

British Standard Methods of test for

Footwear and footwear materials

Part 4. Other components

Section 4.18 Longitudinal stiffness of steel shanks

Méthodes d'essai des chaussures et des matériaux entrant dans leur confection

Partie 4. Autre composants

Section 4.18 Rigidité longitudinale des tiges de renforcement en acier

Prüfverfahren für Fussbekleidung und Fussbekleidungswerkstoffe

Teil 4. Sonstige Bestandteile

Abschnitt 4.18 Längssteifigkeit von Gelenkeinlagen aus Stahl

NOTE. It is recommended that this Section should be read in conjunction with the information in the General introduction to BS 5131, published separately.

1 Scope

This Section of BS 5131 : Part 4 describes a method for measurement of the stiffness in the longitudinal direction of steel shanks used for the reinforcement of the waist region of women's, and some men's and children's shoes.

Compliance with a British Standard does not of itself confer immunity from legal obligations.

2 Principle

The shank is clamped at its heel end and bent as a cantilever beam by masses added to its forward end. The amount of bending is measured and used to calculate the flexural rigidity of the shank, a quantity which is a measure of stiffness and which is dependent on the metal of the shank and its cross section, but not on its length.

3 Apparatus

The general layout of a suitable apparatus is shown in figure 4.18/1*. It consists of an adjustable heel end

clamp A, a loading clamp B plus weights, and a dial gauge C to measure the deflection.

The clamp at the heel end of the shank is shown in more detail in figure 4.18/2.

It consists of two jaws each measuring 32 mm from front to back. Each jaw has two bars or flat ridges across it which grip the shank. All four ridges are 6 mm from front to back. The front ridge of the upper jaw has a groove cut in it across the centre of the ridge which is 6 mm wide and 4 mm deep.

NOTE. This groove is to accommodate the fluting on the shank, as it has been found that more consistent results are obtained if the shank is not clamped on top of the fluting but immediately on each side of it. Should a shank be of unusual design so that this size of groove will not accommodate the fluting, a new grooved upper clamp should be made which will accommodate it. The lower front ridge is bevelled, as shown in figure 4.18/2, so that shanks with curved rear ends cannot rest on its rear edge.

The heel-end clamp is adjustable by rotation about a transverse axis D (see figure 4.18/1) so that the clamped shank E can be made to lie horizontal. In order to achieve this for shanks for high heeled shoes it is necessary that the maximum angle of rotation of the clamp from the horizontal shall be at least 30° when the back of the clamp is raised.

*For information on the availability of a metal shank stiffness tester apply to Enquiry Section (London), British Standards Institution, enclosing a stamped addressed envelope for reply.

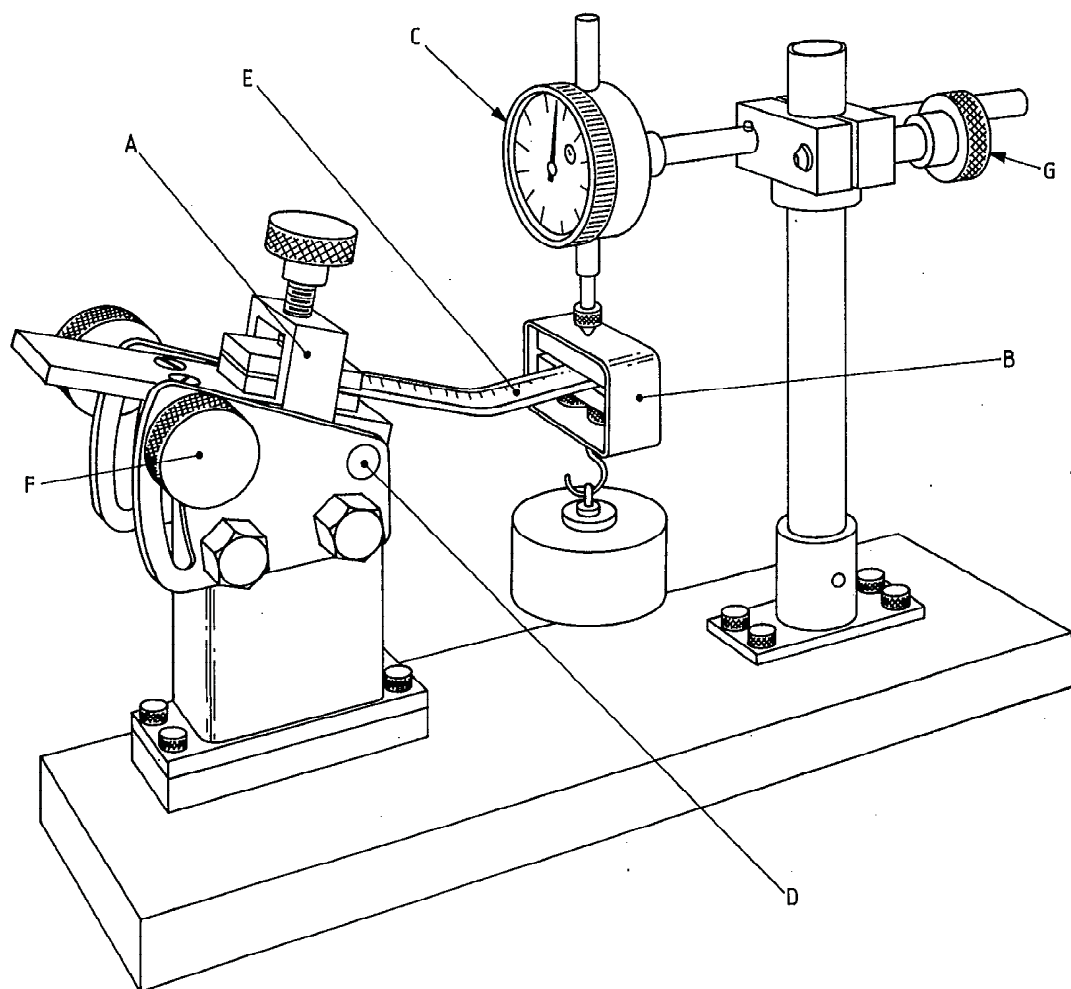


Figure 4.18/1. General view of the metal shank stiffness tester