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Footwear - Test methods for whole shoe - Heel attachment

鞋类 整鞋试验方法 鞋跟结合强度

(ISO 22650:2018, IDT)

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Table of Contents

Footwear - Test methods for whole shoe - Heel attachment

1 Scope

This document describes methods for determining the heel attachment strength of footwear.

This document applies to women's kitten heels and high-heeled shoes.

The test methods of this document determine three aspects related to wear performance:

-- The rigidity of the rear of the shoe during normal walking;

-- The amount of permanent deformation of the rear of the shoe caused by the backward force exerted on the heel;

-- The force required to separate the heel.

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the version corresponding to that date is applicable to this document; for undated references, the latest version (including all amendments) is applicable to this document.

ISO 7500-1, Metallic materials - Calibration and verification of static uniaxial testing machines - Part 1: Tension/compression testing machines - Calibration and verification of the force-measuring system

3 Terms and definitions

The following terms and definitions are applicable to this document.

The addresses of terminology databases maintained by ISO and IEC for standardization are as follows:

-- ISO online browsing platform: https://www.iso.org/obp

-- IEC electronics development platform: http://www.electropedia.org/

3.1

heel attachment strength

the back of the heel. In some cases, in order to make part C fit better with the heel, grind the curved part of the rear of the heel beforehand. This can effectively prevent the very sharp heel from slipping off during the test. Tighten the two screws E until their ends drill into the heel, preventing the fixture from being pulled off. In this way, the heel can be fixed on the fixture, as shown in Figure 2.

6 Test methods

6.1 Test principle

Clamp the front of the shoe into one clamp of the tensile testing machine; fix the heel in the other clamp of the testing machine in the prescribed way; separate the clamps at a certain speed. A tensile testing machine with suitable fixtures in the laboratory can be used.

Measure the following 3 performance parameters.

a) The distance that the heel moves relative to the front of the shoe when the tension is 200 N.

Note: 200 N is 2 ~ 3 times larger than the backward force exerted on the heel during normal walking, but the amount of deformation generated in this test is considered to be an effective method for judging whether the rear of the shoe is sufficiently rigid when worn.

b) The amount of permanent deformation when the tensile force is 400 N.

c) The force that is required to completely separate the heel; note the type of damage.

6.2 Test procedures

Install the device shown in Figure 1 into the upper clamp of the tensile testing machine, or when it cannot be installed, clamp the H block or equivalent into this clamp. Taking into account the mass of the device or the difference in mass between the device and the clamp, the force reading is zeroed if necessary.

The thick heel is pre-drilled as described in "Preparation of the test shoes". Pull the G-rod out a bit (see Figure 1), through the heel and into the 2nd crossbar J, in this way to secure the heel to the fixture, as shown in Figures 4 and 5. Secure the shoe as much as possible, with the sole facing the operator.

For thin heels, attach to the fixture shown in Figure 2; remove the G-rod from the attachment device; insert the fixture into its place, as shown in Figure 6.

Fix the front of the shoe into the lower clamp of the tensile testing machine, with the sole facing outwards; the longitudinal axis of the rear of the shoe, when viewed from the front, coincides with the tensile testing machine axis. The edge of the clamp

2 – heel mouth.

Figure 6 – Side view of the fixture for fixing the thin heel shown in Figure 2 and the part J inserted into the connecting device shown in Figure 1

Draw a parallel line on the sole a few millimeters from the upper edge of the lower clamp. Mark the center point of this line through which the longitudinal axis of the tensile testing machine passes. This marked point is the point X in Figure 5. Use the measuring instrument (4.3) to measure and record the distance between the point X on the sole and the center point (point Y in Figure 5) of the lower edge of the heel, accurate to 0.5 mm. If the distance between the reference marks on the sole cannot be determined, the distance between the center point of the upper edge of the lower clamp and the center point of the lower edge of the heel surface can be determined. If there is no heel surface, take the center point of the lower edge of the heel.

Start the machine, and the clamp movement speed is 100 mm/min ± 10 mm/min. When the force value reaches 200 N, stop the machine, and immediately re-measure and record the distance between the center point of the lower edge of the heel surface (or heel) and the point X or the between center points of the edges of the clamps without removing the tension.

Continue the deformation of the rear of the shoe until the force value reaches 400 N. Back-drive the tensile testing machine until the tensile force returns to zero. Immediately re-measure and record the distance between the center point of the lower edge of the heel surface and the center point of the edge of the clamp. Finally, apply a tension to re-deform the rear of the shoe until the heel falls off or other damage occurs. Record the maximum load and the type of damage corresponding to this load.

If the shank is soft or the installation position is not correct, before the heel is separated, the rear upper at the front of the heel may have been seriously deformed. When this happens, even if a large load is applied, it is not easy to separate the heel, so the maximum force value cannot be measured. Generally, this type of shoes will have a large degree of permanent deformation at 400 N, so, usually it is not necessary to continue the test after the force value reaches 1 000 N in an attempt to separate the heel or to show other types of damage.

7 Expression of test results

The distance between the point X and the point Y under the force of 200 N minus the original distance between the two points, and the calculation result is the deformation of the rear of the shoe at 200 N, in millimeters (mm). After applying a force of 400 N, cancel the force to make it return to zero; subtract the original distance between the two points from the measured distance between the point X and the point Y, and the calculation result is the permanent deformation of the rear of the shoe, in millimeters (mm).

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