SLOVENSKI STANDARD
oSIST prEN ISO 4671:2021

01-april-2021

Gumene in polimerne cevi ter cevni priključki - Metode merjenja mer cevi ter dolžin cevnih priključkov (ISO/DIS 4671:2021)

Rubber and plastics hoses and hose assemblies - Methods of measurement of the dimensions of hoses and the lengths of hose assemblies (ISO/DIS 4671:2021)

Gummi- und Kunststoffschläuche und -schlauchleitungen - Verfahren zur Messung der Maße von Schläuchen und Längen von Schlauchleitungen (ISO/DIS 4671:2021)

Tuyaux et flexibles en caoutchouc et en plastique - Méthodes de mesurage des dimensions des tuyaux et de la longueur des flexibles (ISO/DIS 4671:2021)

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ICS:

23.040.70	Gumene cevi in armature	Hoses and hose assemblies
83.140.40	Gumene cevi	Hoses

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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

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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).

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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*.

This fourth edition cancels and replaces the third edition (ISO 4671:2007), which has been technically revised.

The main changes compared to the previous edition are as follows:

— incorporation of ISO 4671:2007/Amd 1:2011 Clarification of position at which outside diameter is measured;

— addition of Clause 3.

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

3 Terms and definitions

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

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

— ISO Online browsing platform: available at https://www.iso.org/obp

— IEC Electropedia: available at http://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^{+7}_{-3} °C for at least 3 h before measurement. This 3 h may be included in the 16 h.

4.2 Measurement temperature

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

5 Measurement of inside diameter

5.1 General

Measurements by methods 1 to 7 may be made either on the ends of a full length of hose or on a test piece (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.

5.2 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) and tapered gauges with 0,1 mm increments in diameter (see Figure 2) may be used. Insert the gauge into the hose test piece gently without pressure. Take special care if the hose bore is not precisely circular.

Dimensions in millimetres

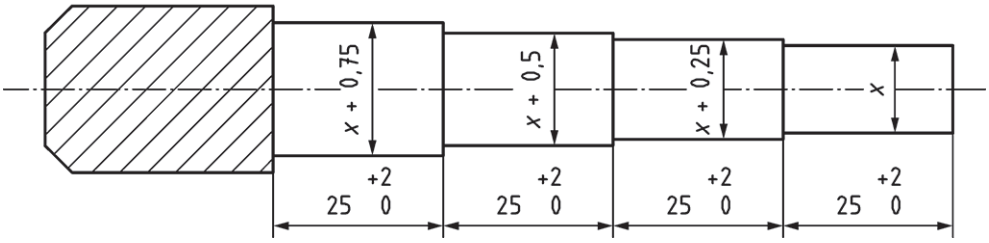

Figure 1 — Plug gauges

Dimensions in millimetres

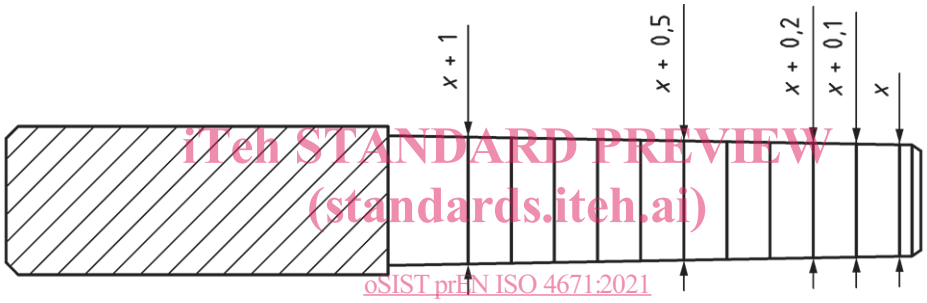

Figure 2 — Tapered gauges

5.3 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.

5.4 Method 3

For all inside diameters up to and including 100 mm, the internal jaws of vernier slide callipers complying with the requirements of ISO 13385-1 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 5.6) is required.

5.5 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.