
**Rubber and plastics hoses and
hose assemblies — Methods of
measurement of the dimensions
of hoses and the lengths of hose
assemblies**

*Tuyaux et flexibles en caoutchouc et en plastique — Méthodes de
mesurage des dimensions des tuyaux et de la longueur des flexibles*



This document is a preview generated by EUS



COPYRIGHT PROTECTED DOCUMENT

© ISO 2022

All rights reserved. Unless otherwise specified, or required in the context of its implementation, no part of this publication may be reproduced or utilized otherwise in any form or by any means, electronic or mechanical, including photocopying, or posting on the internet or an intranet, without prior written permission. Permission can be requested from either ISO at the address below or ISO's member body in the country of the requester.

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

Published in Switzerland

Contents

	Page
Foreword.....	v
1 Scope.....	1
2 Normative references.....	1
3 Terms and definitions.....	1
4 Test piece conditioning and temperature of measurement.....	1
4.1 Conditioning of test pieces.....	1
4.2 Measurement temperature.....	1
5 Measurement of inside diameter.....	2
5.1 General.....	2
5.2 Method 1.....	2
5.3 Method 2.....	2
5.4 Method 3.....	2
5.5 Method 4.....	3
5.6 Method 5.....	3
5.7 Method 6.....	3
5.8 Method 7.....	3
6 Measurement of outside diameter.....	3
6.1 General.....	3
6.2 Method 1.....	3
6.3 Method 2.....	3
6.4 Method 3.....	3
6.5 Method 4.....	4
6.6 Method 5.....	4
7 Measurement of diameter over reinforcement.....	4
8 Measurement of wall thickness.....	4
8.1 General.....	4
8.2 Method 1.....	4
8.3 Method 2.....	4
8.4 Method 3.....	5
8.5 Method 4.....	5
9 Measurement of concentricity.....	5
9.1 General.....	5
9.2 Method 1.....	5
9.3 Method 2.....	6
9.4 Method 3.....	6
9.5 Method 4.....	6
9.6 Method 5.....	6
10 Measurement of lining and cover thickness.....	6
10.1 General.....	6
10.2 Method 1.....	6
10.3 Method 2.....	7
10.4 Method 3.....	8
11 Measurement of length and identification of measurement points.....	8
11.1 Measurement of length.....	8
11.2 Measurement points.....	8
11.2.1 Hoses.....	8
11.2.2 Hose assemblies.....	8
12 Verification of through-bore of hose assemblies.....	10
13 Test report.....	10

Bibliography..... **11**

This document is a preview generated by EVS

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.

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 documents 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).

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. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see www.iso.org/patents).

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

For an explanation of the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT), see www.iso.org/iso/foreword.html.

This document was prepared by Technical Committee ISO/TC 45, *Rubber and rubber products*, Subcommittee SC 1, *Rubber and plastics hoses and hose assemblies*, in collaboration with the European Committee for Standardization (CEN) Technical Committee CEN/TC 218, *Rubber and plastics hoses and hose assemblies*, in accordance with the Agreement on technical cooperation between ISO and CEN (Vienna Agreement).

This fourth edition cancels and replaces the third edition (ISO 4671:2007), which has been technically revised. It also incorporates the Amendment ISO 4671:2007/Amd 1:2011. The main changes are as follows:

- permissions (using the term “may”) have been changed to requirements (using the term “shall”) throughout the document along with resultant modified text;
- the position at which the outside diameter is measured has been clarified;
- [Clause 3](#) has been added.

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.

Rubber and plastics hoses and hose assemblies — Methods of measurement of the dimensions of hoses and the lengths of hose assemblies

1 Scope

This document specifies methods of measuring the inside diameter, outside diameter (including diameter over reinforcement of hydraulic hoses), wall thickness, concentricity and lining and cover thickness of hoses, methods of measurement and identification of the lengths of hoses and hose assemblies, and a method of verifying the through-bore of hydraulic hose assemblies.

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 3611, *Geometrical product specifications (GPS) — Dimensional measuring equipment: Micrometers for external measurements — Design and metrological characteristics*

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

ISO 13385-1, *Geometrical product specifications (GPS) — Dimensional measuring equipment — Part 1: Design and metrological characteristics of callipers*

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 Test piece conditioning and temperature of measurement

4.1 Conditioning of test pieces

Unless otherwise specified, test pieces shall be taken at least 16 h after manufacture of the hose and conditioned at 23_{-3}^{+7} °C for at least 3 h before measurement. This 3 h shall be included in the 16 h.

4.2 Measurement temperature

Unless otherwise specified, the measurement temperature shall be 23_{-3}^{+7} °C.