

Flexible metallic hose assemblies —

Part 2: Specification for strip wound hoses and hose assemblies

Committees responsible for this British Standard

The preparation of this British Standard was entrusted by the Piping Systems Components Standards Policy Committee (PSE/-) to Technical Committee PSE/12, upon which the following bodies were represented:

- British Compressed Gases Association
- British Gas plc
- British Rubber Manufacturers' Association
- Electricity Supply Industry in United Kingdom
- Energy Industries Council
- Engineering Equipment and Materials Users' Association
- Liquefied Petroleum Gas Industry Technical Association (UK)
- Ministry of Defence
- Petrol Pump Manufacturers' Association
- United Kingdom Petroleum Industry Association Ltd.

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Foreword

This Part of BS 6501 having been prepared under the direction of the Piping Systems Components Standards Policy Committee supersedes BS 6501-2:1988 which is withdrawn. This edition introduces technical changes but it does not reflect a full review or revision of the standard, which will be undertaken in due course. In this revision, a new nominal pressure of hose assembly of PN 0.25 has been added.

BS 6501-1 covers the requirements for corrugated flexible metallic hose assemblies. This Part covers the requirements for strip-wound flexible metallic hoses and hose assemblies. BS 669-1 contains details of construction of leak-proof strip-wound hose assemblies for use with gas appliances.

Strip-wound metallic hose assemblies, as a part of pipework systems, are used to convey non-searching liquids, powders and gases under various pressure and temperature conditions in applications where, because of the need to accept displacement during operation, the use of conventional rigid piping is precluded. Strip-wound assemblies may also be used as temporary pipelines for connecting fixed and movable installations during loading/discharge operations.

Strip-wound hose, compared with other types of hose, is extremely robust and it can accept both lateral and axial displacements. It is well suited for manhandling, powder transfer, engine exhaust and armouring applications. It also has intrinsic electrical conductivity. It is not suitable for highly penetrating liquids and extremes of temperature or pressure.

Since the flexibility of strip-wound hose is achieved by sliding, fatigue is of lesser importance than with corrugated hose.

Asbestos has been specified for certain of the hose constructions covered by this Part of BS 6501 as the only packing material that can meet the duty required although alternative materials are being investigated.

The manufacture of all asbestos based products is covered by the requirements of the Control of Asbestos at Work Regulations 1987, introduced on 1 March 1988. These set out comprehensive provisions covering work activities involving exposure to asbestos. Advice on how to comply with these regulations can be obtained from the manufacturers of the material, from the Asbestos Information Centre, St Andrew's House, 22-28 High Street, Epsom, Surrey KT19 8AH, from the local area office of the Health and Safety Executive or from the Environmental Health Department of the Local Authority.

Particular note has to be taken of the Asbestos Products (Safety) Regulations 1985, made under the Consumer Safety Act 1978 and of the Asbestos (Prohibitions) Regulations 1985 made under the Health and Safety at Work etc. Act 1974, which prohibit the supply of products containing amosite or crocidolite and set out requirements for the labelling of all products containing asbestos.

All the above legislation implements European Directives.

It is considered highly desirable that manufacturers of strip-wound hose assemblies employ quality assurance systems complying with BS 5750-2.

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 10, 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 Part of BS 6501 specifies the requirements for design, manufacture and testing of flexible metallic hoses and hose assemblies of strip-wound construction.

A number of flexible metallic hose types are included ranging from unpacked simple overlap construction intended for non-pressure applications to packed double overlap construction intended for pressure applications. Nominal sizes DN 4 to DN 400 are specified and, for pressure hoses, six nominal pressures are defined. Manufacturing materials are specified.

NOTE 1 Information to be supplied by the purchaser is given in Appendix A.

NOTE 2 Guidance on selection and application is given in Appendix B.

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 Part of BS 6501 the following definitions apply.

2.1 strip

metal sheet suitable for cold forming into metallic hose

2.2 packing

copper wire or rubber or gauged rope of cotton or gauged rope of asbestos¹⁾ used to ensure the tightness of the hose

2.3 strip-wound hose

a hose manufactured from helically wound preformed strip, generally with right-hand lead, whose turns, which may be with or without packing, are connected together by simple or double overlapping. Flexibility is obtained by adjacent turns sliding on each other

2.4 leak-proof hose

a hose that may be used under pressure or vacuum

2.5 hose with limited tightness

a hose that may be used under low pressure, with admissible leakage

2.6 hose without tightness

a hose to be used without pressure

2.7 hose assembly

a hose with end fittings attached, with or without a covering or lining, ready for service

2.8 nominal size (DN)

a numerical designation of size that is common to all components in a piping system other than components designated by outside diameter or by thread size. It is a convenient round number for reference purposes and is only loosely related to manufacturing dimensions

2.9 design pressure

the maximum pressure at which a hose assembly is designed to be serviceable

NOTE Where several pressure/temperature combinations are specified the design pressure is the most onerous of the specified pressure/specified temperature combinations.

2.10 design temperature range

the highest and lowest temperatures to which the hose will be subjected

NOTE The design temperature range includes adequate margins to cover uncertainties in service conditions, e.g. sudden reductions in line pressure may cause temperature drops. It also takes into account the materials used in the hose or hose assembly and the attachment method.

2.11 burst pressure

the pressure at which any part of the hose assembly fails.

2.12 temperature de-rating factor

the ratio of burst pressure at maximum design temperature to burst pressure at 20 °C, which is equal to the ratio of the design pressure at the maximum design temperature to the design pressure at 20 °C

NOTE See Table 2 and Figure 1.

2.13 nominal pressure (PN)

A numerical designation which is a convenient number for reference purposes.

NOTE See Table 2.

2.14 minimum bend radius

the minimum radius of a bend measured to the centre line of the hose at which the hose can be used, associated with adjacent turns touching

¹⁾ See foreword and warning note to Table 1.