SIST

SLOVENSKI STANDARD

kSIST FprEN ISO 9856:2016

01-julij-2016

Naprave za kontinuirni transport - Trakovi tračnih transporterjev - Določitev elastičnega in trajnega raztezka ter izračun modula elastičnosti (ISO/FDIS 9856:2016)

Conveyor belts - Determination of elastic and permanent elongation and calculation of elastic modulus (ISO/FDIS 9856:2016)

Fördergurte - Bestimmung der elastischen und dauerhaften Dehnung und Berechnung des Elastizitätsmoduls (ISO/FDIS 9856:2016)

Courroies transporteuses - Détermination de l'allongement élastique et permanent et calcul du module d'élasticité (ISO/FDIS 9856:2016)

Ta slovenski standard je istoveten z: **FprEN ISO 9856**

ICS:

53.040.20 Deli za transporterje Components for conveyors

kSIST FprEN ISO 9856:2016 **en,fr,de**

FINAL
DRAFT

INTERNATIONAL
STANDARD

**ISO/FDIS
9856**

ISO/TC **41**/SC **3**

Secretariat: JISC

Voting begins
on: **2016-06-10**

Voting terminates
on: **2016-09-02**

Conveyor belts — Determination of elastic and permanent elongation and calculation of elastic modulus

Courroies transporteuses — Détermination de l'allongement élastique et permanent et calcul du module d'élasticité

Please see the administrative notes on page ii

Reference number
ISO/FDIS 9856:2016(E)

ISO/CEN PARALLEL PROCESSING

This final draft has been developed within the International Organization for Standardization (ISO), and processed under the **ISO-lead** mode of collaboration as defined in the Vienna Agreement. The final draft was established on the basis of comments received during a parallel enquiry on the draft.

This final draft is hereby submitted to the ISO member bodies and to the CEN member bodies for a parallel twelve-week approval vote in ISO and formal vote in CEN.

Positive votes shall not be accompanied by comments.

Negative votes shall be accompanied by the relevant technical reasons.

ISO copyright office
Ch. de Blandonnet 8 • CP 401
CH-1214 Vernier, Geneva, Switzerland
Tel. +41 22 749 01 11
Fax +41 22 749 09 47
copyright@iso.org
www.iso.org

Contents

Page

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.

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).

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. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see www.iso.org/patents).

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

For an explanation on 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 the following URL: www.iso.org/iso/foreword.html.

The committee responsible for this document is ISO/TC 41 *Pulleys and belts (including veebelts)*, Subcommittee SC 3, *Conveyor belts*.

This third edition cancels and replaces the second edition (ISO 9856:2003), of which it constitutes a minor revision. It also incorporates the Amendment ISO 9856:2003/Amd 1:2012.

The normative references have been updated.

Introduction

This International Standard is used in a number of situations where the permanent elongation of the conveyor belt after mechanical conditioning is of some practical relevance and in particular in the implementation of ISO 3870 and the application of ISO 5293.

Conveyor belts — Determination of elastic and permanent elongation and calculation of elastic modulus

1 Scope

This International Standard specifies a method for determining the elastic and permanent elongation of a conveyor belt and the calculation of the elastic modulus.

It is not applicable or valid for light conveyor belts as described in ISO 21183-1.

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 282, *Conveyor belts — Sampling*

ISO 7500-1, *Metallic materials — Calibration and verification of static uniaxial testing machines — Part 1: Tension/compression testing machines — Calibration and verification of the force-measuring system*

ISO 18573, *Conveyor belts — Test atmospheres and conditioning periods*

3 Terms and definitions

For the purposes of this document, 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

Note 1 to entry: It is expressed in newtons per millimetre.

Note 2 to entry: See ISO 283 for tensile test.

3.2
nominal tensile strength
T
specified minimum value of the *tensile strength* (3.1)

Note 1 to entry: It is expressed in newtons per millimetre.

3.3
upper reference force
F_U
force equivalent to 10 % of T (3.2)

Note 1 to entry: It is expressed in newtons per millimetre.

3.4
lower reference force
F_L
force equivalent to 2 % of T (3.2)

Note 1 to entry: It is expressed in newtons per millimetre.

3.5
specific force range factor
ΔF
specific force range applied during the test, i.e. the *upper reference force* (3.3) minus the *lower reference force* (3.4)

$$\Delta F = F_U - F_L$$

Note 1 to entry: It is expressed in newtons per millimetre.

3.6
permanent elongation
Δl_p
non-recoverable change in length of the test piece after defined loading cycles

Note 1 to entry: It is expressed in millimetres.

3.7
elastic elongation
Δl_e
recoverable change in length of the test piece after defined loading cycles

Note 1 to entry: It is expressed in millimetres.

Note 2 to entry: The recovery from extension may be instantaneous or time-dependent, or a combination of both.

3.8
reference length
l_0
initial length of the test piece

Note 1 to entry: It is expressed in millimetres.

3.9
permanent strain
ε_{perm}
permanent elongation, Δl_p, (3.6) expressed as a percentage of the *reference length*, l_0 (3.8)

Note 1 to entry: This term is often referred to as "permanent stretch" in conveyor belt technology.

3.10
elastic strain
ε_{elast}
elastic elongation, Δl_e, (3.7) expressed as a percentage of the *reference length*, l_0 (3.8)

Note 1 to entry: This term is often referred to as "elastic stretch" in conveyor belt technology.

3.11
elastic modulus
M
ΔF (3.5) divided by the fractional *elastic elongation* (3.7) at the end of the specified number of cycles

Note 1 to entry: It is expressed in newtons per millimetre.

Note 2 to entry: This definition of the term deviates from that normally used in engineering, in which the modulus is expressed in units of stress (i.e. a force per unit of cross-section) and is represented by the symbol E.

4 Principle

A test piece, cut from the full thickness of the conveyor belt in the longitudinal direction, is subjected to a force that varies sinusoidally between defined limits. After 200 cycles, the amount of permanent