SLOVENSKI STANDARD
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Steel cord conveyor belts - Part 1: Design, dimensions and mechanical requirements for conveyor belts for general use (ISO 15236-1:2005)

Stahlseilfördergurte - Teil 1: Aufbau, Maße und mechanische Anforderungen an Fördergurte für allgemeine Einsatzbedingungen (ISO 15236-1:2005)

Courroies transporteuses a câbles d'acier - Partie 1: Exigences de conception, de dimensions et mécaniques des courroies transporteuses a usage général (ISO 15236-1:2005)

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EUROPEAN COMMITTEE FOR STANDARDIZATION
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Management Centre: rue de Stassart, 36 B-1050 Brussels

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Foreword

This document (EN ISO 15236-1:2005) 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of an identical text or by endorsement, at the latest by April 2006, and conflicting national standards shall be withdrawn at the latest by April 2006.

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

INTERNATIONAL STANDARD

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Steel cord conveyor belts —

Part 1: Design, dimensions and mechanical requirements for conveyor belts for general use

Courroies transporteuses à câbles d'acier —

Partie 1: Exigences de conception, de dimensions et mécaniques des courroies transporteuses à usage général

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ISO copyright office
Case postale 56 • CH-1211 Geneva 20
Tel. + 41 22 749 01 11
Fax + 41 22 749 09 47
E-mail copyright@iso.org
Web www.iso.org

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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 15236-1 was prepared by the European Committee for Standardization (CEN) Technical Committee CEN/TC 188 *Conveyer belts*, 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).

ISO 15236 consists of the following parts, under the general title *Steel cord conveyor belts*:

— *Part 1: Design, dimensions and mechanical requirements for conveyor belts for general use*

— *Part 2: Preferred belt types*

— *Part 3: Special safety requirements for belts for use in underground installations*

— *Part 4: Vulcanized belt joints*

Steel cord conveyor belts —

Part 1: Design, dimensions and mechanical requirements for conveyor belts for general use

1 Scope

This part of ISO 15236 specifies the performance and constructional requirements applicable to conveyor belts having steel cords in the longitudinal direction as reinforcement. The requirements for construction given in Clause 6 apply to the design of single belts as well as the design of complete type series such as those covered in ISO 15236-2.

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 37, *Rubber, vulcanized or thermoplastic — Determination of tensile stress-strain properties*

ISO 188, *Rubber, vulcanized or thermoplastic — Accelerated ageing and heat resistance tests*

ISO 284, *Conveyor belts — Electrical conductivity — Specification and test method*

ISO 340, *Conveyor belts — Laboratory scale flammability characteristics – Requirements and test method*

ISO 703, *Conveyor belts — Transverse flexibility (troughability) — Test method*[1)]

ISO 4649:2002, *Rubber, vulcanized or thermoplastic — Determination of abrasion resistance using a rotating cylindrical drum device*

ISO 7590:2001, *Steel cord conveyor belts — Methods for the determination of total thickness and cover thickness*

ISO 7622-2, *Steel cord conveyor belts — Longitudinal traction test — Part 2: Measurement of tensile strength*

ISO 7623, *Steel cord conveyor belts — Cord-to-coating bond test — Initial test and after thermal treatment*

ISO 8094, *Steel cord conveyor belts — Adhesion strength test of the cover to the core layer*

ISO 10247, *Conveyor belts — Characteristics of covers — Classification*

1) To be published. (Revision of ISO 703:1988 and ISO 703-1:1999)

ISO 15236-2:2004, *Steel cord conveyor belts — Part 2: Preferred belt types*

EN 12882, *Conveyor belts for general purpose use — Electrical and flammability safety requirements*

EN 13827, *Steel cord conveyor belts — Determination of the lateral and vertical displacement of steel cords*

3 Terms and definitions

For the purposes of this part of ISO 15236, the following terms and definitions apply.

3.1
edge width
b_k
thickness of rubber between the outer cord and the belt edge

See Figure 1.

3.2
breaker
transverse reinforcement in the conveyor belt, normally of a textile material, attached both above and below or either above or below the layer of longitudinal cords at a distance of at least 1 mm and considered to be part of the cover

See Figure 2.

NOTE Adapted from ISO 7590:2001, 2.1.

3.3
weft

transverse reinforcement in the conveyor belt, normally of steel wires, attached both above and below, or either above or below, the layer of longitudinal cords at a distance of less than 1 mm and considered to be part of the belt core

See Figure 3.

NOTE Adapted from ISO 7590:2001, 2.2.

4 Symbols and units

For the purposes of this part of ISO 15236, the symbols and units given in Table 1 apply.

Table 1 — Symbols and units

Symbol	Explanation	Unit
B	Belt width	mm
F_a	Pull-out force of cord per cord length	N/mm
F_{bs}	Breaking strength of cord taken from cured belt	kN
F_v	Pull-out force of cord per cord length — after thermal treatment	N/mm
K_N	Minimum (nominal) breaking strength per width of belt	N/mm
b_k	Calculated edge width	mm
b_t	Supporting belt width	mm
d	Cord diameter	mm
F	Deflection (troughability)	mm
h_m	Median cord height according to EN 13827	mm
n	Number of cords	—
s_1	Belt thickness	mm
s_2	Cover thickness carrying side	mm
s_3	Cover thickness pulley side	mm
s_4	Thickness of layer between breaker and layer of longitudinal cords	mm
s_5	Thickness of layer between weft and layer of longitudinal cords	mm
s_6	Thickness of belt core	mm
t	Cord pitch	mm
Δh_1	Number of cords positioned within a range of $h_m \leqslant 1$ mm as a percentage of the total number of cords	%
Δh_2	Number of cords positioned within a range of h_m of from > 1,0 mm to 1,5 mm and expressed as a percentage of the total number of cords	%
Δh_3	Percentage of cords with h_m > 1,5 mm	%

5 Belt design

5.1 Standard type

Conveyor belts conforming to this part of ISO 15236 contain steel cords surrounded by a layer of core rubber. This belt core is protected on top and bottom by cover layers (see Figure 1).

5.2 Conveyor belting having transverse reinforcements

Requirements for steel cord conveyor belts having breakers are illustrated in Figure 2 and requirements relating to weft are illustrated in Figure 3.