



SLOVENSKI STANDARD

SIST EN 857:2015

01-junij-2015

Nadomešča:
SIST EN 857:2000

Gumene cevi in cevni priključki - Z jeklenim kordom ojačene trdne hidravlične cevi - Specifikacija

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

Gummischläuche und Schlauchleitungen - Kompakthydraulikschläuche mit Drahtgeflechteinlage - Spezifikation

Tuyaux et flexibles en caoutchouc - Type hydraulique compact avec armature de fils métalliques - Spécification

Ta slovenski standard je istoveten z: **EN 857:2015**

ICS:

23.040.70 Gumene cevi in armature Hoses and hose assemblies

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EUROPEAN STANDARD
NORME EUROPÉENNE
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EN 857

April 2015

ICS 23.100.40

Supersedes EN 857:1996

English Version

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

Tuyaux et flexibles en caoutchouc - Type hydraulique
compact avec armature de fils métalliques - Spécification

Gummschläuche und -schlauchleitungen -
Kompakthydraulikschläuche mit Drahtgeflechteinlage -
Spezifikation

This European Standard was approved by CEN on 31 January 2015.

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EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

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Foreword

This document (EN 857:2015) 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 shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by October 2015 and conflicting national standards shall be withdrawn at the latest by October 2015.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN [and/or CENELEC] shall not be held responsible for identifying any or all such patent rights.

This document supersedes EN 857:1996.

In comparison with EN 857:1996, the following significant changes have been made:

- updated normative references;
- tolerances for inside diameter in Table 1;
- added Annex A;
- added Annex B;
- added Annex C.

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According to the CEN-CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

EN 857:2015 (E)**1 Scope**

This European Standard specifies requirements for two types of wire braid reinforced compact hoses and hose assemblies of nominal bore from 6 to 25, types 1SC and 2SC.

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 from 0 °C to +70 °C.

This European 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 nor ester based fluids.

NOTE 2 Hoses and hose assemblies are 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

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The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

EN ISO 1302, *Geometrical Product Specifications (GPS) - Indication of surface texture in technical product documentation (ISO 1302)*

EN ISO 1402:2009, *Rubber and plastics hoses and hose assemblies - Hydrostatic testing (ISO 1402:2009)*

EN ISO 4671, *Rubber and plastics hoses and hose assemblies - Methods of measurement of the dimensions of hoses and the lengths of hose assemblies (ISO 4671)*

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

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

EN ISO 7233, *Rubber and plastics hoses and hose assemblies - Determination of resistance to vacuum (ISO 7233)*

EN ISO 7326, *Rubber and plastics hoses - Assessment of ozone resistance under static conditions (ISO 7326)*

EN ISO 8033:2006, *Rubber and plastics hoses - Determination of adhesion between components (ISO 8033:2006)*

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

ISO 1817:2005, *Rubber, vulcanized - Determination of the effect of liquids*

ISO 23529, *Rubber - General procedures for preparing and conditioning test pieces for physical test methods*

3 Types of hoses

Two types of hoses are specified:

- 1) type 1SC – hoses with a single braid of wire reinforcement;
- 2) type 2SC – hoses with two braids of wire reinforcement.

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 synthetic rubber cover.

4.2 Hose assemblies

Hose assemblies shall only be manufactured with those hose fittings whose functionality has been verified in accordance with subclauses 6.1, 6.3, 6.4 and 6.5 of this European Standard.

5 Dimensions

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5.1 Diameters and concentricity

When measured in accordance with EN ISO 4671, the diameters of the hoses shall conform to the values given in Table 1.

Table 1 — Diameters of hoses

Dimensions in millimetres, except nominal bore

Nominal bore	All types		Type 1SC			Type 2SC		
	Inside diameter		Diameter over reinforcement		Outside diameter of hose	Diameter over reinforcement		Outside diameter of hose
	min.	max.	min.	max.	max.	min.	max.	max.
6	6,4	6,9	9,6	10,8	13,5	10,6	11,7	14,2
8	7,9	8,5	10,9	12,1	14,5	12,1	13,3	16,0
10	9,5	10,1	12,7	14,5	16,9	14,4	15,6	18,3
12	12,7	13,5	15,9	18,1	20,4	17,5	19,1	21,5
16	15,8	16,7	19,8	21,0	23,0	20,5	22,3	24,7
19	18,8	19,8	23,2	24,4	26,7	24,6	26,4	28,6
25	25,4	26,4	30,7	31,9	34,9	32,5	34,3	36,6

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When measured in accordance with EN ISO 4671, the concentricity of the hoses shall conform to the values given in Table 2.

Table 2 — Concentricity of hoses

Dimensions in millimetres, except nominal bore

Nominal bore	Maximum variation in wall thickness	
	Between inside diameter and outside diameter	Between inside diameter and reinforcement diameter
6	0,8	0,4
Over 6 and including 19	1,0	0,6
Over 19	1,3	0,8

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 $\pm 2\%$.

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, up to and including 20 m : not more than 20 % of total length;
- 1 m, up to and including 10 m : not more than 3 % of total length.

The length of hose shall be at least 1 m.

5.2.2 Hose assemblies

The tolerances on the length of hose assemblies shall conform to the values given in Table 3.

Table 3 — Tolerances of length of hose assemblies

Hose assembly length mm	Tolerances
Up to and including 630	+ 7 mm - 3 mm
Over 630, up to and including 1 250	+ 12 mm - 4 mm
Over 1 250, up to and including 2 500	+ 20 mm - 6 mm
Over 2 500, up to and including 8 000	+ 1,5 % - 0,5 %
Over 8 000	+ 3 % - 1 %

6 Requirements

6.1 Hydrostatic requirements

6.1.1 When tested in accordance with EN ISO 1402, the maximum working pressure, the proof pressure and burst pressure of the hoses and hose assemblies shall conform to the values given in Table 4.

Table 4 — Maximum working pressure, proof pressure and burst pressure

Nominal bore	Maximum working pressure		Proof pressure		Burst pressure	
	bar ^a		bar		bar	
	Type		Type		Type	
	1SC	2SC	1SC	2SC	1SC	2SC
6	225	400	450	800	900	1 600
8	215	350	430	700	860	1 400
10	180	330	360	660	720	1 320
12	160	275	320	550	640	1 100
16	130	250	260	500	520	1 000
19	105	215	210	430	420	860
25	88	165	176	330	352	660

^a 1 bar = 0,1 MPa.

6.1.2 When tested in accordance with EN ISO 1402, the change in length of hose at the maximum working pressure shall not exceed +2% to +4%.

6.2 Minimum bend radius

When bent to the minimum bend radius given in Table 5, measured on the inside of the bend, the flatness shall not exceed 10 % of the original outside diameter.

Measure the hose outside diameter with a calliper before bending the hose. Bend the hose to the minimum bend radius and measure the flatness with the calliper.

Table 5 — Minimum bend radius

Nominal bore	Minimum bend radius	
	mm	
	Type 1SC	Type 2SC
6	75	75
8	85	85
10	90	90
12	130	130
16	150	170
19	180	200
25	230	250