INTERNATIONAL STANDARD

ISO 12625-12

First edition
2010-01-15

Tissue paper and tissue products —

Part 12: Determination of tensile strength of perforated lines — Calculation of perforation efficiency

Papier tissue et produits tissues —

Partie 12: Détermination de la résistance à la rupture par traction des lignes de prédécoupe — Calcul de l'efficacité des perforations

Reference number
ISO 12625-12:2010(E)

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Published in Switzerland

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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.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

The main task of technical committees is to prepare International Standards. 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.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights.

ISO 12625-12 was prepared by the European Committee for Standardization (CEN) Technical Committee CEN/TC 172, *Pulp, paper and board*, in collaboration with Technical Committee ISO/TC 6, *Paper, board and pulps*, Subcommittee SC 2, *Test methods and quality specifications for paper and board*, in accordance with the Agreement on technical cooperation between ISO and CEN (Vienna Agreement).

ISO 12625 consists of the following parts, under the general title *Tissue paper and tissue products*:

— *Part 1: General principles for the use of terms*

— *Part 3: Determination of thickness, bulking thickness and apparent bulk density*

— *Part 4: Determination of tensile strength, stretch at break and tensile energy absorption*

— *Part 5: Determination of wet tensile strength*

— *Part 6: Determination of grammage*

— *Part 7: Determination of optical properties*

— *Part 8: Water-absorption time and water-absorption capacity, basket-immersion test method*

— *Part 9: Determination of ball burst strength*

— *Part 12: Determination of tensile strength of perforated lines — Calculation of perforation efficiency*

The following part is under preparation:

— *Part 13: Determination of the spectral reflectance factor (brightness) at the wavelength R 457 nm with and without UV stimulus and opacity*

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Introduction

Tissue papers such as toilet paper and kitchen towel are often pre-cut. They are used after separation of two consecutive sheets.

It is important to know the efficiency of the pre-cut perforations.

The perforation strength should be enough to ensure the product cohesion, but not too high, so that sheets can be easily separated. Depending on the type of tissue product, forces can be applied perpendicular to the perforation lines, or in the direction of the perforation lines.

This part of ISO 12625 has been prepared by harmonizing those standards applicable to tissue paper and tissue products that are currently in use. It specifies a procedure to determine perforation efficiency based on the method described in ISO 12625-4 for the determination of the tensile strength of tissue paper and tissue products.

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Tissue paper and tissue products —

Part 12:
Determination of tensile strength of perforated lines — Calculation of perforation efficiency

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1 Scope

This part of ISO 12625 specifies a test method for the determination of the tensile strength of perforated lines of tissue paper. It uses a tensile testing apparatus operating with a constant rate of elongation.

This method is only used for measuring machine-direction tensile strength, that is for cross-direction perforations on tissue paper.

The calculation of perforation efficiency is also specified in this part of ISO 12625.

It is expressly stated that the detection of impurities and contraries in tissue paper and tissue products can be carried out according to ISO 15755.

For the determination of moisture content in tissue paper and tissue products, ISO 287 can be applied.

2 Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 186, *Paper and board — Sampling to determine average quality*

ISO 187, *Paper, board and pulps — Standard atmosphere for conditioning and testing and procedure for monitoring the atmosphere and conditioning of samples*

ISO 536, *Paper and board — Determination of grammage*

ISO 1924-2, *Paper and board — Determination of tensile properties — Part 2: Constant rate of elongation method (20 mm/min)*

ISO 7500-1, *Metallic materials — Verification of static uniaxial testing machines — Part 1: Tension/compression testing machines — Verification and calibration of the force-measuring system*

ISO 12625-1, *Tissue paper and tissue products — Part 1: General guidance on terms*

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