



SLOVENSKI STANDARD
SIST EN 1765:2000

01-december-2000

Cevni priključki za dotok in odtok nafte in naftnih derivatov - Specifikacija za priključke

Rubber hose assemblies for oil suction and discharge services - Specification for the assemblies

Gummischlauchleitungen für das Ansaugen und Fördern von Öl - Anforderungen an die Schlauchleitung

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Flexibles en caoutchouc pour chargement et déchargement des produits pétroliers - Spécifications

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83.140.40	Gumene cevi	Hoses

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EUROPEAN STANDARD

EN 1765

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Rubber hose assemblies for oil suction and discharge services - Specification for the assemblies

Flexibles en caoutchouc pour chargement et déchargement des produits pétroliers - Gummischlauchleitungen für das Ansaugen und Fördern von Öl - Anforderungen an die Schlauchleitung

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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.

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CEN

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

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 plastic 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of an identical text or by endorsement, at the latest by March 1998, and conflicting national standards shall be withdrawn at the latest by March 1998.

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.

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Introduction

This European Standard specifies minimum requirements for the satisfactory performance of wire reinforced rubber hose assemblies of both smooth and rough bore types for oil suction and discharge services. The hoses are commonly used for transferring crude oil and liquid petroleum products, other than liquefied petroleum gas and natural gas, to and from tanker and bunkering vessels or for similar duties ashore.

Specific details of the construction of hoses are not rigidly defined in this standard since it is felt that this could restrict the introduction of improved methods of construction. It should be noted that no reference is made to the hose assembly working pressure. Instead, the hose assemblies have been classified in terms of service pressure, which includes an allowance for surge pressure and which equates with the factory test pressure. It is the responsibility of the user to determine the appropriate working pressure, which will depend on the severity of the user's operating conditions and on the service life that is expected of the hose assembly.

It is necessary for the purchaser to provide certain information about the hose assembly and its intended use at the time of enquiry and/or order; this information is listed in annex A (informative). Recommendations concerning packaging and transportation are given in annex B (informative) and expected masses of hoses, in kilograms per metre of free length, are given in annex C (informative).

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1 Scope

This European Standard specifies the characteristics of four types of oil suction and discharge hose assemblies used for the conveyance of petroleum, including crude oils and other liquid petroleum products containing a maximum aromatics content of 40 % (v/v). It is not suitable for liquified petroleum gas and natural gas.

Hose assemblies to this European Standard can be used in the temperature range -20 °C to 82 °C.

The hoses specified are in the size range of nominal bore 50 to 500 and may be smooth bore, rough bore or armoured rough bore. Rough bore hoses are not suitable for use with aviation fuels.

NOTE: Hoses for use with petroleum products having an aromatic content greater than 40 % (v/v) are outside the scope of this European Standard but the requirements may be used as a basis for such hoses on request to the manufacturer.

2 Normative references

This European Standard incorporates, by dated or undated references, 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 these publications apply to the European Standard only when incorporated in it by amendments or revision. For undated references the latest edition of the publication referred to applies.

- | | |
|-------------------|--|
| EN 288-3: 1992 | Specification and approval of welding procedures for metallic materials
Part 3: Welding procedure tests for arc welding of steels |
| EN 22063: 1994 | Metallic and other inorganic coatings - Thermal spraying - Zinc, aluminium and their alloys (ISO 2063: 1991) |
| EN 28031: 1993 | Rubber and plastic hoses and hose assemblies - Determination of electrical resistance (ISO 8031: 1987) |
| EN ISO 1402: 1995 | Rubber and plastics hoses and hose assemblies - Hydrostatic testing (ISO 1402: 1994) |
| EN ISO 7233: 1995 | Rubber and plastics hoses and hose assemblies - Determination of suction resistance (ISO 7233: 1991) |
| ISO 1431-1: 1989 | Rubber, vulcanized or thermoplastic - Resistance to ozone cracking - Part 1: Static strain test |

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- ISO 1459: 1973 Metallic coatings - Projection against corrosion by hot dip galvanizing - Guiding principles
- ISO 1460: 1992 Metallic coatings - Hot dip galvanized coatings on ferrous materials - Gravimetric determination of the mass per unit area
- ISO 1461: 1973 Metallic coatings - Hot dip galvanized coatings on fabricated ferrous products - Requirements
- ISO 1817: 1985 Rubber, vulcanized - Determination of effect of liquids
- ISO 4649: 1985 Rubber - Determination of abrasion resistance using a rotating cylindrical drum device
- ISO 7005-1: 1992 Metallic flanges -
Part 1: Steel flanges
- ISO/TR 8330 Rubber and plastics - Glossary of terms used by the hose industry
- ASME B.1.20: 1993 Pipe threads, general purposes (inch)
- BS 3592-1 Steel wire for hose reinforcement -
Part 1: Specification for coated round and flat steel wire for rubber hose reinforcement.

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3 Definitions

For the purposes of this European Standard the definitions given in ISO/TR 8330 apply together with the following:

3.1 breaker fabric: A rubber coated open weave fabric used to anchor the lining or cover of a hose to its carcass, and to spread impact.

4 Types of hose assembly

WARNING: Careful consideration needs to be given before the use of electrically discontinuous hoses for transferring liquids known to generate static charges. In no circumstances should more than one length of electrically discontinuous hose be used in an individual transfer pipeline and effective electrical continuity to earth from both ends of the electrically discontinuous hose should be maintained.

Four types of hose assemblies are specified:

- Type R, rough bore hose assemblies for dock operation and intended for situations where a relatively stiff, heavy and robust assembly can be used. The lining of the rubberized fabric is supported and reinforced by an internal (hot-dipped) zinc coated steel wire helix. Type R assemblies are electrically continuous;
- Type A, armoured rough bore hose assemblies for dock operation. In addition to an internal zinc coated steel wire helix there shall be an external helical armour of a similar material. Type A hoses are electrically continuous and may be lighter and more flexible than type R;
- Type S, smooth bore hose assemblies for dock operation where flexibility and lightness are important. Type S hose assemblies may be electrically continuous or electrically discontinuous (see Warning);
- Type L, hose assemblies for dock service where greater flexibility, lower weight and ease of handling are of primary consideration. Type L hose assemblies may be electrically continuous or electrically discontinuous. They are only suitable for discharge applications.

5 Pressure ratings and designation

Each type of hose assembly shall be designated according to the type letters R, A, S or L followed by the maximum test pressure given in table 1.

For the purposes of this European Standard the test pressure includes an allowance for surge pressures over and above the working pressure.

NOTE: Hose assemblies should not be subjected to pressures greater than the test pressure.

Table 1: Pressure ratings and designation

Test pressure bar*	Type and designation	Description	Linear flow velocity, m/s max.
7	R7	Rough bore	12
7	A7	Armoured rough bore	12
7	S7	Smooth bore	12
10	R10	Rough bore	12
10	A10	Armoured bore	12
10	S10	Smooth bore	12
10	L10	Lightweight	12
15	R15	Rough bore	15
15	A15	Armoured bore	15
15	S15	Smooth bore	15
15	L15	Lightweight	15

* 1 bar = 0,1 MPa

6 Nominal bore

The nominal bore of hoses and associated fittings making a hose assembly shall be as given in table 2.

Table 2: Nominal bore

Type of assembly	Nominal bore	
R7, R10, R15	50	200
A7, A10, A15	75	250
S7	100	300
L10, L15	150	
S10, S15	50	250
	75	300
	100	400
	150	500
	200	

7 Length

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The length of hose assemblies shall be measured between flange faces, or, where hose assemblies are supplied without flanges, between the ends of the nipples.

The length of a finished hose assembly shall not differ from the nominal length by more than +2 % to -1 %. For this purpose the hose assembly shall be measured after being subjected to the test described in 12.1.

NOTE: The nominal length of the hose assembly should be stated at the time of order by the purchasers (see annex A).

8 Linear flow velocity

The hose assembly shall have a linear flow velocity, related to its designation, as given in table 1.

9 Construction

9.1 Type R

9.1.1 Hoses

Hoses shall comprise of:

- a) an internal wire helix sunk into the inner wall of the hose;

NOTE: An additional wire helix can be embedded into other layers.

- b) at least one oil resistant rubber impregnated textile ply between the internal wire helix and the lining;
- c) a lining of oil resistant rubber, conforming to the requirements given in 10.1;
- d) plies of woven textile reinforcement or textile or wire cord impregnated with oil resistant rubber;
- e) an open weave breaker fabric impregnated with oil resistant rubber;
- f) an outer rubber cover conforming to the requirements given in 10.5.

9.1.2 Hose assemblies

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The internal wire helix shall be connected to the nipple of the end connections by welding or brazing.

If an embedded wire helix is incorporated it shall be spiralled over the nipples to a point at least between the first and second bands and shall be finished off with at least two closed turns anchored together by welding or by clipping and soldering.

9.2 Type A

9.2.1 Hoses

Hoses shall comprise of:

- a) an internal round wire helix;
- b) a textile ply impregnated with rubber conforming to the requirements given in 10.1;
- c) a rubber lining filler resistant to the product to be carried by the hose, (see annex A) and conforming to the requirements given in 10.1;
- d) plies of textile reinforcement thoroughly impregnated with rubber;
- e) an outer rubber cover conforming to the requirements given in 10.5;
- f) an external round wire armouring helix lying in the corrugations of the outer cover with no free movement in any direction when the hose is laid out straight and under