Heels: Better Firm than too Soft

Unsatisfactory wearing properties are a common reason for customer complaints about shoes. In such cases, complaints are not automatically confined to bad fit but often arise from a lack of firm footing and kind of a "floating" feeling on walking. The underlying reason is usually too soft a heel which undergoes excessive deformation under load.

Such complaints generally concern TR, lightweight foam material, and high-elasticity PUR. With the aim of improving comfort in wear, footwear manufacturers may turn to excessively soft or excessively light material properties. This then leads to a heel that does not stand up to the demands placed on it during wear.

Moreover, fashionable design is a factor that cannot be overlooked: the stability of very slender, strongly tapered heels with a small contact area is influenced to a much greater extent by the high compressive load occurring during wear than in the case of Cuban or wedge heels. If the walls of the heels are made thinner to save weight then the heel can actually collapse.

As a rule, the materials for heel construction should be harder than the material used for the actual sole, paying due attention to the interdependence of sole and heel design.

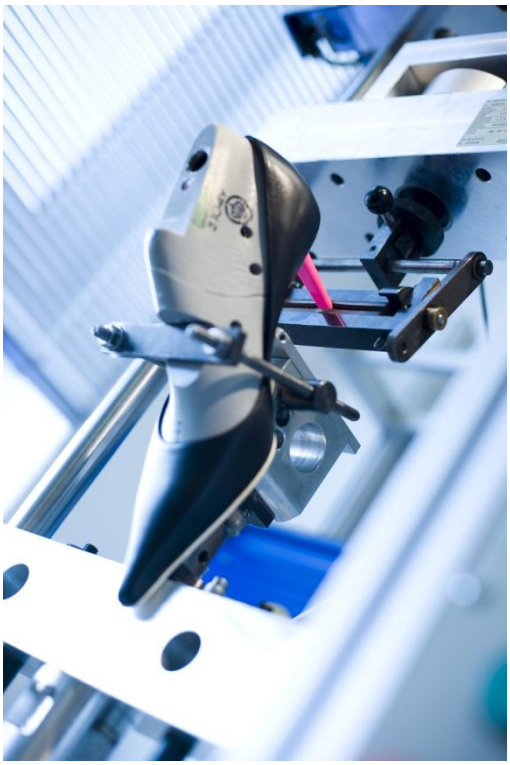
Various methods are available for testing **heel stability**. Three of these are presented in the following:

In **STATIC TESTING** a strength testing device is used to determine the force necessary to compress the heel by ten percent of its total height. When testing heels and soles covered with additional materials such as leather, attention should also be paid to whether the covering material develops folds or creases during or after testing when the load is released.

In **DYNAMIC HEEL STABILITY** tests, a defined load is repeatedly applied to the rear contact area of the heel in a predetermined number of cycles. The area of the stamp applying the force is larger than the area to which the force is applied. After testing and a recovery time of 24 h, the permanent deformation is measured and any possible damage noted.

Quite explicitly, both methods are not test methods for sole materials; instead, they test soles and heels while paying due attention to heel construction, in particular the heel height and heel design, and in the case of hollow heels also the wall thickness and the design of the stiffening ribs. It thus becomes possible to determine the underlying causes for such complaints.

Alongside these two test procedures, **DYNAMIC TESTING OF HEEL ATTACHMENT** (see Figure) constitutes a recommended additional test. It can provide additional information about the behaviour of heel attachment and the danger of breakage in use.



Information gained with the aid of these tests is not only crucial for the quality of a shoe; it also plays an important role in deciding the degree of satisfaction of the wearer.

Any additional questions will gladly be answered by:

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