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**NATIONAL STANDARD OF THE
PEOPLE'S REPUBLIC OF CHINA**

GB/T 38037-2019

**Footwear - Test method for slide fasteners - Strength of slide
fastener pullers**

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Table of Contents

Foreword

1 Scope

2 Normative references

3 Terms and definitions

4 Principle

5 Test equipment and materials

5.1 Method 1-Tensile testing machine

5.2 Method 2-Torque Test Equipment

6 steps

6.1 Environmental regulation

6.2 Method 1-Tension

6.3 Method 2-Torque

7 Test report

Foreword

This standard was drafted in accordance with the rules given in GB/T 1.1-2009.

The translation method used in this standard is equivalent to ISO 10734.2016 "Shoes Zipper Test Method Pull Tab Strength".

The Chinese documents that have consistent correspondence with the normatively cited international documents in this standard are as follows.

---GB/T 2703-2017 Footwear Terminology (ISO.19952.2005, NEQ)

---GB/T 16825.1-2008 Inspection of static uniaxial testing machine Part 1.Tensile and (or) pressure testing machine force measuring system

Inspection and calibration (ISO 7500-1.2004, IDT)

---GB/T 22049-2019 Footwear and footwear components environmental regulation and test standard environment (ISO 18454.2018, IDT)

Please note that certain contents of this document may involve patents. The issuing agency of this document is not responsible for identifying these patents.

This standard was proposed by the China National Light Industry Council.

This standard is under the jurisdiction of the National Footwear Standardization Technical

Committee (SAC/TC305).

Drafting organizations of this standard. Shanghai Jianzheng Leather Quality Inspection Technology Center, China Leather and Footwear Research Institute Co., Ltd., Jiaxing Furhe Shoe Industry Research Institute.

1 Scope

This standard specifies the test method for determining the strength of the pull tab of a shoe zipper.

This standard applies to all kinds of zippers for shoes.

2 Normative references

The following documents are indispensable for the application of this document. For dated reference documents, only the dated version applies to this article

Pieces. For undated references, the latest version (including all amendments) applies to this document.

ISO 7500-1 Calibration and Inspection of Static Uniaxial Testing Machines for Metallic Materials Part 1. Tensile and/or Compression Testing Machines

Calibration and inspection of force measurement system

ISO 18454 Footwear, footwear and footwear components, environmental regulation and test standard environment

ISO.19952 Footwear Terminology

3 Terms and definitions

The following terms and definitions defined in ISO.19952 apply to this document.

3.1

zipper

The connecting piece that fixes two pieces of flexible material is composed of interlockable elements attached to the opposite edges of the two cloth belts and movable across the elements.

Composed of a movable slider, when the slider moves in one direction, the chain teeth (3.5) on the two cloth belts (3.2) can be meshed with each other.

Note. When the slider (3.3) moves in the opposite direction, the chain teeth can be separated (see Figure 1).

3.2

Cloth tape

Textile belt used to carry fastener elements and other zipper components.

3.3

Pull head

When sliding on the chain, the chain teeth are meshed or pulled apart.

3.4

Pull tab

Plastic or metal sheet attached to the slider for easy pulling.

3.5

Chain teeth

They can be engaged with each other and are unique parts of zippers or plastic continuous spiral chains.

3.6

The start or end component of the tooth chain prevents the slider from being detached from the tooth chain belt.

3.7

Tooth chain belt

The textile cloth belt fixed with chain teeth can be connected with another cloth belt through the chain teeth.

4 Principle

Clamp the slider and the slider so that the slider is perpendicular to the slider. Methods as below.

Method 1. Pulling force---measure the force required to pull the pull tab from the slider along the direction parallel to the longitudinal center line of the pull tab.

Method 2. Torque---in the direction of the longitudinal centerline of the pull tab, measure the torque required to twist the pull tab from the slider.

5.1.1 Clamp, separation speed (100 +/- 10) mm/min.

5.1.2 The measuring force range is up to 1kN, and the accuracy is greater than 2%, which meets the secondary requirements in ISO 7500-1.

5.1.3 A device that records the force or maximum force during the test.

5.1.4 There is a clamp in a clamp for fixing the pull head to be tested. A flat plate with a thickness of at least 1mm can be placed between the slider and the tab

In the meantime, the flat plate is provided with a tapered groove which can accommodate the slider, and the slider is clamped in the clamp through the long arm connected on the plate. See Figure 2a).

5.1.5 In the other clamp, there is a device to clamp the pull tab. There is a small rigid hook on the device for pull tabs with holes.

5.2 Method 2-Torque Test Equipment

5.2.1 A pair of clamps, one can fix the test slider, and the other can clamp the pull tab so that the pull tab is perpendicular to the slider.

6.1 Environmental regulation

Before the test, the sample should be adjusted according to ISO 18454 for at least 24h, and the test should be carried out in the same environment.

6.2 Method 1-Tension

6.2.1 Remove the pull-down head from the tooth chain belt of the zipper to be tested. Clamp the slider with a clamp (5.1.4) to make it 90° with the axis of the tensile testing machine (5.1).

6.2.2 Connect the pull tab of the zipper to be tested to the equipment (5.1.5) so that the pull tab is parallel to the axis of the tensile testing machine (5.1). Try to use this

Clamp the pull tab in such a way that the equipment (5.1.5) will not cause unnatural damage to the pull tab during the test. If it is a two-hole pull tab, and the top hole looks

When it is more fragile, insert the hook into the bottom hole.

6.2.3 Start the tensile testing machine and separate the clamps at a speed of (100 +/- 10) mm/min until the pull tab is damaged or the pull tab falls off the slider.

6.2.4 Record the maximum force in Newtons, accurate to 5N, and record the type of damage, for example.

---The slider is damaged at the connection of the pull tab;

---The pull tab is damaged at the connection of the slider;

---The slider is damaged at the connection of the non-pull tab;

---The pull tab is damaged at the non-pull connection.