



National Standards Authority of Ireland

IRISH STANDARD

I.S. EN ISO 13938-2:1999

ICS 59.080.30

**TEXTILES - BURSTING PROPERTIES OF  
FABRICS - PART 2: PNEUMATIC METHOD FOR  
DETERMINATION OF BURSTING STRENGTH  
AND BURSTING DISTENSION (ISO  
13938-2:1999)**

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EUROPEAN STANDARD  
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**EN ISO 13938-2**

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English version

**Textiles - Bursting properties of fabrics - Part 2: Pneumatic  
method for determination of bursting strength and bursting  
distension (ISO 13938-2:1999)**

Textiles - Propriétés de résistance à l'éclatement des  
étoffes - Partie 2: Méthode pneumatique pour la  
détermination de la résistance et de la déformation à  
l'éclatement (ISO 13938-2:1999)

Textilien - Bersteigenschaften von textilen Flächegebilden  
- Teil 2: Pneumatisches Verfahren zur Bestimmung von  
Berstdruck und Berstwölbung (ISO 13938-2:1999)

This European Standard was approved by CEN on 6 December 1998.

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.

This European Standard exists 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, Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and United Kingdom.



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## **Foreword**

The text of EN ISO 13938-2:1999 has been prepared by Technical Committee CEN/TC 248 "Textiles and textile products", the secretariat of which is held by BSI, in collaboration with Technical Committee ISO/TC 38 "Textiles".

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of an identical text or by endorsement, at the latest by February 2000, and conflicting national standards shall be withdrawn at the latest by February 2000.

EN ISO 13938 is in two parts as follows:

EN ISO 13938-1 Textiles - Bursting properties of fabrics - Part 1: Hydraulic method for determination of bursting strength and bursting distension (ISO 13938-1:1998)

EN ISO 13938-2 Textiles - Bursting properties of fabrics - Part 2: Pneumatic method for determination of bursting strength and bursting distension (ISO 13938-2:1998)

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

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

## 1 Scope

This standard describes a pneumatic pressure method for the determination of bursting strength and bursting distension of textile fabrics.

NOTE : EN ISO 13938-1 describes a method using hydraulic pressure.

The method is applicable to knitted, woven, nonwoven and laminated fabrics. It may be suitable for fabrics produced by other techniques. The test is suitable for test specimens in either the conditioned or wet state.

From the available data there appears to be no significant difference in the bursting strength results achieved using hydraulic or pneumatic burst testers, for pressures up to 800 kPa. This pressure range covers the majority of performance levels expected of general apparel. For speciality textiles requiring high bursting pressures, the hydraulic apparatus is more suitable.

## 2 Normative references

The following normative documents contain provisions which, through reference in this text, constitute provisions of this part of this International Standard dated references, subsequent amendments to, or revisions of, any of these publications do not apply. However, parties to agreements based on this International Standard are encouraged to investigate the possibility of applying the most recent editions of the normative documents indicated below. For undated references, the latest edition of the normative document referred to applies. Members of ISO and IEC maintain registers of currently valid International Standards.

ISO 139:1973	Textiles - Standard atmospheres for conditioning and testing
EN ISO 3696	Water for analytical laboratory use - Specification and test methods (ISO 3696:1987)
EN 30012-1:1993	Quality assurance requirements for measuring equipment - Part 1: Metrological confirmation system for measuring equipment (ISO 10012-1:1992)

## 3 Definitions

For the purposes of this standard the following definitions apply:

**3.1 test area:** Area of the test specimen within the circular clamping device.

**3.2 bursting pressure (pressure at burst):** Maximum pressure applied to a test specimen clamped over an underlying diaphragm until the test specimen ruptures.

**3.3 bursting strength (strength at burst):** Pressure obtained by subtracting the diaphragm pressure from the mean bursting pressure.

**3.4 diaphragm pressure:** Pressure applied to the diaphragm, with no test specimen present, to distend it to the mean bursting distension of the test specimen.

**3.5 bursting distension (distension at burst):** Expansion of a test specimen at the bursting pressure.

It is expressed as height at burst.

**3.6 height at burst:** Distance between the upper surface of the test specimen before distension and the top of the test specimen at the bursting pressure.

**3.7 time to burst:** Time taken to distend a test specimen to burst.

## 4 Principle

A test specimen is clamped over an expansive diaphragm by means of a circular clamping ring. Increasing compressed air pressure is applied to the underside of the diaphragm, causing distension of the diaphragm and the fabric. The pressure is increased smoothly until the test specimen bursts. The bursting strength and bursting distension are determined.

## 5 Sampling

Either select samples in accordance with the procedure laid down in the material specification for the fabric, or as agreed between the interested parties. In the absence of an appropriate material specification an example of a suitable sampling procedure is given in annex A. Avoid areas that are folded or creased, selvages and areas not representative of the fabric. The system of clamping used generally permits tests to be applied without cutting out test specimens.

## 6 Apparatus

### 6.1 Bursting tester

Metrological confirmation of the bursting tester shall be carried out in accordance with EN 30012-1:1993.

The bursting tester shall comply with the following requirements:

**6.1.1** The apparatus shall be capable of producing an increase in air pressure to achieve a testing time to burst of  $(20 \pm 5)$  s. To achieve responsive adjustment of the air velocity, an indicating control valve is needed in addition to the main air valve of the apparatus.

**6.1.2** Bursting pressure shall be indicated with an accuracy of  $\pm 2\%$  of full scale range above the first 20 % of range.

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