SLOVENSKI STANDARD
SIST EN 853:2000

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Gumene cevi in cevni priključki - Z jeklenim kordom ojačane hidravlične vrste - Specifikacija

Rubber hoses and hose assemblies - Wire braid reinforced hydraulic type - Specification

Gummischläuche und -schlauchleitungen- Hydraulikschläuche mit Drahtgeflechteinlage - Spezifikation

Tuyaux et flexibles en caoutchouc - Type hydraulique avec armature de fils métallique tressés - Spécification

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English version

Rubber hoses and hose assemblies - Wire braid reinforced hydraulic type - Specification

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CEN

European Committee for Standardization
Comité Européen de Normalisation
Europäisches Komitee für Normung

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Foreword

This European Standard has been prepared by Technical Committee CEN/TC 218 "Rubber and plastics hoses and hose assemblies", the secretariat of which is held by BSI.

This European Standard is based on ISO 1436.

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of an identical text or by endorsement, at the latest by April 1997, and conflicting national standards shall be withdrawn at the latest by April 1997.

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

1 Scope

This European Standard specifies requirements for four types of wire braid reinforced hoses and hose assemblies of nominal bore from 5 to 51. They are suitable for use with:

- hydraulic fluids in accordance with ISO 6743-4 with the exception of HFD R, HFD S and HFD T at temperatures ranging from -40 °C to +100 °C;
- water based fluids at temperatures ranging from -40 °C to +70 °C;
- water at temperatures ranging rom 0 °C to +70 °C

The standard does not include requirements for end fittings. It is limited to the performance of hoses and hose assemblies.

NOTE 1: The hoses are not suitable for use with castor oil based and ester based fluids.

NOTE 2: Hoses and hose assemblies should not be operated outside the limits of this standard.

NOTE 3: Requirements for hydraulic hoses for underground mining are standardised in separate standards.

2 Normative references

This European Standard incorporates by dated or undated reference, provisions from other publications. These normative references are cited at the appropriate places in the text and the publications are listed hereafter. For dated references, subsequent amendments to or revisions of any of these publications apply to this European Standard only when incorporated in it by amendment or revision. For undated references the latest edition of the publication referred to applies.

EN 24671	Rubber and plastics hose and hose assemblies - Methods of measurement of dimensions (ISO 4671:1984)
EN 24672	Rubber and plastics hoses - Sub-ambient temperature flexibility tests (ISO 4672:1988)
EN 27326	Rubber and plastics hoses - Assessment of ozone resistance under static conditions (ISO 7326:1991)
EN 28033 : 1993	Rubber and plastics hose - Determination of adhesion between components (ISO 8033:1991)
EN ISO 1402	Rubber and plastics hoses and hose assemblies - Hydrostatic testing (ISO 1402:1994)
EN ISO 6945	Rubber hoses - Determination of abrasion resistance of the outer cover (ISO 6945:1991)
EN ISO 7233	Rubber and plastics hoses and hose assemblies - Determination of suction resistance (ISO 7233:1991)
ISO 1817	Rubber, vulcanized - Determination of the effect of liquids
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

3 Types of hoses

Four types of hoses are specified:

- Type 1ST - hoses with a single braid of wire reinforcement;

- Type 2ST - hoses with two braids of wire reinforcement;

- Types 1SN and 2SN - Types 1SN and 2SN shall be of the same reinforcement construction as types 1ST and 2ST, except that they shall have thinner covers designed to assemble with fittings that do not require removal of the cover or a portion of the cover.

4 Materials and construction

4.1 Hoses

Hoses shall consist of an oil and water resistant synthetic rubber lining, one or two layers of high tensile steel wire and an oil and weather resistant rubber cover.

4.2 Hose assemblies

Hose assemblies shall only be manufactured with those hose fittings whose functionality has been verified in all tests in accordance with this European Standard.

5 Dimensions

5.1 Diameters and concentricity

When measured in accordance with EN 24671, the diameters of the hoses shall comply with the values given in table 1.

Table 1: Diameters of hoses

Dimensions in millimetres

Nominal bore	All types		Type 1ST				Type 1SN			Type 2ST				Type 2SN		
	Internal diameter		Diameter over reinforcement		Outside diameter of hose		Outside diameter of hose	Cover thickness		Diameter over reinforcement		Outside diameter of hose		Outside diameter of hose	Cover thickness	
	min.	max.	min.	max.	min.	max	max.	min.	max.	min.	max.	min.	max.	max.	min.	max.
5	4,6	5,4	9,0	10,0	11,9	13,5	12,5	0,8	1,5	10,6	11,6	15,1	16,7	14,1	0,8	1,5
6	6,2	7,0	10,6	11,6	15,1	16,7	14,1	0,8	1,5	12,1	13,3	16,7	18,3	15,7	0,8	1,5
8	7,7	8,5	12,1	13,3	16,7	18,3	15,7	0,8	1,5	13,7	14,9	18,3	19,9	17,3	0,8	1,5
10	9,3	10,1	14,5	15,7	19,0	20,6	18,1	0,8	1,5	16,1	17,3	20,6	22,2	19,7	0,8	1,5
12	12,3	13,5	17,5	19,1	22,2	23,8	21,4	0,8	1,5	19,0	20,6	23,8	25,4	23,0	0,8	1,5
16	15,5	16,7	20,6	22,2	25,4	27,0	24,5	0,8	1,5	22,2	23,8	27,0	28,6	26,2	0,8	1,5
19	18,6	19,8	24,6	26,2	29,4	31,0	28,5	0,8	1,5	26,2	27,8	31,0	32,6	30,1	0,8	1,5
25	25,0	26,4	32,5	34,1	37,1	39,1	36,6	0,8	1,5	34,1	35,7	38,5	40,9	38,9	1,0	2,0
31	31,4	33,0	39,3	41,7	44,4	47,6	44,8	1,0	2,0	43,3	45,7	49,2	52,4	49,5	1,0	2,0
38	37,7	39,3	45,6	48,0	50,8	54,0	52,1	1,5	2,5	49,6	52,0	55,6	58,8	55,9	1,3	2,5
51	50,4	52,0	58,7	61,7	65,1	68,3	65,5	1,5	2,5	62,3	64,7	68,2	71,4	68,6	1,3	2,5

When measured in accordance with EN 24671, the concentricity of the hoses shall comply with the values given in table 2.

Table 2: Concentricity of hoses

Dimensions in millimetres

Nominal bore	Maximum variation in wall thickness		
	Between internal diameter and outside diameter	Between internal diameter and reinforcement diameter	
	All types	Types 1ST and 1SN	Types 2ST and 2SN
Up to and including 6	0,8	0,4	0,4
Over 6 and including 19	1,0	0,6	0,7
Over 19	1,3	0,8	0,9

5.2 Length

5.2.1 Hoses

Hoses shall be supplied in lengths as specified by the purchaser, subject to a tolerance on the specified lengths of ±2 %.

When no specific hose lengths have been ordered, the percentages of different lengths in any given delivery shall be as follows:

- over 20 m : not less than 80 % of total length;
- over 10 m to 20 m : not more than 20 % of total length;
- 1 m to 10 m : not more than 3 % of total length.

No length of hose shall be less than 1 m.

5.2.2 Hose assemblies

The tolerances on the length of hose assemblies shall comply with table 3.