



# SLOVENSKI STANDARD

SIST EN ISO 15236-3:2008

01-maj-2008

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Steel cord conveyor belts - Part 3: Special safety requirements for belts for use in underground installations (ISO 15236-3:2007)

Stahlseil-Fördergurte - Teil 3: Besondere Sicherheitsanforderungen für den Einsatz untertage (ISO 15236-3:2007)

Courroies transporteuses a câbles d'acier - Partie 3: Exigences de sécurité particulieres aux courroies utilisées dans des installations souterraines (ISO 15236-3:2007)

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Ta slovenski standard je istoveten z: **EN ISO 15236-3:2007**

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**ICS:**

53.040.20

**SIST EN ISO 15236-3:2008**

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ICS 53.040.20

English Version

Steel cord conveyor belts - Part 3: Special safety requirements  
for belts for use in underground installations (ISO 15236-3:2007)

Courroies transporteuses à câbles d'acier - Partie 3:  
Exigences de sécurité particulières aux courroies utilisées  
dans des installations souterraines (ISO 15236-3:2007)

Stahlseil-Fördergurte - Teil 3: Besondere  
Sicherheitsanforderungen für den Einsatz untertage (ISO  
15236-3:2007)

This European Standard was approved by CEN on 2 June 2007.

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

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

## **Foreword**

This document (EN ISO 15236-3:2007) 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of an identical text or by endorsement, at the latest by January 2008, and conflicting national standards shall be withdrawn at the latest by January 2008.

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, 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.

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**Steel cord conveyor belts —**

Part 3:

**Special safety requirements for belts for  
use in underground installations**

*Courroies transporteuses à câbles d'acier —*

*Partie 3: Exigences de sécurité particulières aux courroies utilisées  
dans des installations souterraines*

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Reference number  
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## Contents

Page

Foreword.....	iv
1 Scope .....	1
2 Normative references .....	1
3 Terms and definitions.....	2
4 Symbols and units .....	3
5 Belt design.....	4
6 Design and construction.....	5
7 Mechanical requirements.....	7
8 Sampling.....	10
9 Designation .....	11
10 Ordering data .....	11
11 Marking .....	12
Annex A (informative) Helpful information to be supplied by the purchaser .....	13
Bibliography .....	15

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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 15236-3 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).

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 3:

# Special safety requirements for belts for use in underground installations

## 1 Scope

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

Steel cord belts in accordance with this part of ISO 15236 are intended for use underground in coal mines and in other applications where the highest demands for safety against fire and explosion hazards have to be complied with.

NOTE At present the requirements can only be met by the use of compounds based on chloroprene rubber for the covers as well as for the bonding rubber.

## 2 Normative references

SIST EN ISO 15236-3:2008

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 703, *Conveyor belts — Transverse flexibility (troughability) — Test method*

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

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 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 2062, *Textiles — Yarns from packages — Determination of single-end breaking force and elongation at break*

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

EN 14973, *Conveyor belts for use in underground installations — Electrical and flammability safety requirements*

### 3 Terms and definitions

For the purposes of this document, 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. [SIST EN ISO 15236-3:2008](https://standards.iteh.ai/catalog/standards/sist/33757f4a-8452-4c51-8160-b91d1189499/sist-en-iso-15236-3-2008)  
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## 4 Symbols and units

See Table 1.

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
$e$	See Figure 4	mm
$F$	Deflection (troughability)	mm
$h_m$	Median cord height according to EN 13827	mm
$n$	Number of cords	—
$s_1$	Nominal belt thickness (see ISO 7590)	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 welt and layer of longitudinal cords	mm
$s_6$	Thickness of belt core	mm
$t$	Cord spacing/pitch	mm
$\Delta h_1$	Number of cords positioned within a range of $h_m \leq 1$ mm as a percentage of the total number of cords	%
$\Delta h_2$	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	%
$\Delta h_3$	Percentage of cords with $h_m > 1,5$ mm	%