

Rubber hoses for gas welding, cutting and allied processes — High kink-resistant heavy duty welding hose (type H) — Specification

ICS 25.160.30; 83.140.40

Confirmed December 2009

Committees responsible for this British Standard

The preparation of this British Standard was entrusted by Technical Committee PRI/66, Rubber and plastics tubing, hoses and hoses assemblies, to Subcommittee PRI/66/1, Industrial, chemical and petrochemical applications, upon which the following bodies were represented:

- Energy Industries Council
- Fire Extinguishing Trades Association
- Institute of Petroleum
- London Fire & Emergency Planning Authority
- L P Gas Association
- Oil Companies International Marine Forum
- Petrol Pump Manufacturers Association
- MoD – Ministry of Defence

This British Standard, having been prepared under the direction of the Standards Policy and Strategy Committee comes into effect on 1 March 2004

© BSI 1 March 2004

Amendments issued since publication

Amd. No.	Date	Comments

The following BSI references relate to the work on this British Standard:
Committee reference PRI/66/1
Draft for comment 03/310327 DC

ISBN 0 580 43363 3

Contents

	Page
Committees responsible	Inside front cover
Foreword	ii
1 Scope	1
2 Normative references	1
3 Terms and definitions	1
4 Classification	2
5 Materials and construction	2
6 Colour identification	2
7 Dimensions and tolerances	2
8 Physical properties of lining and cover	3
9 Performance	3
10 Marking	5
Annex A (normative) Method of test for non-ignition	6
Annex B (normative) Method of test for resistance to <i>n</i> -pentane	8
Annex C (normative) Method of test for crush resistance	8
Annex D (normative) Method of test for resistance to hot surfaces	8
Annex E (normative) Method of test for resistance to kinking	10
Bibliography	13
Figure A.1 — Apparatus for ignition tests on lining samples	7
Figure D.1 — Typical apparatus for determining resistance to hot surfaces	9
Figure E.1 — Typical apparatus for resistance to kinking test	11
Table 1 — Colour of hose cover	2
Table 2 — Nominal bore	2
Table 3 — Tensile strength and elongation at break	3
Table 4 — Hydrostatic pressure rating	3

Foreword

This British Standard has been prepared by Subcommittee PRI/66/1. It specifies requirements for hose of type H, previously specified in BS 5120:1987. BS 5120:1987 was withdrawn on publication of BS EN 559:1994.

The requirements specified in this British Standard relate only to performance, in order not to preclude any new developments in manufacturing methods. The publication of this standard is necessary in order to reinstate certain requirements placed on this type of hose necessitated by its application in the construction and military sectors.

The major uses intended for such hoses are gas welding, arc welding under the protection of an inert or active gas, and processes allied to welding.

The main changes from BS EN 559 are the inclusion of:

- a) ignition tests on all hose classes;
- b) an abrasion resistance requirement;
- c) a more stringent adhesion requirement;
- d) requirements for crush and high kink resistance.

In addition, marking of the hose has been increased to half metre intervals.

WARNING. This British Standard calls for the use of substances and/or procedures that may be injurious to health if adequate precautions are not taken. It refers only to technical suitability and does not absolve the user from legal obligations relating to health and safety at any stage.

This publication does not purport to include all the necessary provisions of a contract. Users are responsible for its 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 13 and a back cover.

The BSI copyright notice displayed in this document indicates when the document was last issued.

1 Scope

This British Standard specifies requirements for two classes of flexible rubber hose for gas welding and allied processes for use up to a maximum working pressure of 20 bar¹⁾ over the temperature range –25 °C to +70 °C. There is no subdivision of the classes because only the high kink resistant hose is specified.

Type H hoses for gas welding, cutting and allied processes are mainly intended for use in long lengths in the construction and military sectors where the full length of hose might not be visible to the welding operative.

NOTE The hose is designated Type H, to maintain a relationship with BS 5120:1987.

2 Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the reference cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

BS 572:1985, Specification for interchangeable conical ground glass joints.

BS 903-A2:1995, Physical testing of rubber — Method for determination of tensile stress-strain properties. (ISO 37:1994)

BS 903-A35, Physical testing of rubber — Temperatures, humidities and times for conditioning and testing of test pieces. (ISO 471)

BS EN 560, Gas welding equipment — Hose connections for welding, cutting and allied processes.

BS EN 28033, Rubber and plastics hose — Determination of adhesion between components. (ISO 8033)

BS EN 27326:1993, Rubber and plastics hoses. Assessment of ozone resistance under static conditions. (ISO 7326:1991)

BS EN ISO 1307, Rubber and plastics hoses for general-purpose industrial applications — Bore diameters and tolerances, and tolerances on length.

BS EN ISO 1402:1997, Rubber and plastics hoses and hose assemblies — Hydrostatic testing.

BS EN ISO 1746, Rubber or plastics hoses and tubing — Bending tests.

BS EN ISO 4080:1995, Rubber and plastics hoses and hose assemblies — Determination of permeability to gas.

BS EN ISO 4671, Rubber and plastics hoses and hose assemblies — Methods of measurement of dimensions.

BS EN ISO 4672:1999, Rubber and plastics hoses — Sub-ambient temperature flexibility tests.

BS EN ISO 8330, Rubber and plastics hoses and hose assemblies — Vocabulary.

BS ISO 188:1998, Rubber, vulcanized or thermoplastic — Accelerated ageing and heat resistance tests. (BS 903-A19:1998)

BS ISO 1817:1999, Rubber vulcanized — Determination of the effect of liquids. (BS 903-A16:1999)

BS ISO 4649:2000, Rubber, vulcanized or thermoplastic — Determination of abrasion resistance using a rotating cylindrical drum device.

3 Terms and definitions

For the purposes of this British Standard, the definitions given in BS EN ISO 8330 apply.

¹⁾ 1 bar = 10⁵ N/m² = 10⁵ Pa.

4 Classification

Two classes of hose shall be specified, dependent upon use:

- a) Class A: for use with acetylene, oxygen and non-combustible gases such as argon;
- b) Class B: for gas cutting and welding applications using liquefied petroleum gases (LPGs).

5 Materials and construction

The hose shall consist of:

- a) a rubber lining of minimum thickness 1.5 mm;
- b) reinforcement applied by any suitable technique;
- c) a rubber cover of minimum thickness two millimetres.

The lining and cover shall be of uniform thickness, free from air holes, porosity and other defects.

The hose shall be mandrel or non-mandrel made and the finish shall be smooth, fluted or fabric marked.

6 Colour identification

In order to identify the gas for which the hose is intended to be used, the hose cover shall be coloured in accordance with Table 1.

Table 1 — Colour of hose cover

Class	Gas	Colour of cover
A	Acetylene and other fuel gases, excluding LPG	Red
A	Oxygen	Blue
A	Non-combustible gases, e.g. argon	Black
B	Liquefied petroleum gas (LPG), e.g. propane, butane and mixtures of propane and butane	Orange

7 Dimensions and tolerances

7.1 Bore sizes

When measured in accordance with BS EN ISO 4671, the dimensions of the bore of the hose shall conform to Table 2.

Table 2 — Nominal bore

Nominal bore	Internal diameter and tolerances mm	Maximum concentricity mm
4.0	4.0 ± 0.55	1.00
5.0	5.0 ± 0.55	
6.3	6.3 ± 0.55	
8.0	8.0 ± 0.65	1.25
10.0	10.0 ± 0.65	
12.5	12.5 ± 0.70	
16.0	16.0 ± 0.70	
19.0	19.0 ± 0.75	1.50

7.2 Cut lengths and tolerances

The tolerances on nominal lengths specified by the purchaser shall be in accordance with BS EN ISO 1307.