SLOVENSKI STANDARD
oSIST prEN ISO 28017:2025

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Gumene cevi in cevni priključki, ojačeni z žicami ali tekstilom, za uporabo v vodnem bagru - Specifikacija (ISO/DIS 28017:2025)

Rubber hoses and hose assemblies, wire or textile reinforced, for dredging applications - Specification (ISO/DIS 28017:2025)

Gummischläuche und Schlauchleitungen, draht- oder textilverstärkt für Nassbaggeranwendungen - Anforderung (ISO/DIS 28017:2025)

Tuyaux et flexibles en caoutchouc, à armature textile ou métallique, pour des applications de dragage - Spécifications (ISO/DIS 28017:2025)

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53.100	Stroji za zemeljska dela	Earth-moving machinery
83.140.40	Gumene cevi	Hoses

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Rubber hoses and hose assemblies, wire or textile reinforced, for dredging applications — Specification

Tuyaux et flexibles en caoutchouc, à armature textile ou métallique, pour des applications de dragage — Spécifications

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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).

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

For an explanation on 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 the following URL: 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 forth edition cancels and replaces the third edition (ISO 28017:2018), which has been technically revised.

The main changes compared to previous edition are as follows:

— in Clause 1, extend the ambient temperature range from “–20 °C to +40 °C”;

— Clause 2 has been updated;

— in Table 1, add a nominal size of 1 300;

— in 7.1.5, add low-temperature brittleness of lining compound for the hoses with working temperature below -10 °C.

Rubber hoses and hose assemblies, wire or textile reinforced, for dredging applications — Specification

1 Scope

This document specifies requirements for two types, seven classes and three grades of wire- or textile-reinforced dredging hoses with nominal sizes ranging from 100 to 1 300. Within each class, all grades and sizes have the same maximum working pressure. Such hoses are suitable for the delivery or suction of seawater or freshwater mixed with silt, sand, coral and small stones with a specific gravity in the range from 1,0 to 2,3 at ambient temperature ranging from -10 °C to +40 °C or for low-temperature hoses (designated -LT) ranging from -20 °C to +40 °C. This document covers two types of hose, as follows:

— type 1: floating type, for delivery only, which includes flotation material to give the hose buoyancy;

— type 2: submarine type for delivery and suction.

This document does not specify requirements concerning the service life of hoses or hose assemblies. Specifying such requirements is the responsibility of the customer, in consultation with the hose manufacturer.

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 34-2:2022, *Rubber, vulcanized or thermoplastic — Determination of tear strength — Part 2: Small (Delft) test pieces*

ISO 812, *Rubber, vulcanized or thermoplastic — Determination of low-temperature brittleness*

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

ISO 1431-1, *Rubber, vulcanized or thermoplastic — Resistance to ozone cracking — Part 1: Static and dynamic strain testing*

ISO 4649:2017, *Rubber, vulcanized or thermoplastic — Determination of abrasion resistance using a rotating cylindrical drum device*

ISO 4662:2017, *Rubber, vulcanized or thermoplastic — Determination of rebound resilience*

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

ISO 7233:2021, *Rubber and plastics hoses and hose assemblies — Determination of resistance to vacuum*

ISO 8033, *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*

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:

— IEC Electropedia: available at https://www.electropedia.org/

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

4 Classification

4.1 Classes

Seven classes of hose are specified, distinguished by their maximum working pressure, of nominal sizes from 100 to 1 300, as shown in Table 1.

Table 1 — Classes and corresponding maximum working pressures and nominal sizes

Nominal size	Class						
	5	10	15	20	25	30	40
	Maximum working pressure, MWP						
	bar						
	5	10	15	20	25	30	40
	MPa						
	0,5	1,0	1,5	2,0	2,5	3,0	4,0
100	X	X	X	X	X	X	X
150	X	X	X	X	X	X	X
200	X	X	X	X	X	X	X
250	X	X	X	X	X	X	N/A
300	X	X	X	X	X	X	N/A
350	X	X	X	X	X	X	N/A
400	X	X	X	X	X	X	N/A
450	X	X	X	X	X	X	N/A
500	X	X	X	X	X	X	N/A
550	X	X	X	X	X	X	N/A
600	X	X	X	X	X	X	N/A
650	X	X	X	X	X	X	N/A
700	X	X	X	X	X	X	N/A
750	X	X	X	X	X	X	N/A
800	X	X	X	X	X	X	N/A
850	X	X	X	X	X	X	N/A
900	X	X	X	X	X	X	N/A
1 000	X	X	X	X	X	X	N/A
1 100	X	X	X	X	X	X	N/A
1 200	X	X	X	X	X	N/A	N/A
1 300	X	X	X	X	N/A	N/A	N/A
X: Applicable N/A: Not applicable							

4.2 Grades

Type 2 hoses are classified into three grades, A, B and C, according to their construction (number of reinforcing helical wires), as shown in Table 2.

Type 1 hoses are not divided into grades.

Table 2 — Grades

Type	**Grade**	**Construction and purpose**	
		Number of reinforcing wires	**Purpose**
1	—	0	Delivery only
2	A	2	Delivery or suction
	B	1	Delivery or suction
	C	0	Delivery only

The types and grades available in each class (i.e. for each maximum working pressure) are as shown in Table 3.

Table 3 — Types and grades available in each class

Type	**Grade**	**Class**						
		5	10	15	20	25	30	40
		Maximum working pressure, MWP						
		bar						
		5	10	15	20	25	30	40
		MPa						
		0,5	1,0	1,5	2,0	2,5	3,0	4,0
1	—	X	X	X	X	X	X	X
2	A	X	X	X	N/A	N/A	N/A	N/A
	B	X	X	X	N/A	N/A	N/A	N/A
	C	X	X	X	X	X	X	X
X: Applicable N/A: Not applicable								

5 Materials and construction

5.1 Hoses

Type 1 hose assemblies shall consist of an abrasion-resistant rubber lining, one or more layers of steel or textile reinforcement, a textile-reinforced rubber undercover, a flexible closed-cell flotation material integrally fitted round the hose body as described in 5.2, an abrasion- and weather-resistant rubber or thermoplastic outer cover (which, in the case of a rubber cover, can include one or two textile breaker layers), and end fittings as described in 5.3 on both ends.

Type 2 hose assemblies shall consist of an abrasion-resistant rubber lining, one or more layers of steel or textile reinforcement, a textile-reinforced rubber, full rubber or thermoplastic cover at least 6 mm thick for hoses of nominal size less than 500, at least 10 mm thick for hoses of nominal size in the range from 500 to 850 inclusive and at least 12 mm thick for hoses of nominal size in the range from 900 to 1 300 inclusive, and end fittings as described in 5.3 on both ends. The lining thickness shall be at least 8 mm for nominal sizes up to and including 200, at least 10 mm for nominal sizes 250 to 500 inclusive, at least 12 mm for nominal sizes 550 to 800 inclusive and at least 16 mm for nominal sizes 850 to 1 300 inclusive.

5.2 Flotation material

The closed-cell flotation material used in type 1 hose assemblies shall adhere firmly both to the hose body and to the outer cover so that it cannot move or tend to become detached in service. At the ends of the hose, a space shall be provided to facilitate the insertion of connection bolts and to allow the use of mechanical tools for tightening nuts on the bolts. The flotation material shall be distributed over the whole length of the hose assembly in such a manner that the hose assembly floats evenly when connected to other assemblies in a string. This does not apply to hose assemblies for special applications (e.g. the end of a string, tapered hose, etc.).

5.3 End fittings and end connections

End fittings shall be mechanically and chemically bonded to the hose body. With hoses intended for delivery use only, clamped-on and swaged-on nipples are not acceptable, but such nipples may be utilized with hoses intended for suction use. Alternatively, flanged end connections built up of hose reinforcement, lining and cover material are acceptable provided they are additionally reinforced by steel stiffening rings to avoid distortion when the connection bolts are tightened. All hose assemblies shall be fitted with either end fittings or flanged end connections unless otherwise required by the end user.

6 Dimension and tolerances

6.1 Diameters

The test shall be carried out in accordance with ISO 4671. The inside diameters of hoses shall conform to the values given in Table 4.

The test shall be carried out in accordance with ISO 4671. The outside diameters of hoses shall conform to the values specified by the customer.

NOTE For hoses manufactured on mandrels with diameters in inches, the tolerances on the inside diameter are the same as those given for hoses with diameters in metric units in Table 4 (i.e. ±3 mm for sizes 4 in to 8 in inclusive, ±4 mm for 10 in to 12 in inclusive, ±5 mm for 14 in to 30 in inclusive, ±6 mm for 32 in to 40 in inclusive and ±7 mm for 44 in and 48 in).

Table 4 — Diameters of hoses

Nominal size	Actual inside diameter mm	
	min.	max.
100	97	103
150	147	153
200	197	203
250	246	254
300	296	304
350	345	355
400	395	405
450	445	455
500	495	505
550	545	555
600	595	605
650	645	655
700	695	705
750	745	755
800	794	806
850	844	856