

Rubber hoses and hose assemblies for aviation fuel handling — Specification

The European Standard EN 1361 : 1997 has the status of a British Standard

ICS 49.100; 83.140.40

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National foreword

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The UK participation in its preparation was entrusted by Technical Committee PRI/66, Rubber and plastics tubing, hoses and hose assemblies, to Subcommittee PRI/66/1, Industrial, chemical and petrochemical applications, which has the responsibility to:

- aid enquirers to understand the text;
- present to the responsible European committee any enquiries on the interpretation, or proposals for change, and keep the UK interests informed;
- monitor related international and European developments and promulgate them in the UK.

It supersedes BS 3158 : 1985 which is withdrawn.

A list of organizations represented on this subcommittee can be obtained on request to its secretary.

Cross-references

The British Standards which implement international or European publications referred to in this document may be found in the BSI Standards Catalogue under the section entitled 'International Standards Correspondence Index', or by using the 'Find' facility of the BSI Standards Electronic Catalogue.

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Summary of pages

This document comprises a front cover, an inside front cover, pages i and ii, the EN title page, pages 2 to 16 an inside back cover and a back cover.

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Tuyaux et flexibles en caoutchouc pour transfert de
carburant aviation — Spécification

Gummischläuche und-schlauchleitungen für die
Flugzeugbetankung — Anforderungen

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

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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of an identical text or by endorsement, at the latest by October 1997, and conflicting national standards shall be withdrawn at the latest by October 1997.

This standard is based on BS 3158 but the following major changes have been incorporated:

- six hose types reduced to four, omitting type A (non electrically bonded) and type D (non electrically bonded but incorporating an antistatic cover compound), which are no longer in regular use and are considered to be obsolete;
- maximum allowable fuel soluble matter has been increased;
- minimum levels for adhesion between components have been increased;
- pressure ratings for all types have been standardized to the same requirements.

A flammability test proposed by Germany has been included as an informative annex (annex A) so that experience in use and values may be obtained prior to consideration for inclusion as a requirement.

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.

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1
Scope

This European Standard specifies the dimensions, construction and requirements for four types of hoses and hose assemblies for use in all operations associated with the ground fuelling and defuelling of aircraft.

All four types of hose are designed for:

- a) use with petroleum fuels, having an aromatic hydrocarbon content not exceeding 30 % by volume;
- b) operation within the temperature range of $-30\text{ }^{\circ}\text{C}$ to $+65\text{ }^{\circ}\text{C}$ and are to be undamaged by climatic conditions of $-40\text{ }^{\circ}\text{C}$ to $+70\text{ }^{\circ}\text{C}$ when stored in static conditions.

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 24671	<i>Rubber and plastics hose and hose assemblies — Methods of measurement of dimensions</i> (ISO 4671 : 1984)
EN 24672	<i>Rubber and plastics hoses — Sub-ambient temperature flexibility tests</i> (ISO 4672 : 1988)
EN 26246	<i>Determination of existent gum in fuels by jet evaporation</i> (ISO 6246 : 1995)
EN 27326	<i>Rubber and plastics hoses — Assessment of ozone resistance under static conditions</i> (ISO 7326 : 1991)
EN 28031	<i>Rubber and plastics hoses and hose assemblies — Determination of electrical resistance</i> (ISO 8031 : 1993)
EN 28033	<i>Rubber and plastics hose — Determination of adhesion between components</i> (ISO 8033 : 1991)
ISO 37	<i>Rubber, vulcanized or thermoplastic — Determination of tensile stress-strain properties</i>
ISO 188	<i>Rubber, vulcanized — Accelerated ageing or heat-resistance tests</i>
ISO 1402	<i>Rubber and plastics hoses and hose assemblies — Hydrostatic testing</i>
ISO 1817 : 1985	<i>Rubber, vulcanized — Determination of the effect of liquids</i>
ISO 4649	<i>Rubber — Determination of abrasion resistance using a rotating cylindrical drum device</i>
ISO/TR 8330	<i>Rubber and plastics — Glossary of terms used by the hose industry</i>

3
Definitions

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

4
Types and service reeling diameters

4.1
Types

Hoses shall be one of the following four types, each incorporating an antistatic cover compound:

- a) type B, electrically conductive;
- b) type C, non-electrically conductive but incorporating an antistatic cover compound;
- c) type E, with enhanced defuelling capability (electrically conducting and incorporating a metallic wire helix reinforcement);
- d) type F, with enhanced defuelling capability (non-electrically conducting and incorporating a non-metallic helix reinforcement with an antistatic cover).

NOTE 1. Type C hoses are intended for general pressure application on all vehicles used for into-plane fuelling. It may also be used for vehicle/rail car loading and discharge where excessive vacuum does not occur.

NOTE 2. Type F hoses may be used for into-plane delivery applications on vehicles that are also used for defuelling at high flow rates, and where type C hoses are not suitable.

NOTE 3. Type E and type F hoses may also be used for vehicle/rail car loading and discharge, for trailer to fueller transfer, and for elevating platform supply (riser) to provide greater kink resistance. However, for 'riser' application, a 'heavy duty' type C hose or standard type C hose with an external wire spiral should be used when possible. This spiral should not be in electrical contact with the end couplings.

4.2
Service reeling diameter

Hoses shall be designed for operation on equipment fitted with hose reels of the diameters given in table 1.

NOTE. These hoses remain substantially circular in cross section when reeled on drums (see table 1) and should not be confused with hoses of the collapsible type that are intended to be reeled flat.

Table 1. Service reeling diameters	
Nominal bore	Minimum external diameter of reeling drum used in service mm
19	225
25	300
32	375
38	450
50	550
63	600
75	600
76	600
100	900
101	900