

**Tissue paper and tissue products - Part 12:
Determination of tensile strength of perforated lines -
Calculation of perforation efficiency**

EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

Käesolev Eesti standard EVS-EN ISO 12625-12:2010 sisaldab Euroopa standardi EN ISO 12625-12:2010 ingliskeelset teksti.

Standard on kinnitatud Eesti Standardikeskuse 31.03.2010 käskkirjaga ja jõustub sellekohase teate avaldamisel EVS Teatajas.

Euroopa standardimisorganisatsioonide poolt rahvuslikele liikmetele Euroopa standardi teksti kättesaadavaks tegemise kuupäev on 15.01.2010.

Standard on kättesaadav Eesti standardiorganisatsioonist.

This Estonian standard EVS-EN ISO 12625-12:2010 consists of the English text of the European standard EN ISO 12625-12:2010.

This standard is ratified with the order of Estonian Centre for Standardisation dated 31.03.2010 and is endorsed with the notification published in the official bulletin of the Estonian national standardisation organisation.

Date of Availability of the European standard text 15.01.2010.

The standard is available from Estonian standardisation organisation.

ICS 85.080.20

Standardite reprodutseerimis- ja levitamiseõigus kuulub Eesti Standardikeskusele

Andmete paljundamine, taastekitamine, kopeerimine, salvestamine elektroonilisse süsteemi või edastamine ükskõik millises vormis või millisel teel on keelatud ilma Eesti Standardikeskuse poolt antud kirjaliku loata.

Kui Teil on küsimusi standardite autorikaitse kohta, palun võtke ühendust Eesti Standardikeskusega:
Aru 10 Tallinn 10317 Eesti; www.evs.ee; Telefon: 605 5050; E-post: info@evs.ee

Right to reproduce and distribute Estonian Standards belongs to the Estonian Centre for Standardisation

No part of this publication may be reproduced or utilized in any form or by any means, electronic or mechanical, including photocopying, without permission in writing from Estonian Centre for Standardisation.

If you have any questions about standards copyright, please contact Estonian Centre for Standardisation:
Aru str 10 Tallinn 10317 Estonia; www.evs.ee; Phone: +372 605 5050; E-mail: info@evs.ee

English Version

**Tissue paper and tissue products - Part 12: Determination of
tensile strength of perforated lines - Calculation of perforation
efficiency (ISO 12625-12:2010)**

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 (ISO
12625-12:2010)

Tissue-Papier und Tissue-Produkte - Teil 12: Bestimmung
der breitenbezogenen Bruchkraft an Perforationen -
Berechnung der Perforations-Effizienz (ISO 12625-
12:2010)

This European Standard was approved by CEN on 9 January 2010.

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 CEN Management Centre 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 CEN Management Centre has the same status as the official versions.

CEN members are the national standards bodies of Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland and United Kingdom.



EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

Management Centre: Avenue Marnix 17, B-1000 Brussels

Foreword

This document (EN ISO 12625-12:2010) has been prepared by Technical Committee CEN/TC 172 “Pulp, paper and board”, the secretariat of which is held by DIN, in collaboration with Technical Committee ISO/TC 6 “Paper, board and pulps”.

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 July 2010, and conflicting national standards shall be withdrawn at the latest by July 2010.

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

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland and the United Kingdom.

Contents

Page

Foreword	iv
Introduction	v
1 Scope	1
2 Normative references	1
3 Terms and definitions	2
4 Principle	2
5 Apparatus	2
5.1 Tensile-testing apparatus	2
5.2 Tensile-tester clamps	2
5.3 Cutting device	3
6 Sampling	3
7 Conditioning	3
8 Preparation of test pieces	3
8.1 Dimensions	3
8.2 Number of test pieces	4
9 Procedure	4
9.1 General	4
9.2 Non-perforated test pieces	4
9.3 Perforated test pieces	4
10 Calculation	6
10.1 Tensile strength	6
10.2 Calculation of perforation efficiency	6
11 Test report	6
12 Precision	7
12.1 General	7
12.2 Tensile strength of non-perforated and perforated products	8
12.3 Perforation efficiency	9
Annex A (informative) Influence of a pre-cut in the perforation line	10
Annex B (informative) Influence of paper ageing	12
Bibliography	14

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.

Tissue paper and tissue products —

Part 12:

Determination of tensile strength of perforated lines — Calculation of perforation efficiency

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*