# Reinforcements - Specification for multi-axial multi-ply fabrics - Part 1: Designation

Reinforcements - Specification for multi-axial multiply fabrics - Part 1: Designation



## EESTI STANDARDI EESSÕNA

### NATIONAL FOREWORD

Käesolev Eesti standard EVS-EN 13473-	This Estonian standard EVS-EN 13473-			
1:2001 sisaldab Euroopa standardi EN	1:2001 consists of the English text of the			
13473-1:2001 ingliskeelset teksti.	European standard EN 13473-1:2001.			
Č,	•			
Käesolev dokument on jõustatud	This document is endorsed on 19.10.2001			
19.10.2001 ja selle kohta on avaldatud	with the notification being published in the			
teade Eesti standardiorganisatsiooni	official publication of the Estonian national			
ametlikus väljaandes.	standardisation organisation.			
	Jan 1997 - Jan 19			
Standard on kättesaadav Eesti	The standard is available from Estonian			
standardiorganisatsioonist.	standardisation organisation.			
	<u> </u>			
Käsitlusala:	Scope:			
This part 1 of EN 13473 establishes a	This part 1 of EN 13473 establishes a			
method of designation for multi-axial	method of designation for multi-axial			
multi-ply fabrics which shall be used for	multi-ply fabrics which shall be used for			
specifications for the reinforcement of	specifications for the reinforcement of			
materials. The method of designation	materials. The method of designation			
defines the structure of the multi-axial	defines the structure of the multi-axial			
multi-ply construction and the binding	multi-ply construction and the binding			
system.	system.			

**ICS** 59.100.99, 83.120

**Võtmesõnad:** cover pass, definition, definitions, designations, fixing (photography), foams, foil, loops, materials, non-woven cloth, properties, reinforcement fibres, reinforcing material, sheets, spacers, specification, surface patterns, textile products

200

## **EUROPEAN STANDARD** NORME EUROPÉENNE **EUROPÄISCHE NORM**

## EN 13473-1

June 2001

ICS 59,100,99: 83,120

English version

## Reinforcement - Specifications for multi-axial multi-ply fabrics -Part 1: Designation

Renfort - Spécifications pour les tissus multi-axiaux multicouches - Partie 1: Désignation

Verstärkungen - Spezifikation für Multiaxialgelege - Teil 1: Bezeichnung

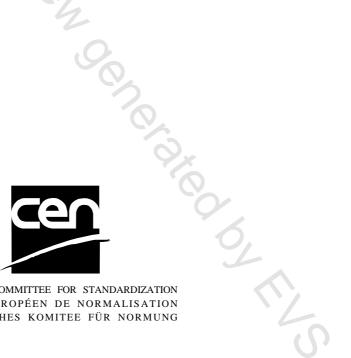
This European Standard was approved by CEN on 10 May 2001.

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 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 Management Centre has the same status as the official versions.

Ry Oc

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.



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

Management Centre: rue de Stassart, 36 B-1050 Brussels

## Contents

Forev	Nord S	Page
Forev		
2		
2		
4 4.1 4.2 4.3 4.4	Designation General Data-Block 1 Data-Block 2	
5 5.1 5.2 5.3	Example 1 Example 2	

## Foreword

This European Standard has been prepared by Technical Committee CEN/TC 249 "Plastics", the secretariat of which is held by IBN.

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 December 2001, and conflicting national standards shall be withdrawn at the latest by December 2001.

This standard is one part of EN 13473 "Reinforcement – Specification for multi-axial multi-ply fabrics" which is constructed as follows :

- Part 1 : Designation
- Part 2 : Methods of test and general requirements
- Part 3 : Specific requirements

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 part 1 of EN 13473 establishes a method of designation for multi-axial multi-ply fabrics which shall be used for specifications for the reinforcement of materials. The method of designation defines the structure of the multi-axial multi-ply construction and the binding system.

This designation system applies to multi-axial multi-ply fabrics made of reinforcement yarns, tows, rovings, fibre fleeces, films, foams or other materials which are intended to provide reinforcement in composite materials and which is bound to a multi-ply construction.

The designation of a multi-axial multi-ply fabric is structured in a product of multi-axial multi-ply fabrics. It is not intended that this hierarchy takes into account all the attributes of individual multi-axial multi-ply fabrics. Therefore multi-axial multi-ply fabrics having the same designation do not give necessarily the same performance. This part 1 of EN 13473 does not give engineering data, performance data or data which may be required to specify multi-axial multi-ply fabrics for a particular application or method of processing. If such additional properties are required they have to be determined in accordance with the test methods specified in EN 13473-2.

## 2 Normative references

This European Standard incorporates by dated or undated reference, provisions from other publications. These normative references are cited at the appropriate places in the text and the publications are listed hereafter. For dated references, subsequent amendments to or revisions of any of these publications apply to this European Standard only when incorporated in it by amendment or revision. For undated references the latest edition of the publication referred to applies (including amendments).

EN 13473-2, Reinforcement – Specifications for multi-axial multi-ply fabrics – Teil 2 : Methods of test and general requirements

ISO/DIS 1268-1:1997, Fibre-reinforced plastics – Methods of producing test plates – Part 1 : General conditions

ISO 472, Plastics – Vocabulary

ISO 1043-2, Plastics – Symbols – Part 2 : Fillers and reinforcing materials

ISO 4921, Knitting – Basic concepts – Vocabulary

#### 3 Terms and definitions

For the purposes of this European Standard, the terms and definitions given in ISO 472, EN 13473-2 and the following apply.

#### 3.1

#### multi-axial multi-ply (not woven) fabric

a textile structure constructed out of one or more laid parallel non-crimped not-woven thread plies with the possibility of different orientations, different thread densities of the single thread plies and possible integration of fibre fleeces, films, foams or other materials, fixed by loop systems or by chemical binding systems. The threads can be oriented parallel or alternating crosswise. These products can be produced on machines with insertion devices (parallel-weft or cross-weft) and warp knitting machines or chemical binding systems