

Specification for

Slide fasteners

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- Association of Button Merchants
- British Association of Clothing Machinery Manufacturers
- British Button Manufacturers' Association
- British Clothing Industry Association
- British Footwear Manufacturers' Federation
- British Narrow Fabrics Association
- Camping and Outdoor Leisure Association
- Consumer Policy Committee of BSI
- Federation of Crafts and Commerce
- Made-Up Textiles Association
- Mail Order Traders' Association
- Ministry of Defence
- National Building and Allied Hardware Manufacturers' Federation
- SATRA Footwear Technology Centre
- Zip Fastener Manufacturers' Association

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Foreword

This British Standard is a new edition of BS 3084:1981, which is now withdrawn, and was prepared under the direction of the Textiles and Clothing Standards Policy Committee. Its object is to lay down standards of quality and reliability particularly relating to strength and mechanical performance for slide fasteners in general use. The tests described in the appendices have been specifically devised to permit their direct application to finished fasteners with a view to giving the user reasonable assurance that a fastener complying with this British Standard will satisfactorily fulfil its purpose.

The first edition of this British Standard was published in January 1959. It was not possible at that time to include tests for the pin and socket fitting of open-end fasteners and the main purpose of the revision in 1963 was to cover that type of fitting. The opportunity was also taken to make other amendments that had been considered desirable in the light of experience in the use of the standard, the principal alteration being the restriction of the reciprocation test to one method of operation.

Both 1959 and 1963 editions were applicable to metallic slide fasteners only, but the increase in use of plastics slide fasteners led to a need for these to be included in the 1981 revision. The previous editions classified fasteners according to size (width across the chain) and laid down performance levels for each size. In the 1981 revision fasteners were coded not according to their size but to their performance levels, so that fasteners could be selected taking into account their end use, not their size and that approach has also been followed in this edition. Some end-use categories given in Table 3 overlap several performance codes; this is because certain items, e.g. knitwear, are manufactured in various weights and thus are designed for a variety of end uses. Users of this standard should therefore use their judgement in selecting a performance code following the guidance given in Table 3.

Advice on the end use of slide fasteners should be indicated at the point of sale using the information given in Table 3 and Appendix A. For industrial users a technical advisory service is made available by most manufacturers, and since the necessary levels of certain performance requirements, particularly colour fastness and dimensional stability to washing and dry cleaning, vary widely in industrial end uses, no levels of performance are laid down for these properties in this revision of this standard.

This edition incorporates amendment 1 to BS 3084:1981 and introduces technical changes and corrections to conform with current practice. Differences in the text between this edition and BS 3084:1981 are indicated by a line in the margin.

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.

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 16, 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.

0 Introduction

Since the initial manufacture of metallic slide fasteners, new methods have been devised which have resulted in fasteners incorporating elements of considerably differing forms.

Metallic elements (scoops) have been produced from flat, round and profiled wire but on the stringer they appear very similar, being of an approximately Y section prior to clamping on to the carrier tape [see Figure 1(a)]. A completely different approach is to cast the elements directly on to the edge of the tape: engaging profiles take the form of mushroom heads which are more suited to be produced in a moulding die cavity, as shown in Figure 1(b). An additional feature of this type of fastener is the extension of the element to form projections on which the slider operates, so reducing the abrasion of the carrier tapes, as illustrated in Figure 1(c).

The directly cast type of fastener can also be manufactured by substituting a suitable mouldable plastics material such as nylon which has then the added advantage of taking colour to match the tape.

During the last 30 years products have been developed to replace metallic with non-metallic fastener elements and the most common methods have utilized nylon or polyester monofilaments which are suitably wound into forms which can be made to engage as they are drawn through the slider. These forms can be of the coil type attached to the face of a tape [see Figure 1(d)], or the meander type which are attached straddling the tape edge [see Figure 1(e)]. In either case the elements are attached by sewing. Further developments have enabled the coil or meander to be simultaneously woven or knitted into the tape as it is constructed as shown in Figure 1(f).

1 Scope

This British Standard specifies performance levels for the following characteristics of slide fasteners made from interlocking components mounted on textile tapes: strengths of puller attachment, closed-end, top-stop, open-end fastener box, reciprocating mechanism, closed fastener when extended laterally, open-end attachment when extended laterally, and slider lock. Tests for quantifying these properties are given in the appendices to this standard. In addition, for those slide fasteners to be sold singly direct to the public, performance levels are also specified for colour fastness to washing, dry cleaning and water, and for dimensional stability to washing and dry cleaning.

This British Standard makes provision for the two circumstances in which slide fasteners are sold:

(a) singly to the general public and (b) in bulk within industry. In case (a) this standard sets performance levels for individual slide fasteners and gives the information to be used in labelling concerning performance in relation to end use. In case (b) a sampling scheme becomes relevant and sampling procedures, as well as labelling requirements, are specified.

Slide fasteners for aeronautical purposes, those intended to be exposed to corrosive influences, and fasteners of complicated structure such as three-way and double-pull as used in tents, are not included within the scope of this British Standard.

2 References

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

3 Definitions

For the purpose of this British Standard the following definitions apply. Diagrams of the basic components, dimensions and types of slide fastener which illustrate many of the definitions in this clause are given in Figure 2 to Figure 4.

3.1

slide fastener

a fastening device consisting of two flexible, interlocking stringers (see 3.3.9), with or without end stops, and a slider (see 3.3.8) so arranged that by moving the slider along the stringers in one direction an opening is formed, and by moving it in the other the opening is closed. The end which is adjacent to the slider when the device is fully open is designated the bottom end. The other end is designated the top end

3.2

batch of fasteners

a quantity of fasteners having one design, one performance code and one size

3.3 Fastener components and dimensions

3.3.1

bottom stop

the stop at the bottom end of the chain that checks the opening movement of the slider [see Figure 2(a)]

3.3.2

chain

a continuous closure formed by interlocking two compatible stringers

3.3.3**chain width**

the width across the interlocked elements or shoulder on which the slider runs, whichever is the greater [see Figure 2(b)]

3.3.4**elements**

metal or plastics teeth fixed to the edge of tapes which engage or separate from each other under the action of the slider

3.3.5**length of fastener**

the distance from the top of the slider to the bottom of the bottom stop, or box in the case of an open-end fastener, measured with the slider in the top position and with the puller in the downward position [see Figure 2(b)]

3.3.6**locking device**

a device incorporated in the slider unit restricting its free movement along the fastener length in an opening direction. The locking device may operate either automatically on release of the puller or by manual pressure on the puller

3.3.7**puller (or pull)**

the fitting attached to the slider to facilitate manipulation

3.3.8**slider**

the moving component consisting essentially of a slider body and, normally, a puller which opens or closes the fastener by separating or engaging the interlocking members. The slider may incorporate a locking device

3.3.9**stringer**

a textile tape with an attached row of elements designed to interlock with a row similarly attached to another tape

3.3.10**tape**

narrow fabric to which elements are fitted

3.3.11**top stop**

the stop(s) at the top end of the chain that check(s) the closing movement of the slider

3.4 Types of fastener**3.4.1****closed-end fastener**

a slide fastener which does not permit the complete separation of the two stringers. Normally the top end of the fastener separates as the slider is lowered, although there is an additional type where the top ends are permanently joined together by means of a bridge stop [see Figure 3(a) and Figure 3(b)]

3.4.2**concealed fastener**

a slide fastener with the tapes folded so that on closure neither the slider body nor the fastener are visible from the outside of the article

3.4.3**open-end fastener**

a slide fastener having a special fitment at the bottom end of each stringer in place of the bottom stop, so designed as to permit the two stringers to be completely separated and re-assembled at will when the slider is in the fully open position. The special fitment normally consists of a pin permanently fixed to the bottom end of one stringer which fits into a box permanently fixed to the bottom end of the other stringer

3.4.4**two-way fastener**

a slide fastener fitted with two sliders that operate with equal facility in either direction. This type is available in a variety of forms which are illustrated in Figure 4

4 Conditioning and testing atmosphere

Fasteners shall be conditioned and tested in the standard temperate atmosphere for testing textiles as defined in BS 1051, i.e. a temperature of 20 ± 2 °C and a relative humidity of 65 ± 2 %.

5 Performance requirements of fasteners**5.1 General**

All fasteners shall comply with the requirements given in 5.2 to 5.10. With the exception of the length measurements (see 5.2) all the tests described in this clause shall be carried out on new and unused fasteners after conditioning in the atmosphere defined in clause 4 for 16 h. Failure of any part of the fastener in any test shall be deemed a failure for the fastener as a whole.

5.2 Length measurement

The length tolerance for fasteners shall be $\pm 1.5\%$ or ± 3 mm whichever is the greater (see definition in 3.3.5).

5.3 Puller attachment (test 1)

Fasteners shall comply with the marked rating as specified in Table 1 when tested in accordance with Appendix B.

5.4 Closed-end (test 2)

Applicable to closed-end fasteners. The fasteners shall comply with the marked rating as specified in Table 1 when tested in accordance with Appendix C.

5.5 Top stop (test 3)

The fasteners shall comply with the marked rating as specified in Table 1 when tested in accordance with Appendix D.

5.6 Open-end fastener box (test 4)

The fasteners shall comply with the marked rating as specified in Table 1 when tested in accordance with Appendix E.

5.7 Reciprocating mechanism (test 5)

Fasteners shall complete 500 cycles when tested in accordance with Appendix F. This test cannot be used for fasteners less than 200 mm long.

If the fastener is less than 200 mm long the test shall be carried out on either a suitably lengthened fastener or on a similar type but of length greater than 200 mm.

5.8 Lateral strength (test 6)

Fasteners shall comply with the marked rating as specified in Table 1 when tested in accordance with Appendix G.

5.9 Lateral strength of open-end attachment (test 7)

The fasteners shall comply with the marked rating specified in Table 1 when tested in accordance with Appendix H.

5.10 Slider locking strength (test 8)

A slider, where fitted with a locking device, shall be able to withstand the lateral force given in Table 1 when the lock is engaged and the stringers are pulled at right angles to the length of the fastener (see Figure 13). Details of the test are given in Appendix J.

6 Fasteners sold direct to the public

In addition to the requirements of clause 5 all fasteners intended to be sold individually to the public shall comply with the colour fastness and dimensional stability requirements of Table 2.

7 End-use categories

Examples of a wide range of end uses of slide fasteners are given in Table 3. These are grouped into five performance codes A to E with category E being the most stringent. Each of the physical tests in clause 5 has five performance codes A to E, corresponding to the examples of the end uses in Table 3. The relative position of each end use in Table 3 is based on currently accepted practice, and judgement should be exercised on the likely requirements when selecting a fastener for a particular end use.

8 Designation

Guidance on factors to be considered when specifying slide fasteners is given in Appendix A.

Table 1 — Performance requirements of fasteners

Test No.	Appendix	Test description	Units	Performance code (see clause 7)				
				A	B	C	D	E
1	B	Puller attachment test (min.)	N	70	80	200	250	300
2	C	Closed-end test (min.)	N	35	60	80	100	140
3	D	Top-stop test (min.)	N	50	70	90	110	130
4	E	Open-end fastener box test (min.)	N	40	70	90	120	150
5	F	Reciprocating test: minimum cycles without failure	cycles	500	500	500	500	500
6	G	Lateral strength test (min.)	N	150	200	250	370	470
7	H	Lateral strength of open-end attachment test (min.)	N	40	70	90	120	160
8	J	Slider locking test (min.)	N	10	15	25	40	60