

## Textiles fibres - Determination of breaking force and elongation of individual fibres (ISO 5079:1995)

The European Standard EN ISO 5079:1995 has the status of a Swedish Standard. This document contains the official English version of EN ISO 5079:1995 with a Swedish translation.

This standard supersedes the Swedish Standard SS-ISO 5079.

Swedish Standards corresponding to documents referred to in this Standard are listed in "Catalogue of Swedish Standards", annually issued by SIS. The Catalogue lists, with reference number and year of Swedish approval, International and European Standards approved as Swedish Standards as well as other Swedish Standards.

## Textil - Fibrer - Bestämning av brottstyrka och brottöjning hos individuella fibrer (ISO 5079:1995)

Europastandarden EN ISO 5079:1995 gäller som svensk standard. Detta dokument innehåller den officiella engelska versionen av EN ISO 5079:1995 med svensk översättning.

Standarden ersätter SS-ISO 5079.

Motsvarigheten och aktualiteten i svensk standard till de publikationer som omnämns i denna standard framgår av "Katalog över svensk standard", som årligen ges ut av SIS. I katalogen redovisas internationell och europeiska standarder som fastställts som svenska standarder och övriga gällande svenska standarder.

EUROPASTANDARD  
EUROPEAN STANDARD  
NORME EUROPÉENNE  
EUROPÄISCHE NORM

**EN ISO 5079**

December 1995

ICS 59.060.20

Descriptors: See ISO document

English version

**Textiles fibres - Determination of breaking force  
and elongation of individual fibres  
(ISO 5079:1995)**

Textiles – Fibres – Détermination de la force de  
rupture et de l'allongement à la rupture des  
fibres individuelles (ISO 5079:1995)

Textilien – Fasern – Bestimmung der  
Höchstzugkraft und Höchstzugkraftdehnung an  
Spinnfasern (ISO 5079:1995)

This European Standard was approved by CEN on 1995-09-11. CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration.

Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the Central Secretariat or to any CEN member.

The European Standards exist in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CEN member into its own language and notified to the Central Secretariat has the same status as the official versions.

CEN members are the national standards bodies of Austria, Belgium, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and United Kingdom.

**CEN**

European Committee for Standardization  
Comité Européen de Normalisation  
Europäisches Komitee für Normung

Central Secretariat: rue de Stassart 36, B-1050 BRUSSELS

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Nyckelord: textil, fibrer, brottstyrka, brottöjning, provning

Svensk version

**Textil – Fibrer - Bestämning av brottstyrka  
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Textiles - Fibres –Determination  
de la force de rupture et de  
l'allongement a la rupture des  
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Denna standard är den svenska versionen av EN ISO 5079. För översättningen svarar SIS.

Denna europastandard antogs av CEN 1995-09-11. CEN medlemmar är förpliktade att följa CEN/CENELEC interna bestämmelser som anger på vilka villkor denna europastandard i förändrat skick skall ges status av nationell standard.

Aktuella förteckningar och bibliografiska referenser rörande sådana nationella standarder kan på begäran erhållas från CENs centralsekretariat eller från någon av CENs medlemmar.

Denna Europastandard finns i tre officiella versioner (engelsk, fransk och tysk). En version på något annat språk, översatt under ansvar av en CEN-medlem till sitt eget språk, har samma status som de officiella versionerna.

CENs medlemmar är de nationella standardiseringsorganen i Belgien, Danmark, Finland, Frankrike, Grekland, Island, Irland, Italien, Luxemburg, Nederländerna, Norge, Portugal, Schweiz, Spanien, Storbritannien, Sverige, Tyskland och Österrike.

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## **Foreword**

The text of the International Standard ISO 5079:1995 has been prepared by Technical Committee ISO/TC 38 "Textiles" in collaboration with CEN/TC 248 "Textiles and textile products".

This European Standard shall be given the status of a National Standard, either by publication of an identical text or by endorsement, at the latest by June 1996, and conflicting national standards shall be withdrawn at the latest by June 1996.

According to the CEN/CENELEC Internal Regulations, the following countries are bound to implement this European Standard: Austria, Belgium, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland, United Kingdom.

## **Endorsement notice**

The text of the International Standard ISO 5079:1995 was approved by CEN as a European Standard without any modification.

NOTE: Normative references to International Standards are listed in annex ZA (normative)

## **Förord**

Den internationella standarden ISO 5079:1995 har utarbetats av ISO/TC 38 "Textiles" i samarbete med CEN/TC 248 "Textiles and textile products".

Denna europeiska standard skall ges status av nationell standard, antingen genom att publicera en identisk text eller genom ikraftsättning senast juni 1996, och motstridande nationella standarder skall dras in senast juni 1996.

Enligt CEN/CENELEC interna bestämmelser anmodas följande länder att anta denna europeiska standard: Belgien, Danmark, Finland, Frankrike, Grekland, Island, Irland, Italien, Luxemburg, Nederländerna, Norge, Portugal, Schweiz, Spanien, Storbritannien, Sverige, Tyskland och Österrike.

## **Ikraftsättningsnotering**

Texten i den internationella standarden ISO 5079:1995 är godkänd av CEN som en europastandard utan någon ändring.

ANMÄRKNING. Bindande referenser till internationella publikationer finns i bilaga ZA (bindande).

# Textile fibres — Determination of breaking force and elongation at break of individual fibres

## 1 Scope

This International Standard specifies the method and conditions of test for the determination of the breaking force and elongation at break of individual fibres in the conditioned or wet state.

The determination of these fibre properties, when carried out on different kinds of testing equipment, will not generally give identical results. To avoid such differences, this International Standard is restricted to the use of constant-rate-of-extension testing apparatus.

The method is applicable to all fibres, including crimped fibres, provided that the length of fibre available enables the initial length specified in this international Standard to be used.

NOTE 1 For natural fibres (especially wool and cotton) the breaking test most commonly performed is that of bundles of fibres (see ISO 3060 and IWTO 32-82).

## 2 Normative references

The following standards contain provisions which, through reference in this text, constitute provisions of this International Standard. At the time of publication, the editions indicated were 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 editions of the standards indicated

below. Members of IEC and ISO maintain registers of currently valid International Standards.

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

ISO 1130:1975, *Textile fibres — Some methods of sampling for testing*.

ISO 1973:1995, *Textile fibres — Determination of linear density — Gravimetric method and vibroscope method*.

ISO 2602:1980, *Statistical interpretation of test results — Estimation of the mean — Confidence interval*.

ISO 3060:1974, *Textiles — Cotton fibres — Determination of breaking tenacity of flat bundles*.

IWTO 32-82, *Determination of the bundle strength of wool fibres*, International Wool Textile Organization, Brussels.

## 3 Definitions

For the purposes of this international Standard, the following definitions apply.

**3.1 breaking force:** Maximum force applied to a test specimen carried to rupture during a tensile test under specified conditions (see *A1* in figure 1).

## Textil - Bestämning av brottstyrka och brotttöjning hos individuella fibrer

### 1 Omfattning

Denna standard anger en provningsmetod och provningsförhållanden för bestämning av brottkraften och brotttöjningen hos individuella fibrer i konditionerat eller vätt tillstånd.

Om bestämningen av dessa fiberegenskaper sker med användning av olika typer av provningsutrustning, blir resultaten inte alltid de samma. För att undvika sådana skillnader har denna standard begränsats till en typ av provningsapparat som töjer fibern med konstant töjningshastighet.

Metoden kan användas på alla fibrer, inklusive krusfibrer, förutsatt att den tillgängliga fiberlängden möjliggör den inspänningslängd som beskrivs i denna internationell standard.

ANM. 1 För naturfibrer (speciellt ull och bomull) måste vanligen dragprovning utföras på fiberknippen (se också ISO 3060 och IWTO 32-82).

### 2 Bindande referenser

Nedan uppräknade standarder innehåller föreskrifter som när de återopas i texten även gäller för denna internationella standard. När standarden publicerades, var de angivna utgåvorna giltiga. Alla standarder är föremål för revidering. Parter uppmanas att vid överenskommelser om denna internationella standard att om möjligt använda de senaste utgåvorna av de standarder som anges nedan. Medlemmar av IEC och ISO kan få förteckningar över giltiga internationella standarder.

ISO 139:1973, *Textil – Standardatmosfärer för konditionering och provning.*

ISO 1130:1975, *Textile fibres – Some methods of sampling for testing.*

ISO 1973:1995, *Textile fibres – Determination of linear density – Gravimetric method and vibroscope method.*

ISO 2602:1980, (SS 0142 11), *Statistisk tolkning av data – Skattning av medelvärde – Konfidensintervall.*

ISO 3060:1974, *Textiles – Cotton fibres – Determination of breaking tenacity of flat bundles.*

IWTO 32-82, *Determination of the bundle strength of wool fibres*, International Wool Textile Organization, Brussels.

### 3 Definitioner

För denna standard gäller följande definitioner.

**3.1 brottkraft:** Den största kraft som en provkropp utsätts för vid dragning till brott under speciella förhållanden (Se A<sub>i</sub> i figur 1).

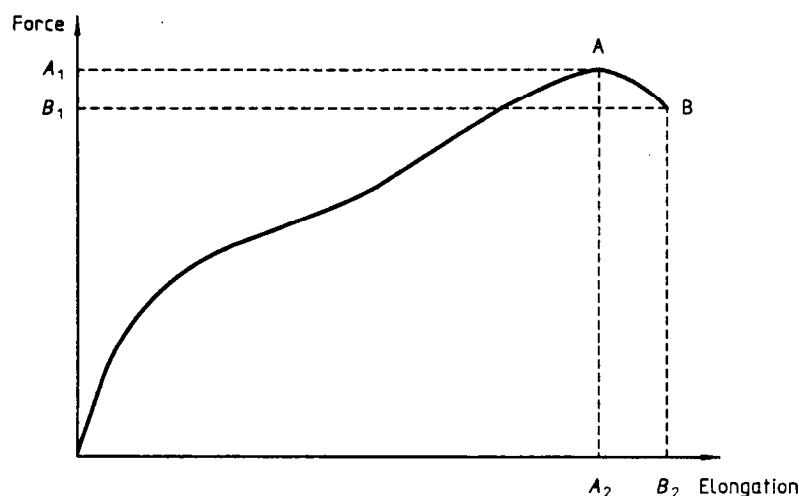


Figure 1 — Typical force/elongation curve

**3.2 force at rupture:** Final force just before complete rupture of the test specimen (see  $B_1$  in figure 1).

**3.3 extension:** Increase in length of a test specimen, produced by a force on that specimen, expressed in units of length.

**3.4 elongation:** Ratio of the extension of a test specimen to its initial length, expressed as a percentage.

**3.5 elongation at break:** Elongation of a test specimen produced by the breaking force (see  $A_2$  in figure 1).

**3.6 elongation at rupture:** Elongation of a test specimen corresponding to rupture (see  $B_2$  in figure 1).

**3.7 gauge length:** Distance between two effective clamping points of a testing device.

**3.8 initial length:** Length of a test specimen under specified pretension at the beginning of a test.

NOTE 2 For a tensile test, the initial length is measured between the two effective clamping points.

**3.9 pretension:** Tension applied to a test specimen at the beginning of a tensile test.

**3.10 tension:** Force tending to cause the extension of a body.

NOTE 3 In textile testing, the tension applied is based on the linear density or cross-sectional area.

**3.11 breaking tenacity:** Breaking force divided by the linear density.

## 4 Principle

An individual fibre is extended at a constant rate until rupture occurs. The elongation of the fibre and the force required are measured.

To calculate the breaking tenacity, the linear density of the individual fibres or the mean linear density of the laboratory sample is also required (see ISO 1973).

## 5 Apparatus and reagents

**5.1 Tensile testing machine,** with suitable clamps for gripping individual fibres at the required initial length, means for stretching the fibre to rupture at constant rate of extension by moving one of the clamps, and means for recording the force applied to the fibre and the corresponding extension (elongation).

A device giving a force/extension (tenacity/elongation) curve to indicate whether fibre slippage is occurring in the clamps is useful. A digital display or data-collecting system may be used in addition. Advice on mounting of test specimens is given in annex A.

**5.1.1** The machine shall be capable of operating at various constant rates of extension between at least 5 mm/min and 20 mm/min.