardness reading obtained. The hardness reading of a cover compound on a roller and the true hardness of that compound under standard laboratory conditions will only be comparable when the cover thickness is :

- for IRHD hardness :
 - up to 50 IRHD : not less than 9 mm,
 - over 50 IRHD : not less than 6 mm;
- for Shore hardness :
 - up to 50 Shore A : not less than 9 mm,
 - over 50 Shore A and for Shore D hardness : not less than 6 mm;
- for Pusey and Jones indentation values :
 - over 200 P and J : not less than 18 mm,
 - over 100 up to 200 P and J : not less than 12 mm,
 - over 40 up to 100 P and J : not less than 9 mm,
 - up to 40 P and J : not less than 6 mm.

1) At present at the stage of draft.