



SLOVENSKI STANDARD SIST EN ISO 4671:2001

01-junij-2001

Nadomešča:
SIST EN 24671:2000

Gumene in polimerne cevi ter cevni priključki - Metode merjenja dimenzij (ISO 4671:1999)

Rubber and plastics hose and hose assemblies - Methods of measurement of dimensions (ISO 4671:1999)

Gummi- und Kunststoffschläuche und -schlauchleitungen - Verfahren zur Messung der Maße (ISO 4671:1999)

Tuyaux et flexibles en caoutchouc et en plastique - Méthodes de mesurage des dimensions (ISO 4671:1999)

Ta slovenski standard je istoveten z: EN ISO 4671:2000

ICS:

23.040.70 Gumene cevi in armature Hoses and hose assemblies

SIST EN ISO 4671:2001 en

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EUROPEAN STANDARD
NORME EUROPÉENNE
EUROPÄISCHE NORM

EN ISO 4671

April 2000

ICS 23.040.70; 83.140.40

Supersedes EN 24671:1993

English version

Rubber and plastics hose and hose assemblies - Methods of measurement of dimensions (ISO 4671:1999)

Tuyaux et flexibles en caoutchouc et en plastique -
Méthodes de mesure des dimensions (ISO 4671:1999)

Gummi- und Kunststoffschläuche und -schlauchleitungen -
Verfahren zur Messung der Maße (ISO 4671:1999)

This European Standard was approved by CEN on 7 March 2000.

CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration. Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the Central Secretariat or to any CEN member.

This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CEN member into its own language and notified to the Central Secretariat has the same status as the official versions.

CEN members are the national standards bodies of Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and United Kingdom.

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EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

Central Secretariat: rue de Stassart, 36 B-1050 Brussels

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Foreword

The text of the International Standard from Technical Committee ISO/TC 45 "Rubber and rubber products" of the International Organization for Standardization (ISO) has been taken over as an European Standard by Technical Committee CEN/TC 218 "Rubber and plastics hoses and hose assemblies", the secretariat of which is held by BSI.

This European Standard replaces EN 24671:1993.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by October 2000, and conflicting national standards shall be withdrawn at the latest by October 2000.

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and the United Kingdom.

Endorsement notice

The text of the International Standard ISO 4671:1999 has been approved by CEN as a European Standard without any modification.

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INTERNATIONAL STANDARD

ISO
4671

Second edition
1999-02-15

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

*Tuyaux et flexibles en caoutchouc ou en plastique — Méthodes
de mesurage des dimensions*

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Reference number
ISO 4671:1999(E)

ISO 4671:1999(E)**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.

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.

International Standard ISO 4671 was prepared by Technical Committee ISO/TC 45, *Rubber and rubber products*, Subcommittee SC 1, *Hoses (rubber and plastics)*.

This second edition cancels and replaces the first edition (ISO 4671:1984), which has been technically revised.

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Printed in Switzerland

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

1 Scope

This International Standard 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 length of hoses and hose assemblies, and a method of verifying the through-bore of hydraulic hose assemblies.

2 Normative references

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

ISO 463:—¹⁾, *Geometrical product specifications (GPS) — Dimensional measuring instruments: Dial gauges — Design and metrological requirements.*

ISO 3599:1976, *Vernier callipers reading to 0,1 and 0,05 mm.*

ISO 3611:1978, *Micrometer callipers for external measurement.*

3 Measurement of inside diameter

3.1 General

Measurements for methods 1 to 5 may be made either on the ends of a full length of hose or on a specimen (minimum length 150 mm) cut from a full length. For wire-reinforced hydraulic hoses, measurements shall be made at a minimum distance of 25 mm from the end of the hose.

Measurements shall be made using one of the following methods, as appropriate:

3.2 Method 1

For inside diameters less than 150 mm and for all sizes of collapsible hose, plug gauges with 0,25 mm increments in diameter (see figure 1) may be used. Insert the gauge into the hose specimen gently without pressure. Take special care if the hose bore is not precisely circular.

1) To be published. (Revision of ISO/R 463:1965)

3.3 Method 2

For inside diameters less than 63 mm, where greater accuracy is required, for example for wire-reinforced hydraulic hoses, an expanding ball or telescopic gauge may be used.

3.4 Method 3

For all inside diameters up to and including 100 mm, the internal jaws of sliding vernier callipers complying with the requirements of ISO 3599 may be used. Make two measurements at right angles to each other and take their average as the inside diameter. Take care not to distort the hose when making the measurements. Callipers of suitable size may be used for nominal bores above 100 when greater accuracy than is obtainable by method 5 (see 3.6) is required.

3.5 Method 4

For all inside diameters, an internal calliper dial gauge (see ISO 463) with rounded feet designed for use in bores made of elastomeric material may be used, a calliper size being chosen which is suitable for the inside diameter to be measured. Make two measurements at right angles to each other and take their average as the inside diameter.

3.6 Method 5

For inside diameters above 100 mm, a sufficient degree of accuracy for normal purposes is obtainable by the use of a graduated steel rule. Make two measurements at right angles to each other and take their average as the inside diameter.

3.7 Method 6

For suitable diameters, and where the hose cross-section has not been distorted by the cutting operation, an optical magnifier with a scale graduated in 0,1 mm divisions may be used. Make two measurements at right angles to each other and take their average as the inside diameter.

4 Measurement of outside diameter

4.1 General

Measurements for methods 1 to 3 may be made either on a full length of hose or on a specimen (minimum length 150 mm) cut from a full length. Measurements shall be made at a minimum distance of 25 mm from the ends of the hose.

Measurements shall be made using one of the following methods, as appropriate:

4.2 Method 1

For outside diameters up to and including 100 mm, sliding vernier callipers, or a micrometer complying with the requirements of ISO 3611, may be used. Take two measurements at right angles to each other and take their average as the outside diameter. Take care to avoid distorting the hose when making the measurements. When greater accuracy is required, place the specimen on a mandrel of outside diameter equal to the hose inside diameter to prevent distortion.

4.3 Method 2

For outside diameters over 20 mm, a vernier stepped π -tape may be used.

4.4 Method 3

For outside diameters over 100 mm, a flexible tape graduated to read diameter directly may be used, or the circumference may be measured using a flexible tape and the diameter derived therefrom.

4.5 Method 4

For suitable diameters, and where the hose cross-section has not been distorted by the cutting operation, an optical magnifier with a scale graduated in 0,1 mm divisions may be used. Make two measurements at right angles to each other and take their average as the outside diameter.

5 Measurement of diameter over reinforcement

Measurement of the diameter over reinforcement is normally confined to hydraulic hoses in connection with the fitting of couplings and shall be carried out on a specimen cut from the hose.

Make measurements in accordance with 4.2 or 4.3, after completely removing the cover material.

6 Measurement of wall thickness

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6.1 General

Where knowledge of the wall thickness is required, it is normally sufficient to calculate this by taking half the difference between the outside and inside diameters.

Alternatively, the wall thickness may be measured directly using one of the following methods:

6.2 Method 1

Use sliding vernier callipers, taking care to avoid errors due to curvature.

6.3 Method 2

Use a micrometer with a rounded anvil contacting the inside of the hose, or a dial gauge using an arrangement similar to that shown in figure 2.

6.4 Method 3

Use a thickness calliper dial gauge with rounded feet designed for use with elastomeric materials.

6.5 Method 4

Use an optical magnifier with a scale graduated in 0,1 mm divisions.