International Standard

ISO 28017

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

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

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Foreword

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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 document 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).

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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 28017:2018), which has been technically revised.

The main changes are as follows:

— revision of the ambient temperature range in Clause 1;

— addition of a nominal size of 1 300 in Table 1;

— addition of requirements for low-temperature brittleness in Table 6.

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 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. 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.

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 812:2017, *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 4649:2024, *Rubber, vulcanized or thermoplastic — Determination of abrasion resistance using a rotating cylindrical drum device*

ISO 4662, *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 8033:2016, *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 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 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	N/A	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	N/A	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 the following:

a) an abrasion-resistant rubber lining;

b) one or more layers of steel or textile reinforcement;

c) a textile-reinforced rubber undercover;

d) a flexible closed-cell flotation material integrally fitted round the hose body as specified in 5.2;

e) 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);

f) end fittings as specified in 5.3 on both ends.

Type 2 hose assemblies shall consist of the following:

1) an abrasion-resistant rubber lining;

2) one or more layers of steel or textile reinforcement;

3) a textile-reinforced rubber;