

Rubber hoses and hose assemblies - Rubber-covered
spiral wire reinforced hydraulic type - Specification
(Corrected version 03.2019)

EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

See Eesti standard EVS-EN 856:2015 sisaldab Euroopa standardi EN 856:2015+AC:2019 ingliskeelset teksti.	This Estonian standard EVS-EN 856:2015 consists of the English text of the European standard EN 856:2015+AC:2019.
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, konsolideeritud väljaanne 06.03.2019.	Date of Availability of the European standard is 01.04.2015, for consolidated version 06.03.2019.
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:
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:

Homepage www.evs.ee; phone +372 605 5050; e-mail info@evs.ee

English Version

Rubber hoses and hose assemblies - Rubber-covered spiral wire reinforced hydraulic type - Specification

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

Gummischläuche und -schlauchleitungen -
Hydraulikschläuche mit Drahtspiraleinlage -
Spezifikation

This European Standard was approved by CEN on 31 January 2015 and includes the Corrigendum issued by CEN on 6 March 2019.

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, Serbia, 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: Rue de la Science 23, B-1040 Brussels

Contents

Page

European foreword	3
1 Scope	4
2 Normative references	4
3 Types of hose	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	7
5.2.1 Hoses	7
5.2.2 Hose assemblies	7
6 Requirements	8
6.1 Hydrostatic requirements	8
6.2 Minimum bend radius	8
6.3 Impulse test requirements	9
6.4 Leakage of hose assemblies	9
6.5 Cold flexibility	9
6.6 Adhesion between components	9
6.7 Abrasion resistance	10
6.8 Fluid resistance	10
6.8.1 Test pieces	10
6.8.2 Oil resistance	10
6.8.3 Water based fluid resistance	10
6.8.4 Water resistance	10
6.9 Ozone resistance	10
7 Designation	10
8 Marking	11
8.1 Hoses	11
8.2 Hose assemblies	11
Annex A (normative) Procedure for the measurement of abrasion	12
A.1 Apparatus	12
A.2 Method	13
A.3 Test pieces	13
A.4 Condition of test pieces	14
A.5 Procedure	14
A.6 Expression of results	14
A.7 Test report	15
Annex B (normative) Type and routine testing of production hoses	16
Annex C (informative) Production acceptance testing	17

European foreword

This document (EN 856:2015+AC:2019) 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 AC EN 856:2015 AC.

This document includes Corrigendum 1 issued by CEN on 6 March 2019 to correct the presentation of the values in Table 5.

The start and finish of text introduced or altered by corrigendum is indicated in the text by tags AC AC.

In comparison with EN 856:1996, 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, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

1 Scope

This European Standard specifies requirements for four types of rubber-covered spiral wire reinforced hydraulic hoses and hose assemblies of nominal bore from 6 to 51: Types 4SP, 4SH, R12 and R13. They are all 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 $-40\text{ }^{\circ}\text{C}$ to $+100\text{ }^{\circ}\text{C}$ for types 4SP and 4SH and $-40\text{ }^{\circ}\text{C}$ to $+120\text{ }^{\circ}\text{C}$ for types R12 and R13;
- water based fluids at temperatures ranging from $-40\text{ }^{\circ}\text{C}$ to $70\text{ }^{\circ}\text{C}$;
- water fluids at temperatures ranging from $0\text{ }^{\circ}\text{C}$ to $70\text{ }^{\circ}\text{C}$.

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 a separate standard.

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 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*