

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

EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

See Eesti standard EVS-EN 857:2015 sisaldab Euroopa standardi EN 857:2015 ingliskeelset teksti.	This Estonian standard EVS-EN 857:2015 consists of the English text of the European standard EN 857:2015.
Standard on jõustunud sellekohase teate avaldamisega EVS Teatajas	This standard has been endorsed with a notification published in the official bulletin of the Estonian Centre for Standardisation.
Euroopa standardimisorganisatsioonid on teinud Euroopa standardi rahvuslikele liikmetele kättesaadavaks 01.04.2015.	Date of Availability of the European standard is 01.04.2015.
Standard on kättesaadav Eesti Standardikeskusest.	The standard is available from the Estonian Centre for Standardisation.

Tagasisidet standardi sisu kohta on võimalik edastada, kasutades EVS-i veebilehel asuvat tagasiside vormi või saates e-kirja meiliaadressile standardiosakond@evs.ee.

ICS 23.100.40

Standardite reprodutseerimise ja levitamise õigus kuulub Eesti Standardikeskusele

Andmete paljundamine, taastekitamine, kopeerimine, salvestamine elektroonsesse süsteemi või edastamine ükskõik millises vormis või millisel teel ilma Eesti Standardikeskuse kirjaliku loata on keelatud.

Kui Teil on küsimusi standardite autorikaitse kohta, võtke palun ühendust Eesti Standardikeskusega:

Aru 10, 10317 Tallinn, Eesti; koduleht www.evs.ee; telefon 605 5050; e-post info@evs.ee

The right to reproduce and distribute standards belongs to the Estonian Centre for Standardisation

No part of this publication may be reproduced or utilized in any form or by any means, electronic or mechanical, including photocopying, without a written permission from the Estonian Centre for Standardisation.

If you have any questions about copyright, please contact Estonian Centre for Standardisation:

Aru 10, 10317 Tallinn, Estonia; homepage www.evs.ee; phone +372 605 5050; e-mail info@evs.ee

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

Gummischläuche und -schlauchleitungen - Kompakthydraulikschläuche mit Drahtgeflechteinlage - Spezifikation

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

CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration. Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the CEN-CENELEC Management Centre or to any CEN member.

This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CEN member into its own language and notified to the CEN-CENELEC Management Centre has the same status as the official versions.

CEN members are the national standards bodies of 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 United Kingdom.



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

CEN-CENELEC Management Centre: Avenue Marnix 17, B-1000 Brussels

Contents

Page

Foreword.....	3
1 Scope	4
2 Normative references	4
3 Types of hoses.....	5
4 Materials and construction	5
4.1 Hoses	5
4.2 Hose assemblies.....	5
5 Dimensions.....	5
5.1 Diameters and concentricity.....	5
5.2 Length	6
5.2.1 Hoses	6
5.2.2 Hose assemblies.....	6
6 Requirements	7
6.1 Hydrostatic requirements	7
6.2 Minimum bend radius.....	7
6.3 Impulse test requirements	8
6.4 Leakage of hose assemblies	8
6.5 Cold flexibility	8
6.6 Adhesion between components.....	8
6.7 Vacuum resistance	8
6.8 Abrasion resistance	9
6.9 Fluid resistance.....	9
6.9.1 Test pieces	9
6.9.2 Oil resistance	9
6.9.3 Water based fluid resistance	9
6.9.4 Water resistance	10
6.10 Ozone resistance	10
7 Designation	10
8 Marking	10
8.1 Hoses	10
8.2 Hose assemblies.....	10
Annex A (normative) Procedure for the measurement of abrasion.....	11
A.1 Apparatus	11
A.2 Method	12
A.3 Test pieces	12
A.4 Condition of test pieces	12
A.5 Procedure	13
A.6 Expression of results	13
A.7 Test report	13
Annex B (normative) Type and routine testing of production hoses	15
Annex C (informative) Production acceptance testing.....	16

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.

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.

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

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

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