SLOVENSKI STANDARD
SIST EN 1360:2000

01-december-2000

Gumene cevi in cevni priključki za merjeno točenje goriv - Specifikacija

Rubber hoses and hose assemblies for measured fuel dispensing - Specification

Zapfstellenschläuche und -schlauchleitungen aus Gummi - An forderungen

Tuyaux et flexibles en caoutchouc pour distribution mesurée de carburants - Spécification

Ta slovenski standard je istoveten z: **EN 1360:1996**

ICS:

75.200	Oprema za skladiščenje nafte, naftnih proizvodov in zemeljskega plina	Petroleum products and natural gas handling equipment
83.140.40	Gumene cevi	Hoses

SIST EN 1360:2000 **en**

EUROPEAN STANDARD **EN 1360**

NORME EUROPÉENNE

EUROPÄISCHE NORM November 1996

ICS 23.040.70

Descriptors: rubber hoses, plastic tubes, hoses, fuel handling equipment, specification, pressure, dimensions, dimensional tolerances, physical properties, tests, marking

English version

Rubber hoses and hose assemblies for measured fuel dispensing - Specification

Tuyaux et flexibles en caoutchouc pour distribution mesurée de carburants - Spécification

Zapfstellenschläuche und -schlauchleitungen aus Gummi - Anforderungen

This European Standard was approved by CEN on 1996-07-04. 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 Central Secretariat or to any CEN member.

The European Standards exist 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 Central Secretariat has the same status as the official versions.

CEN members are the national standards bodies of Austria, Belgium, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and United Kingdom.

CEN

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

Central Secretariat: rue de Stassart,36 B-1050 Brussels

Contents

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 shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by May 1997, and conflicting standards shall be withdrawn at the latest by May 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 three types of rubber hoses and hose assemblies used for measured fuel dispensing, including oxygenated fuels (up to a maximum of 15% oxygenated compounds).

The three types of hoses are as follows:

a) type 1: hoses with textile reinforcement suitable for reeling on a drum or hanging in bends;

b) type 2: hoses with textile and helical wire reinforcement designed for torsional flexibility, suitable for coiling, reeling on a drum or hanging in bends;

c) type 3: hoses with fine wire reinforcement designed for low dilation, suitable for reeling on a drum or hanging in bends.

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 ISO 1307	Rubber and plastics hoses for general purpose industrial applications - Bore diameters and tolerances and tolerances on length (ISO 1307:1992)
EN 24672	Rubber and plastics hoses - Sub-ambient temperature flexibility tests (ISO 4672:1988)
EN 26801	Rubber or plastics hoses - Determination of volumetric expansion (ISO 6801:1983)
EN 27326	Rubber and plastics hoses - Assessment of ozone resistance under static conditions (ISO 7326:1991)
EN 28031	Rubber and plastics hoses and hose assemblies - Determination of electrical resistance (ISO 8031:1987)
ISO 37	Rubber, vulcanized or thermoplastic - Determination of tensile stress-strain properties
ISO 188	Rubber, vulcanized - Accelerated ageing or heat-resistance tests
ISO 1402	Rubber and plastics hoses and hose assemblies - Hydrostatic testing

ISO 1746	Rubber or plastics hoses and tubing - Bending tests
ISO 1817	Rubber, vulcanized - Determination of the effect of liquids
ISO 4649	Rubber - Determination of abrasion resistance using a rotating cylindrical drum device
ISO 8033	Rubber and plastics hose - Determination of adhesion between components

3 Materials and construction

The hose shall consist of the following:

- a smooth, fuel resistant lining of rubber or thermoplastic elastomer (TPE);
- a suitable reinforcement;
- a non-corrugated, fuel and weather-resistant rubber or TPE cover.

Coupled hose assemblies shall be capable of conducting an electrical charge from coupling to coupling.

When this capability is provided by means of metallic wires, not less than two (crossed) metallic bonding wires shall be embedded in the hose, and the metal used shall have a high resistance to fatigue, work hardening and corrosion.

Hoses with metallic wires for electrical conductivity shall be designated 'M' and using conductive compounds shall be designated 'Ω', the relevant mark being branded on the hose (see clause 9).

NOTE: Only non re-usable corrosion resistant couplings should be used for this application.

4 Pressure requirements

For all types of hoses the following shall apply:

. maximum working pressure	16 bar[1)]
. proof pressure	24 bar
. minimum bursting pressure	48 bar

1) 1 bar = 0,1MPa

5 Dimensions and tolerances

5.1 Internal diameters

The internal diameter of the hose shall comply with the dimensions given in table 1.

Table 1: Nominal bore, internal diameters and tolerances

Nominal bore	Internal diameter, mm	Tolerances, mm
12	12,5	± 0,8
16	16,0	
19	19,0	
21	21,0	± 1,25
25	25,0	
32	32,0	
38	38,0	
40	40,0	
NOTE: Other internal diameters may be agreed between customer and manufacturer.		

5.2 Minimum thickness of lining and cover

The thickness of the lining shall be not less than 1,6 mm.
The thickness of the cover shall be not less than 1,0 mm.

5.3 Cut lengths

For cut lengths, the tolerances on length shall comply with EN ISO 1307.

6 Physical properties

The physical properties of the hose shall comply with the requirements given in table 2 when tested by the methods indicated in table 2.

Table 2: Physical properties of hose

Property	Unit	Requirement		Test piece	Method of test
Proof pressure		No leakage or other signs of weakness		Full length of hose or hose assembly	ISO 1402 Proof test pressure
Burst pressure, min.	bar	48		Short length cut from hose or hose assembly	ISO 1402 Burst pressure
Volumetric expansion, max. Types 1 and 2 Type 3	%	 2 1		Hydrostatic test piece	EN 26801 Test pressure 3 bar (0,3 MPa)
Adhesion between components on a) unaged hoses, min. b) aged hose, min.	kN/m	 2,4 1,8		Short length cut from hose	ISO 8033 (for conditioning see annex B)
Ambient temperature flexibility		$\frac{T}{D} \geq 0,8$		Short length cut from hose	ISO 1746 Nominal diameter C = 10x nominal bore
Low temperature flexibility		No cracks or breaks		Short length cut from hose	EN 24672 (Method B) Test temperature -25 °C (-40 °C if requested) (see Note 1)
Tensile strength, min.	MPa	Rubber	TPE	Test piece cut from hose or from test sheet (see Note 2)	ISO 37
lining cover		7 7	12 12		
Elongation at break, min.	%	Rubber	TPE	Test piece cut from hose or from test sheet (see Note 2)	ISO 37
lining cover		250 250	350 350		
Accelerated ageing	%	Rubber	TPE	Test piece cut from hose or from test sheet (see Note 2)	ISO 188
Tensile strength change for lining and cover, max.		-20	-10		14 days at 70 °C ± 1 °C
Elongation at break change, for lining and cover, max.		-35	-20		
Abrasion resistance (cover compound)	mm^3	500		Test piece from moulded test sheet of cover compound	Method A of ISO 4649