INTERNATIONAL STANDARD

ISO 14890

First edition
2003-05-15

Conveyor belts — Specification for rubber or plastics covered conveyor belts of textile construction for general use

Courroies transporteuses — Spécification pour courroies transporteuses recouvertes de caoutchouc ou de plastique à structure textile, d'usage général

Reference number
ISO 14890:2003(E)

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Published in Switzerland

Foreword

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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 14890 was prepared by the European Committee for Standardization (CEN) in collaboration with Technical Committee ISO/TC 41, *Pulleys and belts (including veebelts)*, Subcommittee SC 3, *Conveyor belts*, in accordance with the Agreement on technical cooperation between ISO and CEN (Vienna Agreement).

Throughout the text of this document, read "...this European Standard..." to mean "...this International Standard...".

Contents

Foreword

This document (EN ISO 14890:2003) has been prepared by Technical Committee CEN/TC 188 "Conveyor belts", the secretariat of which is held by BSI, in collaboration with Technical Committee ISO/TC 41 "Pulleys and belts (including veebelts)".

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of an identical text or by endorsement, at the latest by November 2003, and conflicting national standards shall be withdrawn at the latest by November 2003.

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, Hungary, Iceland, Ireland, Italy, Luxembourg, Malta, Netherlands, Norway, Portugal, Slovakia, Spain, Sweden, Switzerland and the United Kingdom.

Introduction

In the preparation of this Part of this standard, consideration has been given to the work of ISO Committee ISO/TC41/SC3, “Conveyor belts”, and the following standards for conveyor belts have been followed as far as possible.

ISO 251:1987	Conveyor belts - Widths and lengths
ISO 252-1	Textile conveyor belts - Adhesive strength between constitutive elements - Part 1 : Methods of test
ISO 282:1992	Conveyor belts - Sampling
ISO 283-1	Textile conveyor belts - Full thickness tensile testing - Part 1: Determination of tensile strength, elongation at break and elongation of the reference load.
ISO 432:1989	Ply type conveyor belts - Characteristics of construction
ISO 433:1991	Conveyor belts - marking
ISO 583:1990	Conveyor belts with a textile carcass – Tolerances on total thickness and thickness of covers – Direct measurement method
ISO 703:1988	Conveyor belts - Troughability - Characteristics of transverse flexibility and test method

1 Scope

This European Standard specifies requirements for rubber and/or plastics covered conveyor belting of textile construction for general surface use on flat or troughed idlers.

This standard is not suitable or valid for light conveyor belts as described in EN 873.

Items that are not requirements of this standard, but need to be agreed between the manufacturer and the purchaser, are included as an informative annex A.

A list of the details that should be supplied by the purchaser of belting with an enquiry is given in informative annex B.

2 Normative References

This European Standard incorporates by dated or undated references, 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 an amendment or revision. For undated references the last edition of the publication referred to applies (including amendments).

ISO 37, *Rubber, vulcanized or thermoplastic – Determination of tensile stress-strain properties.*

ISO 188, *Rubber, vulcanized or themoplastic - Accelerated ageing and heat-resistance tests.*

ISO 282, *Conveyor belts – Sampling.*

ISO 4649, *Rubber, vulcanized or themoplastic - Determination of abrasion resistance using a rotating cylindrical drum device.*

ISO 10247, *Conveyor belts – Characteristics of covers – Classification.*

EN ISO 252-1, *Textile conveyor belts - Adhesion strength between constitutive elements - Part 1: Methods of test (ISO 252-1:1999).*

EN ISO 283-1, *Textile conveyor belts – Full thickness tensile testing – Part 1: Determination of tensile strength, elongation at break and elongation at the reference load (ISO 283-1:2000).*

EN ISO 583-1, *Conveyor belts with a textile carcass - Total thickness and thickness of elements - Part 1: Methods of test (ISO 583-1:1999).*

EN ISO 703-1, *Conveyor belts - Transverse flexibility and troughability - Part 1: Test method (ISO 703-1:1999).*

EN 12882, *Conveyor belting for general purpose use - Electrical and flammability safety requirements.*

prEN ISO 16851, *Textile conveyor belts - Determination of the net length of an endless (spliced) conveyor belt (ISO/DIS 16851:1998).*

3 Terms and definitions

For the purposes of this European Standard, the following terms and definitions apply.

3.1
tensile strength
greatest measured force during the tensile test divided by the width of the test piece . It is expressed in N/mm

3.2
reference force (reference load)
one-tenth of the nominal tensile strength in the longitudinal direction multiplied by the width of the test piece in mm. It is expressed in Newtons

Example:
Nominal tensile strength = 1 600 N/mm
Reference force = 160N/mm
Reference force for 25 mm test piece = 25mm × 160 N/mm = 4 000 N.

NOTE This definition does not imply that a 10:1 factor should be used in design calculations, but it is important to bear in mind that any belt with any form of joint or splice should be capable of transmitting the desired working strength.

3.3
slab belting
conveyor belting made in wide widths and long lengths for subsequent slitting and cutting into narrower widths and shorter lengths to suit individual conveyor installations

3.4
solid woven belting
conveyor belting consisting of a carcass of more than one ply, the plies being interlocked in the weave, or bound together by binding threads in the course of weaving

3.5
mono-ply belting
conveyor belting with a carcass consisting of one ply of woven textile fabric

3.6
duo-ply belting
conveyor belting with a carcass consisting of two plies of woven textile fabric bonded together by an intermediate layer of elastomer of sufficient thickness to allow the incorporation of a tension element in the joint

3.7
multi-ply belting
Conveyor belting with a carcass of two or more plies of woven textile fabric,the adjacent plies being bonded together by an intermediate layer of elastomer

3.8
primary yarn
load carrying yarn which contributes more than 50 % of the tensile strength

3.9
secondary yarn
load carrying yarn which contributes less than 50 % of the tensile strength

4 Designation

4.1 Belting is designated by reference to the following conveyor belt characteristics :

a) reference to this European Standard, i.e. EN ISO 14890;
b) the required length in metres;
c) the required width in millimetres (see Table 4);
d) the fibre type of the carcass, in both the warp and weft directions,
e.g. polyester (E) (warp) polyamide (P), (weft) (EP) (see Table 1);
e) the full thickness tensile strength in N/mm of belt width (see Table 8);
f) the number of plies or belt type (see clause 3);
g) top cover thickness in millimetres;
h) bottom cover thickness in mm (where relevant, see clause 5);
j) cover classification (see Table 5), where appropriate;
k) safety category according to EN 12882.

4.2 Examples of ordering are given below

Example 1: Multiply-ply belt

A 400 m long belt, 1 200 mm wide, textile material in the longitudinal direction of polyester (E) and in the transverse direction of polyamide (P), having a minimum full thickness tensile strength of 1 000 N/mm belt width, with 5 plies and a top cover thickness of 4 mm, a bottom cover thickness of 2 mm, a cover classification of H in accordance with Table 5, and complying with the safety requirements of category 1 of EN 12882.

Example 1 - Designation

EN ISO	Length	Width	Textile material		Tensile Strength N/mm	No of plies	Cover gauge (mm)		Cover Class	Safety category according to EN 12882
14890	(m)	(mm)	Warp	Weft			Top	Bottom		
	400	1 200	E	P	1 000	5	4	2	H	1

Example 2: Duo-ply belt

A 200 m long belt, 1 000 mm wide, textile material in the longitudinal direction of polyester cotton (EB) and in the transverse direction of polyamide cotton (PB), having a minimum full thickness tensile strength of 800 N/mm, with 2 plies and a top and bottom cover of 1,5mm, complying with the safety requirements of category 2A of EN 12882.

Example 2 - Designation

EN ISO	Length	Width	Textile material		Tensile Strength N/mm	No of plies	Cover gauge (mm)		Cover Class	Safety category according to EN 12882.
14890	(m)	(mm)	Warp	Weft			Top	Bottom		
	200	1 000	EB	PB	800	2	1,5	1,5	N/A	2A

Example 3: Mono-ply

A 150 m long, 1 200 mm wide Mono-ply belt, having a polyester warp (E) and a polyamide weft (P), a full thickness tensile strength of 630 N/mm belt width and a top cover thickness of 6 mm, a bottom cover thickness of 2 mm, and a cover classification of D in accordance with Table 5, complying with safety requirement of category 1 of EN 12882.

Example 3 - Designation

EN ISO	Length	Width	Textile material		Tensile Strength N/mm	No of plies	Cover gauge (mm)		Cover Class	Safety category according to EN 12882
14890	(m)	(mm)	Warp	Weft			Top	Bottom		
	150	1 200	E	P	630	1	6	2	D	1

Example 4: Solid woven belt

A 300 m long, 1 600 mm wide Solid Woven belt having a combined polyester and polyamide warp (EP) and a polyamide cotton weft (PB) and an integrally woven cotton (B) warp pile, having a minimum tensile strength of 1 250 N/mm belt width and 1,5 mm top and bottom covers, complying with safety requirement of category 3A of EN 12882.

Example 4 - Designation

EN ISO	Length	Width	Textile material		Tensile Strength N/mm	No of plies	Cover gauge (mm)		cover class	Safety category according to EN 12882
14890	(m)	(mm)	Warp	Weft			Top	Bottom		
	300	1 600	EP(B)	PB	1250	SW(1)	1,5	1,5	N/A	3A