SLOVENSKI STANDARD
oSIST prEN ISO 15236-3:2025

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Naprave za kontinuirni transport - Trakovi tračnih transporterjev z jeklenim vložkom - 3. del: Posebne varnostne zahteve za trakove v podzemnih inštalacijah (ISO/DIS 15236-3:2025)

Steel cord conveyor belts - Part 3: Special safety requirements for belts for use in underground installations (ISO/DIS 15236-3:2025)

Stahlseil-Fördergurte - Teil 3: Besondere Sicherheitsanforderungen für den Einsatz untertage (ISO/DIS 15236-3:2025)

Courroies transporteuses à câbles d'acier Partie 3: Exigences de sécurité particulières aux courroies utilisées dans des installations souterraines (ISO/DIS 15236-3:2025)

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53.040.20	Deli za transporterje	Components for conveyors

oSIST prEN ISO 15236-3:2025 **en,fr,de**

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ISO/DIS 15236-3

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

ICS: 53.040.20

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Foreword

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The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular, the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

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For an explanation of the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT), see www.iso.org/iso/foreword.html.

This document was prepared by Technical Committee ISO/TC 41 *Pulleys and belts (including veebelts)*, Subcommittee SC 3, *Conveyor belts,* in collaboration with the European Committee for Standardization (CEN) Technical Committee CEN/TC 188, Conveyor Belts, in accordance with the Agreement on technical cooperation between ISO and CEN (Vienna Agreement).

This third edition cancels and replaces the second edition (ISO 15236-3:2017), which has been technically revised.

The main changes are as follows:

— 6.1 Remove Table 2 “The selection of preferred belt types” , renumber all tables;

— 7.5 Remove column of Grade V from the original Table 6, which has now been renumbered as Table 5.;

A list of all parts in the ISO 15236 series can be found on the ISO website.

Any feedback or questions on this document should be directed to the user’s national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.

Steel cord conveyor belts —

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

1 Scope

This document 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 document are intended for use underground, in coal mines and in other applications where fire and explosion hazards exist.

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

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition indicated 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 2062, *Textiles — Yarns from packages — Determination of single-end breaking force and elongation at break using constant rate of extension (CRE) tester*

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

ISO 7590, *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*

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.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

— IEC Electropedia: available at https://www.electropedia.org/

— ISO Online browsing platform: available at https://www.iso.org/obp

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

Note 1 to entry: See Figure 1.

3.2
Breaker
transverse reinforcement in the conveyor belt, typically of a textile material, inserted both above and below or either above or below the steel cords at a distance of at least 1 mm and considered to be part of the cover

Note 1 to entry: See Figure 2.

[SOURCE: ISO 7590:2018, 3.1]

3.3
Weft
transverse component of a protective reinforcement of either steel or textile cords, typically inserted both above and below, or either above or below, the steel cords at a distance of less than 1 mm and considered to be part of the belt carcass

Note 1 to entry: See Figure 3.

[SOURCE: ISO 7590:2018, 3.2]

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 weft and layer of longitudinal cords	mm

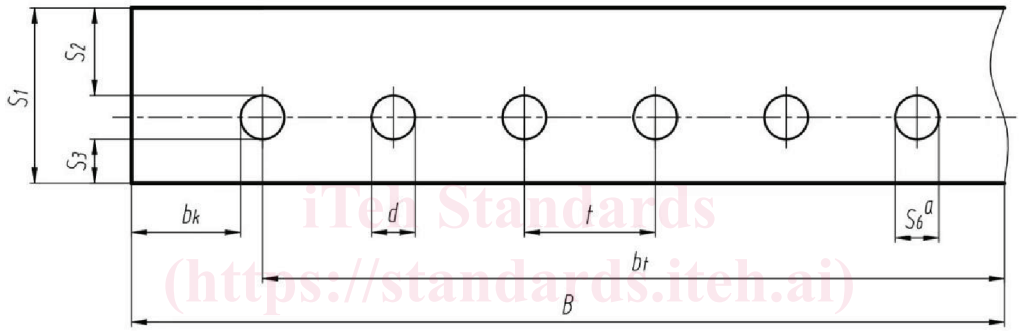
Table 1 *(continued)*

Symbol	Explanation	Unit
s_6	Thickness of belt core	mm
t	Cord spacing/pitch	mm
Δh_1	Number of cords positioned within a range of $h_m \leq 1$ 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 document 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).

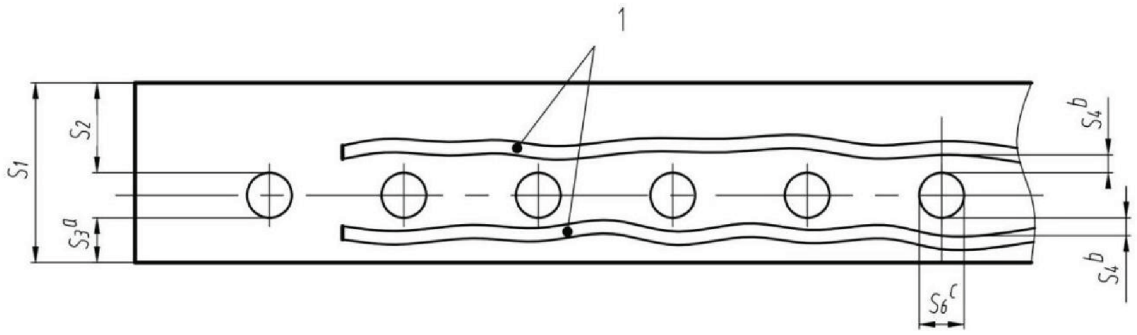


[a] $s_6 = d$

Figure 1 — Cross section of standard belt

5.2 Conveyor belting having transverse reinforcements

Requirements for steel cord conveyor belts having breakers as definition of 3.2 are illustrated in Figure 2, and requirements relating to weft as definition of 3.3 are illustrated in Figure 3.



Key

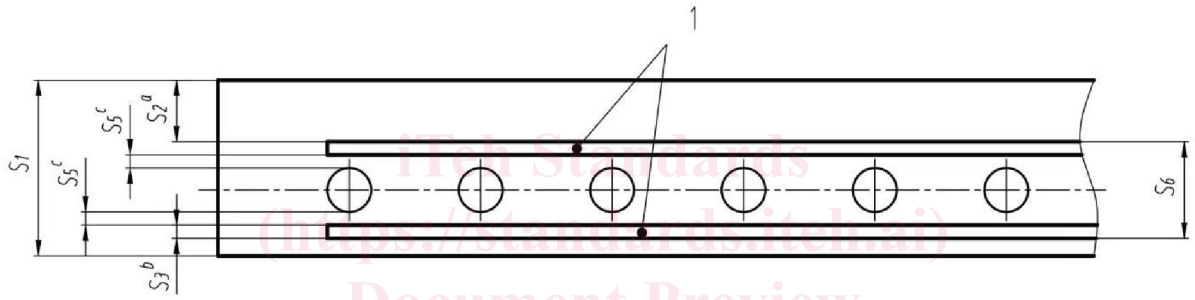
1 breaker

[a] Including the breaker.

[b] ≥1 mm.

[c] s_6 = d.

Figure 2 — Belt cross section with breaker



Key

1 weft

[a] Above weft.

[b] Below weft.

[c] <1 mm.

Figure 3 — Belt cross section with weft

5.3 Belt core

The thickness of the belt core (carcass), s_6, for all belt types is defined as formula 1:

$$s_6 = s_1 - s_2 - s_3 \quad (1)$$

6 Design and construction

6.1 Belt strengths

Steel cord belts shall be manufactured in strengths of between 500 N/mm and 10 000 N/mm belt width.