

BRITISH STANDARD

Slide fasteners (Zips) – Specification

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Summary of pages

This document comprises a front cover, an inside front cover, pages i to iii, a blank page, pages 1 to 25 and a back cover.

Foreword

This British Standard has been prepared by Technical Committee TCI/66, *Apparel and interior textiles*. It supersedes BS 3084:1992, which is withdrawn.

A list of organizations represented on TCI/66 can be obtained on request to its secretary.

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 1963 revision was to cover that type of fitting.

In the 1981 edition, fasteners were coded not according to their size, as they were in previous editions, but to their performance levels, so that fasteners could be selected taking into account their end use, not their size. This approach has been followed in subsequent editions.

BS 3084:1992 incorporated Amendment 1 to BS 3084:1981 and introduced technical changes and corrections to conform to current practice.

The 2006 edition represents a full review of the standard to meet the needs of current users. The test methods have been extended to accommodate the practice of testing to failure, rather than merely terminating each test when the specified performance level has been met, as in earlier editions. Testing to failure is the more common method currently as, combined with the application of statistical techniques, it generates more meaningful information about the capabilities of products and processes, compared with the alternative pass or fail results. Nothing in this standard precludes this practice.

Similarly, previous versions recommended a sampling procedure based on batch sizes, but inspection by variables is considered to be more appropriate than inspection by attributes, so the annex that formerly dealt with this has been retained only as an informative annex. Users wishing to continue using such sampling plans are recommended to consult BS 6001 for sampling procedures for inspection by attributes.

Previous editions specified additional colour fastness and dimensional stability requirements for fasteners to be sold direct to the public. These requirements have now been incorporated as minimum requirements for all fasteners, to reflect the needs of current users.

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 cannot confer immunity from legal obligations.

Introduction

The different types of slide fasteners are defined by the material of the elements (teeth), which form their fastener chains. They can be of metallic, moulded plastic or monofilament plastic construction.

Metallic elements can be produced from flat or profiled wire and are usually clamped around the edge of a beaded textile tape. An alternative approach is to cast metallic elements directly onto such a tape. Similarly, plastic elements can be moulded onto a beaded textile tape. Such cast or moulded elements might have projections on which the slider operates to reduce abrasion of the textile tape.

Plastic coil fasteners have nylon or polyester monofilaments that are wound into coils to form engaging elements. The coils can be attached to the face of flat textile tapes by sewing. Alternatively, the coils can be woven or knitted into the textile tapes as they are constructed. Monofilament plastic elements can also be of the meander type, which straddle the tape edge.

Typical fastener chain types are shown in Figure 1.

1 Scope

This British Standard specifies performance levels and test methods 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, slider lock, and open-end fastener single stringer slider retention.

NOTE The tests specified in Annexes B to J have been specifically devised to permit their direct application to finished fasteners with a view to giving the user reasonable assurance that a fastener conforming to the requirements of this British Standard can satisfactorily fulfil its intended purpose. Annex K gives information about sampling procedures for bulk quantities of fasteners.

In addition, 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 is applicable to slide fasteners for general use and is not applicable to slide fasteners for aeronautical or other specialist purposes (slide fasteners for aeronautical purposes are covered by BS 3F 121).

2 Normative references

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

BS EN 25077, *Textiles – Determination of dimensional change in washing and drying*.

BS EN ISO 139, *Textiles – Standard atmospheres for conditioning and testing*.

BS EN ISO 105-C06:1997, *Textiles – Tests for colour fastness – Part C06: Colour fastness to domestic and commercial laundering*.

BS EN ISO 105-D01, *Textiles – Tests for colour fastness – Part D01: Colour fastness to dry cleaning*.

BS EN ISO 105-E01, *Textiles – Tests for colour fastness – Part E01: Colour fastness to water*.

BS EN ISO 3175-2, *Textiles – Dry cleaning and finishing – Part 2: Procedures for tetrachloroethene*.

BS EN ISO 6330, *Textiles – Domestic washing and drying procedures for textile testing*.

3 Terms and definitions

For the purposes of this standard the following terms and definitions apply.

3.1 slide fastener (zip)

fastening device consisting of two flexible, interlocking stringers, with or without end stops, and a slider 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

NOTE 1 Hereinafter referred to as “fastener”.

NOTE 2 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

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

3.3 bottom stop

stop at the bottom end of the chain that checks the opening movement of the slider

NOTE See Figure 2a).

3.4 chain

continuous closure formed by two interlocking compatible stringers

3.5 chain width

width across the interlocked elements or shoulder on which the slider runs, whichever is the greater

NOTE See Figure 2b).

3.6 elements

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

3.7 fastener length

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

NOTE See Figure 2b) and c).

3.8 locking device

device incorporated in the slider unit restricting its free movement along the fastener length in an opening direction

NOTE The locking device might operate either automatically on release of the puller or by manual pressure on the puller.

3.9 puller

fitting attached to the slider to facilitate manipulation

3.10 slider

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

NOTE The slider might incorporate a locking device. Alternative slider types are available with a flip-over puller or double pullers, to facilitate operation from both front and back sides.

3.11 stringer

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

3.12 tape

narrow fabric to which elements are fitted

3.13 top stop

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

3.14 closed-end fastener

fastener which does not permit the complete separation of the two stringers

NOTE Normally the top end of the fastener separates as the slider is lowered, although there is one type whose top ends are permanently joined together by means of a bridge stop [see Figure 3a) and Figure 3b)].

3.15 concealed fastener

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

NOTE See Figure 1g).

3.16 open-end fastener

fastener having a special fitment at the bottom end of each stringer in place of the bottom stop, so as to permit the two stringers to be completely separated and re-assembled at will when the slider is in the fully open position [see Figure 3c)]

NOTE 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.

3.17 two-way fastener

fastener fitted with two sliders that operate with equal facility in either direction

NOTE This type is available in a variety of forms, as illustrated in Figure 4.

4 Performance requirements for fasteners

When subjected to the tests specified in Clause 5, other than the fastener length measurements (see 5.2), samples of new and unused fasteners shall conform to Table 1.

NOTE 1 It is permissible to perform more than one test on the same fastener but care should be taken to ensure that damage sustained in testing does not compromise subsequent test results.

Annex K gives information about an appropriate sampling procedure for bulk quantities of fasteners. Failure of any part of a fastener before the specified force or number of cycles is reached in any of these tests shall be deemed a failure for batch acceptance or rejection purposes.

Table 1 Performance requirements of fasteners according to end use

Annex	Test description	Units	Performance code ^{A)}				
			A	B	C	D	E
B	Strength of puller attachment (min.)	N	70	80	200	250	300
C	Strength of closed-end (min.)	N	35	60	80	100	140
D	Strength of top stop (min.)	N	50	70	90	110	130
E	Strength of open-end fastener box (min.)	N	40	70	90	120	150
F	Resistance to reciprocation: minimum cycles without failure	cycles	500	500	500	500	500
G	Lateral strength of fastener (min.)	N	150	200	250	370	470
H	Lateral strength of open-end attachment (min.)	N	40	70	90	120	160
I	Strength of slider locking device (min.)	N	10	15	25	40	60
J	Open-end fastener single stringer slider retention (min.)	N	N/A ^{B)}	60	70	90	120

^{A)} These performance codes correspond to the descriptions of fastener type used in BS 3084:1963 as follows:

A (ultra-light), B (light), C (medium), D (medium-heavy) and E (heavy).

^{B)} Not Applicable.

NOTE 2 BS 7907 gives particular recommendations for the mechanical safety of children's clothing.