

Rubber and thermoplastics hoses and hose assemblies for liquid or gaseous chemicals — Specification

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British Standard

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National foreword

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Summary of pages

This document comprises a front cover, an inside front cover, the EN title page, pages 2 to 21 and a back cover.

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Rubber and thermoplastics hoses and hose assemblies for liquid or gaseous chemicals - Specification

Tuyaux et flexibles en caoutchouc et en matériaux thermoplastiques pour substances chimiques liquides ou gazeuses - Spécification

Gummi- und Kunststoffschläuche und -schlauchleitungen für flüssige oder gasförmige Chemikalien - Spezifikation

This European Standard was approved by CEN on 16 April 1999.

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

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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 shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by December 1999, and conflicting national standards shall be withdrawn at the latest by December 1999.

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

WARNING: Due to regulations which are at the time outside of the competence of the CEN/CENELEC member (Germany), this European Standard contains an A-deviation in annex F (informative).

1 Scope

This European Standard specifies requirements for two types of hose assemblies (Types D and SD) with hoses made of rubber or thermoplastics and hose fittings made of metal designed to convey liquid or gaseous substances, hereinafter termed the chemicals conveyed.

For all hose assemblies, the maximum working pressure is 10 bar¹⁾. Hose assemblies can be operated safely with a conveyed chemical temperature in the range of -20 °C to +65 °C.

NOTE 1 This standard sets out requirements for these hose assemblies to ensure that users are not exposed to danger from fire or explosion and that the environment is protected against contamination or damage.

NOTE 2 Other temperatures and pressures than those given above can be agreed with the manufacturer.

NOTE 3 Other diameters than those given in this standard can be agreed with the manufacturer. Typical masses and vacuum stability are listed in annex A.

NOTE 4 This standard also provides guidance on the storage of hose assemblies (see annex B).

NOTE 5 The attention of users is drawn to annex C concerning the selection of lining material related to the chemical(s) to be conveyed by the hoses and/or hose assembly.

This standard does not apply to hose assemblies for:

- | | |
|--------------------------------|-----------------|
| — aircraft refuelling | (EN 1361); |
| — fuel dispensing | (EN 1360); |
| — oil burners | (EN ISO 6806); |
| — refrigerant circuits; | |
| — fuel truck delivery | (EN 1761); |
| — liquid petroleum gases (LPG) | (EN 1762); |
| — fire fighting | (EN ISO 14775). |

¹⁾ 1 bar = 0,1 MPa.

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 21746, *Rubber or plastics hoses and tubing — Bending tests* (ISO 1746:1983).

EN 24671, *Rubber and plastics hoses and hose assemblies — Methods of measurements 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, *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 7233, *Rubber and plastic hoses and assemblies — Determination of suction resistance* (ISO 7233:1991).

EN ISO 8031, *Rubber and plastics hoses and hose assemblies — Determination of electrical resistance* (ISO 8031:1993).

ISO 37, *Rubber, vulcanized — Determination of tensile stress — strain properties*.

ISO 188, *Rubber, vulcanized — Accelerated ageing or heat-resistance tests*.

ISO 1629, *Rubber and latices, Nomenclature*.

ISO 1817, *Rubber, vulcanized — Determination of the effects of liquids*.

ISO 4649, *Rubber — Determination of abrasion resistance using a rotating cylindrical drum device*.

ISO 8330, *Rubber and plastics — Glossary of terms used by the hose industry*.

ISO 8331, *Rubber and plastics hoses and hose assemblies — Guide to selection, storage, use and maintenance*.

3 Definitions

For the purposes of this standard, the definitions given in ISO 8330 apply.

NOTE In this European Standard the word “fitting” has been used and is interchangeable with the word “coupling”.

4 Types of hoses

4.1 Delivery pressure hoses, type D

Pressure hoses shall consist of a lining, reinforcement and a cover.

The lining shall be resistant to the chemical substances conveyed. The lining shall be uniform in quality and free from porosity, air holes, foreign inclusions and other defects.

The cover shall be resistant to mechanical damage, wear and environmental effects due to weather and short-term chemical exposure.

4.2 Suction and delivery pressure hoses, type SD

Suction and delivery pressure hoses shall incorporate one or more helixes in addition to the components of type D.

5 Dimensions

5.1 Diameters, thicknesses, and bend radii

The internal and external diameters of the hoses shall conform to the values given in Table 1 or Table 2, depending on the type; the minimum thickness of lining and cover shall conform to the values given in Table 1 or Table 2, depending on the type; the minimum bend radius shall conform to the values given in Table 1 or Table 2, depending on the type.

Table 1 — Dimension requirements, type D hoses

Nominal bore	Internal diameter mm	Tolerance mm	Outside diameter mm	Tolerance mm	Minimum thickness mm		Bend radius mm min. ²⁾
					lining ¹⁾	cover	
19	19,0	±0,5	31,0	±1,0	2,0	1,6	125
25	25,0		37,0				150
32	32,0		44,0				175
38	38,0		51,0				225
50	50,0	±0,7	66,0	±1,2	2,0	2,0	275
51	51,0		67,0				275
63	63,0	±0,8	79,0				300
75	75,0		91,0				350 ³⁾
76	76,0		92,0				350 ³⁾
100	100,0		116,0	±1,6			450 ³⁾
101,5	101,5		118,0				450 ³⁾

¹⁾ The dimensions for the minimum lining thickness do not apply to hoses made from materials PE-X/UPE and fluoro plastics. The thickness for these materials shall be 0,4 mm.

²⁾ The bend radii stated do not apply to hoses made from PE-X/UPE and fluoro plastics where the value shall be 1,5 × the values shown above.

³⁾ Only applies to operation at not less than 1 bar, otherwise the hose will kink.