
Footwear — Resistance to crack initiation and growth — Belt flex method

*Chaussures — Résistance à la fissuration et à sa croissance —
Méthode de flexion de la ceinture*





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Foreword

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1 Scope

This International Standard specifies a test method for determining the resistance of a component or material to crack initiation and growth due to repeated flexing. The method is mainly applicable to outsoles of footwear but may also be used with certain other flexible components.

2 Apparatus and materials

2.1 Flexing machine with:

2.1.1 Free wheeling, slightly crowned flexing roller, with a width of (170 ± 20) mm and

- for high performance soles,
diameter at its centre $(60,0 \pm 0,5)$ mm,
diameter at its ends (57 ± 1) mm;

NOTE This roller will normally only be used for footwear which is expected to be subjected to abnormally high flexing demands.

- for typical sole units,
diameter at its centre $(90,0 \pm 0,5)$ mm,
diameter at its ends (87 ± 1) mm;
- for soles with a thickness greater than 15 mm,
diameter at its centre $(120,0 \pm 0,5)$ mm,
diameter at its ends (117 ± 1) mm.

2.1.2 Driven, slightly crowned roller, with a diameter of (225 ± 5) mm and a width of (170 ± 20) mm.

2.1.3 Flexible continuous belt of cotton canvas of length $(1\,930 \pm 50)$ mm and width (140 ± 5) mm which passes over the two rollers (2.1.1) and (2.1.2). The cotton canvas is 2-ply 100 % cotton belting having a mass per unit area of (500 ± 25) g/m² and an extension at break along the belt of (14 ± 2) % at a breaking force of $(2\,000 \pm 200)$ N. The corresponding across-the-belt values are (14 ± 2) % and (750 ± 50) N.

2.1.4 Means of driving the larger roller (2.1.2) at a speed of (247 ± 20) r/min so that the belt (2.1.3) completes (90 ± 8) flexing cycles per minute.

2.1.5 Method of counting the number of cycles completed by the belt (2.1.3).

2.2 Polyurethane adhesive system to bond the test specimen to the surface of the belt (2.1.3), consisting of:

2.2.1 Pre-reacted PU adhesive.

2.2.2 Single-component PU adhesive.