

---

**Gumene cevi in cevni priključki - Vrste hidravličnih cevi in priključkov, ojačenih z žico ali tekstilom, z enojnim delovnim tlakom - Specifikacija (ISO/DIS 18752:2020)**

Rubber hoses and hose assemblies - Wire- or textile-reinforced single-pressure types for hydraulic applications - Specification (ISO/DIS 18752:2020)

Gummischläuche und -schlauchleitungen - Draht- oder textilverstärkte Einzeldrucktypen für hydraulische Anwendungen - Spezifikation (ISO/DIS 18752:2020)

Tuyaux et flexibles en caoutchouc - Types hydrauliques avec armature de fils métalliques tressés - Spécifications (ISO/DIS 18752:2020)

<https://standards.iteh.ai/catalog/standards/sist/993ad630-69ba-4c01-acc6-c2176987ba8e/osist-pr-en-iso-18752-2020>

<https://standards.iteh.ai/catalog/standards/sist/993ad630-69ba-4c01-acc6-c2176987ba8e/osist-pr-en-iso-18752-2020>

**Ta slovenski standard je istoveten z: prEN ISO 18752**

---

**ICS:**

23.040.70      Gumene cevi in armature      Hoses and hose assemblies

**oSIST prEN ISO 18752:2020**

**en,fr,de**

**iTeh STANDARD PREVIEW**  
**(standards.iteh.ai)**

[oSIST prEN ISO 18752:2020](https://standards.iteh.ai/catalog/standards/sist/993ad630-69ba-4c01-acc-c2176887ba8e/osist-pren-iso-18752-2020)

<https://standards.iteh.ai/catalog/standards/sist/993ad630-69ba-4c01-acc-c2176887ba8e/osist-pren-iso-18752-2020>

# DRAFT INTERNATIONAL STANDARD

## ISO/DIS 18752

ISO/TC 45/SC 1

Secretariat: DIN

Voting begins on:  
2020-06-11

Voting terminates on:  
2020-09-03

---

---

## Rubber hoses and hose assemblies — Wire- or textile-reinforced single-pressure types for hydraulic applications — Specification

ICS: 23.040.70

### iTeh STANDARD PREVIEW (standards.iteh.ai)

[oSIST prEN ISO 18752:2020](https://standards.iteh.ai/catalog/standards/sist/993ad630-69ba-4c01-acc-c2176887ba8e/osist-pren-iso-18752-2020)  
<https://standards.iteh.ai/catalog/standards/sist/993ad630-69ba-4c01-acc-c2176887ba8e/osist-pren-iso-18752-2020>

THIS DOCUMENT IS A DRAFT CIRCULATED FOR COMMENT AND APPROVAL. IT IS THEREFORE SUBJECT TO CHANGE AND MAY NOT BE REFERRED TO AS AN INTERNATIONAL STANDARD UNTIL PUBLISHED AS SUCH.

IN ADDITION TO THEIR EVALUATION AS BEING ACCEPTABLE FOR INDUSTRIAL, TECHNOLOGICAL, COMMERCIAL AND USER PURPOSES, DRAFT INTERNATIONAL STANDARDS MAY ON OCCASION HAVE TO BE CONSIDERED IN THE LIGHT OF THEIR POTENTIAL TO BECOME STANDARDS TO WHICH REFERENCE MAY BE MADE IN NATIONAL REGULATIONS.

RECIPIENTS OF THIS DRAFT ARE INVITED TO SUBMIT, WITH THEIR COMMENTS, NOTIFICATION OF ANY RELEVANT PATENT RIGHTS OF WHICH THEY ARE AWARE AND TO PROVIDE SUPPORTING DOCUMENTATION.

This document is circulated as received from the committee secretariat.

**ISO/CEN PARALLEL PROCESSING**



Reference number  
ISO/DIS 18752:2020(E)

© ISO 2020

## iTeh STANDARD PREVIEW (standards.iteh.ai)

[oSIST prEN ISO 18752:2020  
https://standards.iteh.ai/catalog/standards/sist/993ad630-69ba-4c01-acc-c2176887ba8e/osist-pren-iso-18752-2020](https://standards.iteh.ai/catalog/standards/sist/993ad630-69ba-4c01-acc-c2176887ba8e/osist-pren-iso-18752-2020)



### **COPYRIGHT PROTECTED DOCUMENT**

© ISO 2020

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  
Fax: +41 22 749 09 47  
Email: [copyright@iso.org](mailto:copyright@iso.org)  
Website: [www.iso.org](http://www.iso.org)

Published in Switzerland

# Contents

	Page
<b>Foreword</b> .....	<b>iv</b>
<b>1 Scope</b> .....	<b>1</b>
<b>2 Normative references</b> .....	<b>1</b>
<b>3 Terms and definitions</b> .....	<b>2</b>
<b>4 Classification</b> .....	<b>2</b>
4.1 Classes.....	2
4.2 Grades and types.....	2
<b>5 Materials and construction</b> .....	<b>3</b>
5.1 Hoses.....	3
5.2 Hose assemblies.....	3
<b>6 Dimensions and tolerances</b> .....	<b>4</b>
6.1 Diameters.....	4
6.2 Cover thickness.....	6
6.3 Concentricity.....	6
<b>7 Physical properties</b> .....	<b>7</b>
7.1 Fluid resistance of rubber compounds.....	7
7.1.1 Test pieces.....	7
7.1.2 Oil resistance.....	7
7.2 Performance requirements.....	7
7.2.1 Hydrostatic requirements.....	7
7.2.2 Change in length.....	7
7.2.3 Minimum bend radius.....	8
7.2.4 Resistance to impulse.....	10
7.2.5 Leakage of hose assemblies.....	11
7.2.6 Cold flexibility.....	11
7.2.7 Adhesion between components.....	11
7.2.8 Vacuum resistance.....	11
7.2.9 Ozone resistance.....	11
<b>8 Frequency of testing</b> .....	<b>11</b>
<b>9 Marking</b> .....	<b>12</b>
9.1 Hoses.....	12
9.2 Hose assemblies.....	12
<b>10 Recommendations for packaging and storage</b> .....	<b>12</b>
<b>11 Information by hose manufacturer</b> .....	<b>12</b>
<b>12 Test report</b> .....	<b>12</b>
<b>Annex A (normative) Type tests and routine tests</b> .....	<b>13</b>
<b>Annex B (informative) Production tests</b> .....	<b>14</b>
<b>Annex C (informative) Information to be provided by hose manufacturer</b> .....	<b>15</b>
<b>Bibliography</b> .....	<b>16</b>

## ISO/DIS 18752:2020(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.

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](http://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](http://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](http://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 18752:2014), which has been technically revised.

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

- Scope is extended to water-based fluid, in order to align the standard with ISO 1436, ISO 3861 and ISO 4079

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](http://www.iso.org/members.html).

# Rubber hoses and hose assemblies — Wire- or textile-reinforced single-pressure types for hydraulic applications — Specification

## 1 Scope

This document specifies requirements for ten classes, four grades and seven types of wire- or textile-reinforced hydraulic hoses and hose assemblies of nominal sizes ranging from 5 to 102. Each class has a single maximum working pressure for all sizes.

They are suitable for use with:

- oil-based hydraulic fluids HH, HL, HM, HR and HV as defined in ISO 6743-4 at temperatures ranging from  $-40\text{ °C}$  to  $+100\text{ °C}$  for types AS, AC, BS and BC hoses and from  $-40\text{ °C}$  to  $+120\text{ °C}$  for types CS, CC and DC hoses;
- water-based fluids HFC, HFAE, HFAS and HFB as defined in ISO 6743-4 at temperatures ranging from  $-40\text{ °C}$  to  $+70\text{ °C}$ ;
- water at temperatures ranging from  $0\text{ °C}$  to  $+70\text{ °C}$ ;

This document does not include requirements for the connection ends. It is limited to the performance of hoses and hose assemblies. The hose assembly maximum working pressure is governed by the lowest maximum working pressure of the components.

NOTE It is the responsibility of the user, in consultation with the hose manufacturer, to establish the compatibility of the hose with the fluid to be used.

## 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 1402, *Rubber and plastics hoses and hose assemblies — Hydrostatic testing*

ISO 1817, *Rubber, vulcanized or thermoplastic — Determination of the effect of liquids*

ISO 4671, *Rubber and plastics hoses and hose assemblies — Methods of measurement of the dimensions of hoses and the lengths of hose assemblies*

ISO 6743-4, *Lubricants, industrial oils and related products (class L) — Classification — Part 4: Family H (Hydraulic systems)*

ISO 6803, *Rubber or plastics hoses and hose assemblies — Hydraulic-pressure impulse test without flexing*

ISO 7233, *Rubber and plastics hoses and hose assemblies — Determination of resistance to vacuum*

ISO 7326:2006, *Rubber and plastics hoses — Assessment of ozone resistance under static conditions*

ISO 8033:2006, *Rubber and plastics hoses — Determination of adhesion between components*

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

ISO 10619-1, *Rubber and plastics hoses and tubing — Measurement of flexibility and stiffness — Part 1: Bending tests at ambient temperature*

## ISO/DIS 18752:2020(E)

ISO 10619-2:2011, *Rubber and plastics hoses and tubing — Measurement of flexibility and stiffness — Part 2: Bending tests at sub-ambient temperatures*

ISO 17165-1, *Hydraulic fluid power — Hose assemblies — Part 1: Dimensions and requirements*

### 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 Classification

#### 4.1 Classes

Ten classes of hose are specified, distinguished by their maximum working pressure, as shown in [Table 1](#). Each class may be manufactured in up to 14 nominal sizes.

**Table 1 — Classes and nominal sizes**

Class	35	70	140	210	250	280	350	420	490	560
MWP <sup>a</sup> (MPa)	3,5	7	14	21	25	28	35	42	49	56
MWP <sup>a</sup> (bar)	35	70	140	210	250	280	350	420	490	560
<b>Nominal size</b>										
5	X	X	X	X	X	X	X	X	N/A	N/A
6,3	X	X	X	X	X	X	X	X	N/A	N/A
8	X	X	X	X	X	X	X	X	N/A	N/A
10	X	X	X	X	X	X	X	X	N/A	N/A
12,5	X	X	X	X	X	X	X	X	N/A	N/A
16	X	X	X	X	X	X	X	X	X	X
19	X	X	X	X	X	X	X	X	X	X
25	X	X	X	X	X	X	X	X	X	X
31,5	X	X	X	X	X	X	X	X	X	X
38	X	X	X	X	X	X	X	X	N/A	N/A
51	X	X	X	X	X	X	X	X	N/A	N/A
63	X	X	X	X	X	X	X	N/A	N/A	N/A
76	X	X	X	N/A	N/A	N/A	N/A	N/A	N/A	N/A
102	X	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
X = Applicable; N/A = Not applicable.										
<sup>a</sup> Maximum working pressure.										

#### 4.2 Grades and types

Hoses are classified into four grades according to their resistance to impulse: A, B, C and D. Each grade is classified by outside diameter into standard types (AS, BS and CS) and compact types (AC, BC, CC and DC), as shown in [Table 2](#).



Table 2 — Grades and types

Grade	Type <sup>a</sup>	Resistance to impulse		
		Temperature °C	Impulse pressure (% of MWP <sup>b</sup> )	Minimum number of cycles
A	AS	100	133 %	200 000
	AC			
B	BS	100	133 %	500 000
	BC			
C	CS	120	133 % and 120 % <sup>c</sup>	500 000
	CC			
D	DC	120	133 %	1 000 000

<sup>a</sup> Standard or compact, e.g. CS is grade C and standard type.  
As shown in [Table 4](#) and [Table 8](#), standard types have larger outside diameters and larger bend radii and compact types have smaller outside diameters and smaller bend radii.

<sup>b</sup> Maximum working pressure.

<sup>c</sup> 120 % of the MWP shall be used for classes 350, 420, 490 and 560 instead of 133 %.

Each class includes one of each type or both as shown in [Table 3](#).

Table 3 — Type and maximum working pressure

Class	35	70	140	210	250	280	350	420	490	560	
MWP <sup>a</sup> (MPa)	3,5	7	14	21	25	28	35	42	49	56	
MWP <sup>a</sup> (bar)	35	70	140	210	250	280	350	420	490	560	
Grade	Type	oSIST prEN ISO 18752:2020									
A	AS	X	X	X	X	X	X	X	N/A	N/A	
	AC	X	X	X	X	X	X	X	N/A	N/A	
B	BS	X	X	X	X	X	X	X	N/A	N/A	
	BC	X	X	X	X	X	X	X	N/A	N/A	
C	CS	N/A	N/A	N/A	X	X	X	X	N/A	N/A	
	CC	N/A	N/A	N/A	X	X	X	X	X	X	
D	DC	N/A	N/A	N/A	X	X	X	X	N/A	N/A	

X = Applicable; N/A = Not applicable.

<sup>a</sup> Maximum working pressure.

## 5 Materials and construction

### 5.1 Hoses

Hoses shall consist of a hydraulic-fluid-resistant rubber lining, one or multiple layers of steel wire or textile and an oil-, abrasion- and weather-resistant rubber cover. A layer of other materials on the rubber cover is allowed for improved resistance to abrasion or other.

### 5.2 Hose assemblies

Hose assemblies shall only be manufactured using hose fittings which conform to the requirements of [7.2.1](#), [7.2.4](#) and [7.2.5](#).

Follow the manufacturer's instructions for the proper preparation and fabrication of hose assemblies.

## ISO/DIS 18752:2020(E)

### 6 Dimensions and tolerances

#### 6.1 Diameters

When measured in accordance with ISO 4671, the diameters of hoses shall conform to the values given in [Table 4](#).

**iTeh STANDARD PREVIEW**  
**(standards.iteh.ai)**

[oSIST prEN ISO 18752:2020](https://standards.iteh.ai/catalog/standards/sist/993ad630-69ba-4c01-acc-c2176887ba8e/osist-pren-iso-18752-2020)  
<https://standards.iteh.ai/catalog/standards/sist/993ad630-69ba-4c01-acc-c2176887ba8e/osist-pren-iso-18752-2020>

Table 4 — Diameters of hoses

Non-in- al size	Inside diameter (all classes) mm		Maximum outside diameter of hose mm																			
			Class 35		Class 70		Class 140		Class 210		Class 250		Class 280		Class 350		Class 420		Class 490		Class 560	
			Stan- dard	Com- pact	Stan- dard	Com- pact	Stan- dard	Com- pact	Stan- dard	Com- pact	Stan- dard	Com- pact	Stan- dard	Com- pact	Stan- dard	Com- pact	Stan- dard	Com- pact	Stan- dard	Com- pact	Stan- dard	Com- pact
5	4,6	5,4	14	11	14	11	14	11	14	11	17	15	17	15	17	15	17	15	17	15	—	—
6,3	6,1	7	17	14	17	14	17	14	19	15	19	15	19	15	19	15	19	15	19	15	—	—
8	7,7	8,5	19	15	19	15	19	15	16	16	20	16	20	16	20	16	20	16	20	18	—	—
10	9,3	10,1	21	17	21	17	21	17	23	19	23	19	23	19	23	21	24	22	—	—	—	—
12,5	12,3	13,5	24	21	24	22	24	22	26	22	26	22	26	22	26	24	27	25	—	—	—	—
16	15,5	16,7	27	25	27	25	29	25	29	26	29	27	29	27	29	28	31	34	—	—	—	30
19	18,6	19,8	31	28	31	29	33	29	33	31	34	32	34	32	38	36	50	46	—	—	—	36
25	25	26,4	40	36	40	38	41	38	41	39	41	39	41	39	50	45	54	50	—	—	—	45
31,5	31,4	33	53	45	53	45	54	49	53	49	54	49	54	49	54	52	60	56	—	—	—	52
38	37,7	39,3	59	56	59	56	59	56	59	56	59	56	59	56	60	59	75	72	—	—	—	—
51	50,4	52	72	69	72	69	73	70	72	70	73	70	73	70	75	73	80	77	—	—	—	—
63	63,1	65,1	84	—	84	—	85	—	85	—	90	—	90	—	90	—	—	—	—	—	—	—
76	74,6	77,8	100	—	100	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
102	100	103,2	130	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

STANDARD PREVIEW  
(standards.itech.ai)  
oSIST prEN ISO 18752:2020  
<https://standards.itech.ai/catalog/standards/sist/993ad630-69ba-4c01-acc6-c2176887ba6e/osist-pr-en-iso-18752-2020>