

Specification for

Flexible rubber tubing, rubber hose and rubber hose assemblies for use in LPG vapour phase and LPG/air installations

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Committees responsible for this British Standard

The preparation of this British Standard was entrusted by the Plastics and Rubber Standards Policy Committee (PRM/-) to Technical Committee PRM/66, upon which the following bodies were represented:

- Association of Metropolitan Authorities
- British Coal Corporation
- British Compressed Gases Association
- British Gas plc
- British Rubber Manufacturers' Association
- Chief and Assistant Chief Fire Officers' Association
- Energy Industries Council
- Fire Extinguishing Trades Association
- Home Office
- Institution of Fire Engineers
- Liquefied Petroleum Gas Industry Technical Association (UK)
- London Fire and Civil Defence Authority
- London Regional Transport
- Malaysian Rubber Producers' Research Association
- Ministry of Defence
- Society of Motor Manufacturers and Traders Limited

The following bodies were also represented in the drafting of the standard, through subcommittees and panels:

- British Fluid Power Association
- Engineering Equipment and Materials Users' Association

This British Standard, having been prepared under the direction of the Plastics and Rubber Standards Policy Committee, was published under the authority of the Standards Board and comes into effect on 28 June 1991

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The following BSI references relate to the work on this standard:
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Contents

	Page
Committees responsible	Inside front cover
Foreword	ii
1 Scope	1
2 Definitions	1
3 Classification and colour identification	1
4 Sampling and acceptance criteria	1
5 Temperature of testing	1
6 Type 1, flexible tubing for applications not exceeding 50 mbar working pressure	1
7 Type 2, hoses for applications not exceeding 17.5 bar working pressure	3
8 Connections for screwed ends	5
9 Complete assemblies (hoses including connections)	5
10 Marking	5
Appendix A Test for strength, adhesion and stretch of tubing	6
Appendix B Test for resistance to kinking	6
Appendix C Test for burning behaviour	6
Appendix D Test for resistance to <i>n</i> -pentane	6
Appendix E Tests for resistance to crushing	6
Appendix F Test for flexibility	7
Appendix G Test for resistance to ozone	7
Appendix H Test for strength, stretch and ageing resistance of hoses and hose assemblies	7
Appendix J Test for resistance to burst	7
Appendix K Conditions prior to testing for resistance to flexing	7
Appendix L Safety recommendations	7
Figure 1 — Metal nozzle for type 1 (tubing)	2
Figure 2 — Stretch test oversize metal nozzle for type 1 (tubing)	2
Figure 3 — Diagram illustrating kinking test	3
Figure 4 — Test for burning behaviour	3
Figure 5 — Nozzles for type 2 (hose)	4
Figure 6 — Diagram illustrating flexing test	8
Table 1 — Nominal bore of hose	3
Table 2 — Spacing of the two points for the kinking test	6
Publication(s) referred to	Inside back cover

Foreword

This British Standard, prepared under the direction of the Plastics and Rubber Standards Policy Committee, is a revision of BS 3212:1975 which is withdrawn. The major changes from the 1975 edition are as follows.

- a) The colour identification requirements are more stringent.
- b) The marking clause requires the manufacturer's name to be given instead of the supplier's name.
- c) Resistance to ozone is now carried out at 40 °C instead of at room temperature for both tubing and hose and the test sample is examined for cracks under a $\times 2$ magnification.

Appendix L details safety recommendations in the operation of tubing and hose/hose assemblies complying with this standard.

A British Standard does not purport to include all the necessary provisions of a contract. Users of British Standards are responsible for their correct application.

Compliance with a British Standard does not of itself confer immunity from legal obligations.

Summary of pages

This document comprises a front cover, an inside front cover, pages i and ii, pages 1 to 8, an inside back cover and a back cover.

This standard has been updated (see copyright date) and may have had amendments incorporated. This will be indicated in the amendment table on the inside front cover.

1 Scope

This British Standard specifies performance and dimensional requirements for rubber tubing, hose and complete assemblies for use in LPG vapour phase and LPG/air installations in environments up to a maximum ambient temperature of 60 °C.

NOTE 1 Tubing and hoses specified in this standard should not be used for gas cutting and allied processes using oxygen unless they also comply with the requirements of BS 5120.

NOTE 2 The abbreviation "LPG" (liquid petroleum gas) as used in this standard refers to butane and propane as defined in BS 4250-1.

NOTE 3 The titles of the publications referred to in this standard are listed on the inside back cover.

2 Definitions

For the purposes of this British Standard the definitions given in BS 3558 apply.

3 Classification and colour identification

3.1 Classification

Rubber tubing and hose shall be classified as follows.

- a) Type 1: flexible tubing for applications not exceeding 50 mbar¹⁾ working pressure.
- b) Type 2: hoses for applications not exceeding 17.5 bar working pressure.

3.2 Colour identification

Rubber tubing and hose shall be identified by colour as follows.

- a) Type 1 shall be black.
- b) Type 2 shall have an orange cover except hose supplied as a complete assembly with crimped or swaged ferrules for use in fixed LPG installations where a black cover is permissible.

4 Sampling and acceptance criteria

4.1 Sampling

The sample selected shall be representative of the consignment or batch supplied and of appropriate size for the number of test specimens required for testing.

4.2 Criteria for compliance

If any of the test specimens, taken from within the sample selected, fails to comply with this standard, two further samples from the same batch or consignment shall be taken for testing. If any of the test specimens in either of these additional samples fails, the batch or consignment represented by the samples shall be deemed not to comply with this standard.

5 Temperature of testing

Unless otherwise specified, all tests shall be carried out at 23 ± 2 °C.

6 Type 1, flexible tubing for applications not exceeding 50 mbar working pressure

6.1 General

The materials used in the manufacture of the tubing shall be homogeneous, free from odour, and resistant to outdoor exposure. The walls shall be seamless and free from all visible defects such as lumps, blowholes or cracks. The bore shall be clean and free from loose particles.

NOTE An appropriate metal nozzle for type 1 is shown in Figure 1.

6.2 Dimensions

The bore of the tubing shall be 8 ± 0.4 mm.

6.3 Test sample

A sample 3 m long shall be provided for test purposes.

6.4 Performance

6.4.1 Strength, adhesion and stretch

When tested in accordance with Appendix A the tubing shall comply with the following requirements.

- a) It shall fit over the oversize nozzle shown in Figure 2;
- b) It shall remain attached to both nozzles throughout the period of test;
- c) It shall show no signs of splitting or cracking and no leakage when tested at 0.7 bar air pressure under water for 5 min.

¹⁾ 1 mbar = 10^2 N/m² = 10^2 Pa.