
**Footwear — Test method for slide
fasteners — Burst strength**

*Chaussures — Méthode d'essai pour les fermetures éclair —
Résistance à l'éclatement*



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Foreword

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Footwear — Test method for slide fasteners — Burst strength

1 Scope

This International Standard specifies a test method intended to assess the burst strength of a closed slide fastener for footwear. The method is applicable to all types of slide fastener.

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.

ISO 17693, *Footwear — Test methods for uppers — Resistance to damage on lasting*

ISO 19952, *Footwear — Vocabulary*

3 Terms and definitions

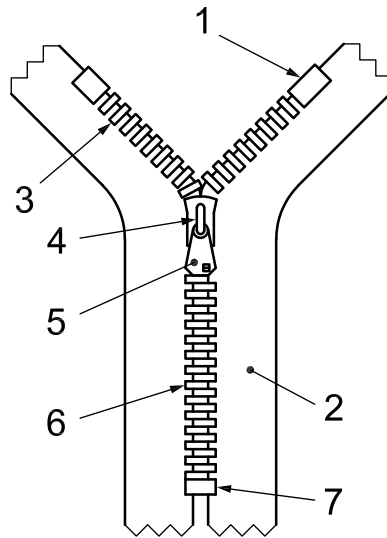
For the purposes of this document, the terms and definitions given in ISO 19952 and the following apply.

3.1

slide fastener

means of securing two flexible materials consisting of interlockable elements, each attached to one of the opposing edges of two tapes, and a movable slider that spans the interlocking elements which, when moved in one direction, causes the elements of one tape to interlock with the elements of the other tape, and when moved in the opposite direction, causes the elements to disengage

See Figure 1.



Key

- | | |
|--------------------|---------------|
| 1 top stop | 5 puller |
| 2 tape | 6 chain |
| 3 elements (teeth) | 7 bottom stop |
| 4 slider | |

Figure 1 — Slider fastener

3.2

tape

fabric panels to support other elements of the slide fastener

3.3

slider

means of drawing the two interlocking elements together or apart as it traverses the length of the chain

3.4

puller

piece of plastic or metal attached to the slider as a means of manual grip for the user to operate

3.5

teeth

individual component of the slide fastener which interlocks with an opposing element

3.6

end stop

top stop

terminal components of the chains to prevent the slider from disengaging from the teeth and tape

4 Principle

A portion of a closed slide fastener is clamped, leaving an exposed circular area which is gradually stretched by forcing a small metal ball attached to a plunger through the centre. The force on the plunger at failure of the fastener is recorded.

5 Apparatus and materials

5.1 A test machine with the following components.

5.1.1 A means of clamping the test fastener, leaving a central circular free area of diameter (25 ± 1) mm. The design of the clamping system should ensure that the fastener does not slip during the test. An example of such a mechanism is illustrated in Figure 2.



Figure 2 — Example of a clamping device

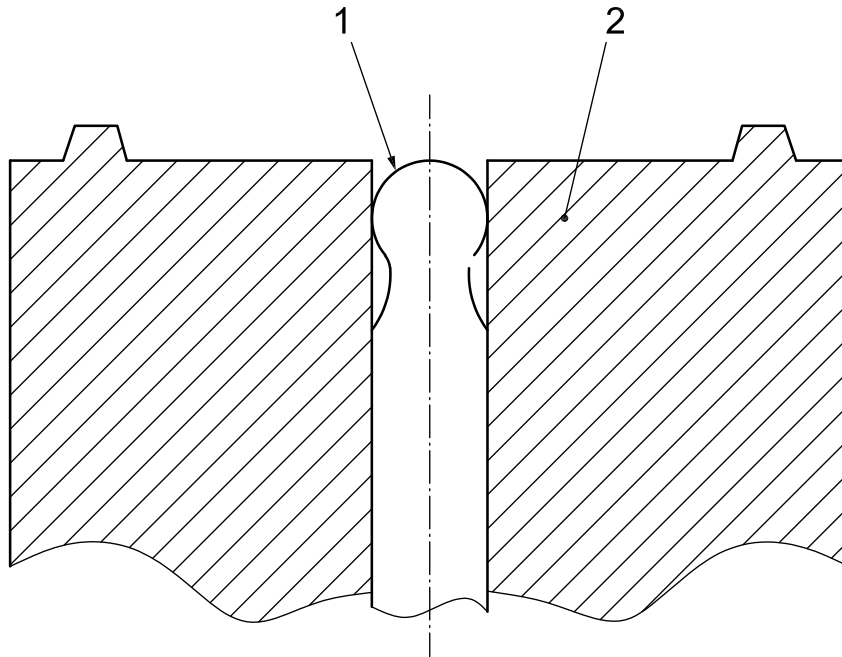
5.1.2 A central plunger with a spherical ball of diameter $(6,25 \pm 0,05)$ mm on the end and mounted in the centre of the circular free area of the clamp (5.1.1).

5.1.3 A means of moving the plunger (5.1.2) relative to the clamp (5.1.1) at a speed of $(0,20 \pm 0,05)$ mm/s.

5.1.4 A device for monitoring the force on the plunger within the range 0 to 800 N to an accuracy of 10 N.

A suitable device is described in ISO 17693.

See Figure 3.



Key

- 1 rod with ball end
- 2 lastometer head

Figure 3 — Diagram of suitable apparatus

6 Test specimens

6.1 Three test positions are required. If three slide fasteners are available then each fastener should be tested at the centre of its length. If only one slide fastener is available then it should be tested at three points, one close to each end and one at the centre of its length. It is recommended, that where multiple tests are carried out on the same length, there should be a minimum of 15 cm between the testing points or a minimum length of 15 cm for single tests.

6.2 Condition the test specimens at 23 °C and 50 % relative humidity for 24 h before testing and carry out the test in this environment.

7 Procedure

7.1 Close the test fasteners.

7.2 Ensure that the test machine is reset, with the central plunger (5.1.2) retracted to zero or minimum distension. If it has a maximum force indicator, turn it to zero.

7.3 Tightly clamp one of the test fasteners into the test machine (5.1) so that the centre of the chain is aligned with the centre of the ball (see 5.1.2). For heavy-duty slide fasteners, a very high clamping force will be necessary, whereas with light-duty fasteners, care is required to avoid excessively damaging the fastener.

7.4 Start the test by forcing the central plunger (5.1.2) into the test fastener at a rate of 0,2 mm/s. For the lastometer described in ISO 17693, this involves turning the handwheel clockwise at a steady rate of about one revolution per second.

7.5 Continually observe the upper surface of the test fastener, at the centre where the maximum distortion is taking place. Record the force, in newtons, to the nearest 10 N, on the spherical ball when the fastener fails, this will usually be the maximum force recorded during the test.

7.6 Examine the fastener and record the type of failure such as: chain or teeth separated, chain or teeth pulled off the stringer, chain or teeth broken.

7.7 Retract the plunger and remove the test specimen.

7.8 Repeat the procedure in 7.2 to 7.7 for the other two test positions.

7.9 Calculate the arithmetic mean of the three maximum forces.

8 Test report

The test report shall include at least the following information:

- a) a reference to this International Standard, i.e. ISO 10717:2010;
- b) a full description of the samples tested;
- c) the date of testing;
- d) the arithmetic mean of the maximum forces, as calculated in 7.9;
- e) the types of failure and the number of tests associated with each type;
- f) any deviations from this test method.

Bibliography

- [1] ISO 17709, *Footwear — Sampling location, preparation and duration of conditioning of samples and test pieces*
- [2] ISO 18454, *Footwear — Standard atmospheres for conditioning and testing of footwear and components of footwear*

