

INTERNATIONAL STANDARD

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Textiles — Woven fabrics — Determination of tear resistance by the falling pendulum method

*Textiles — Tissus — Détermination de la résistance au déchirement par
la méthode du mouton-pendule*



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Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

International Standard ISO 9290 was prepared by Technical Committee ISO/TC 38, *Textiles*.

Annex A of this International Standard is for information only.

Textiles — Woven fabrics — Determination of tear resistance by the falling pendulum method

1 Scope

This International Standard specifies a method for determining the force required to propagate a tear, through a specified distance and from a specified slit, cut in a test specimen of textile fabric, under specified conditions of loading. The test method is suitable for all types of woven fabric (treated and untreated). The method is not applicable to nonwovens or knitted fabrics. Two procedures are given for preparing test specimens.

2 Normative reference

The following standard contains provisions which, through reference in this text, constitute provisions of this International Standard. At the time of publication, the edition indicated was valid. All standards are subject to revision, and parties to agreements based on this International Standard are encouraged to investigate the possibility of applying the most recent edition of the standard indicated below. Members of IEC and ISO maintain registers of currently valid International Standards.

ISO 139:1973, *Textiles — Standard atmospheres for conditioning and testing*.

3 Definition

For the purposes of this International Standard, the following definition applies.

tear resistance: The average force, in newtons, required to tear a test specimen over a specified length.

4 Principle

A rectangular test specimen having a specified pre-cut slit is subjected to a tearing force generated by the energy stored in a pendulum-sector of specified

dimensions. The energy expended in tearing the specimen is used to determine the tear resistance of the specimen.

5 Apparatus

5.1 Elements of the apparatus.

The apparatus essentially consists of a frame, mounted on a rigid base, carrying a pendulum and pointer assembly. It shall also satisfy the details as given below with respect to various parts.

5.1.1 Pendulum, preferably formed by a sector of a circle, suitably mounted, free to swing about a horizontal axis from bearings of very low frictional resistance.

5.1.2 Augmenting mass, the apparatus shall have provision of augmenting masses that may be attached to the pendulum sector for further increasing the working capacity of the apparatus.

5.1.3 Jaws: a pair of jaws each $16 \text{ mm} \pm 0,5 \text{ mm}$ deep and $37 \text{ mm} \pm 0,5 \text{ mm}$ wide, one stationary jaw, fixed with respect to the base, and the other movable jaw, fixed with respect to the pendulum. When the pendulum is in the initial position, ready for the test, the jaws shall be separated by a distance of $2,8 \text{ mm} \pm 0,4 \text{ mm}$ and so aligned that the test sample when clamped lies in a plane perpendicular to the plane of oscillation of the pendulum sector with the edges of the jaws gripping the test specimen in a horizontal line, a perpendicular to which through the axis of suspension of the pendulum sector is $104 \text{ mm} \pm 1 \text{ mm}$ long. The angle made by this imaginary line and the vertical shall be $27,5^\circ \pm 5^\circ$.

5.1.4 Pendulum-sector release mechanism, for holding the pendulum-sector in a raised position, and for releasing it without imparting shock.