

**SLOVENSKI STANDARD**  
**oSIST prEN 12882:2014**  
**01-januar-2014**

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**Naprave za kontinuirni transport - Trakovi tračnih transporterjev za splošne namene - Električne in požarnovarnostne zahteve**

Conveyor belts for general purpose use - Electrical and flammability safety requirements

Fördergurte für allgemeine Anwendung - Elektrische und brandtechnische Sicherheitsanforderungen

Courroies transporteuses à usage général - Prescriptions de sécurité électrique et protection contre l'inflammabilité

**Ta slovenski standard je istoveten z: prEN 12882**

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**ICS:**

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|-----------|--|--|
| 13.220.40 | Sposobnost vžiga in obnašanje materialov in proizvodov pri gorenju | Ignitability and burning behaviour of materials and products |
| 53.040.20 | Deli za transporterje  | Components for conveyors                                     |

**oSIST prEN 12882:2014**

**en,fr,de**



EUROPEAN STANDARD  
NORME EUROPÉENNE  
EUROPÄISCHE NORM

**DRAFT**  
**prEN 12882**

October 2013

ICS 53.040.20

Will supersede EN 12882:2008

English Version

## Conveyor belts for general purpose use - Electrical and flammability safety requirements

Courroies transporteuses à usage général - Prescriptions de sécurité électrique et protection contre l'inflammabilité

Fördergurte für allgemeine Anwendung - Elektrische und brandtechnische Sicherheitsanforderungen

This draft European Standard is submitted to CEN members for enquiry. It has been drawn up by the Technical Committee CEN/TC 188.

If this draft becomes a European Standard, CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration.

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Recipients of this draft are invited to submit, with their comments, notification of any relevant patent rights of which they are aware and to provide supporting documentation.

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

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SIST EN 12882:2015

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## Foreword

This document (prEN 12882:2013) has been prepared by Technical Committee CEN/TC 188 “Conveyor belts”, the secretariat of which is held by SNV.

This document is currently submitted to the CEN Enquiry.

This document will supersede EN 12881:2008.

This document has been prepared under a mandate given to CEN by the European Commission and the European Free Trade Association, and supports essential requirements of EC Directive(s).

For relationship with EC Directive(s), see informative Annex ZA, which is an integral part of this document.

The main changes with respect to the previous edition are listed below:

- Electrical conductivity test requirements for light conveyor belts have been removed from all categories
- The requirement for flame retardation testing has been added to category 4A, 4B, 5A, 5B and 5C
- Alternative fire simulation tests have been added to category 4A, 4B, 5A, 5B and 5C

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## Introduction

This document is a type C standard as stated in EN ISO 12100.

The machinery concerned and the extent to which hazards, hazardous situations and events are covered are indicated in the scope of this document.

When provisions of this type C standard are different from those which are stated in type A or B standards, the provisions of this type C standard take precedence over the provisions of the other standards, for machines that have been designed and built according to the provisions of this type C standard.

During the preparation of this European Standard, the hazards which have been identified as being directly related to the use of conveyor belts are:

- a) hazards associated with the discharge of static electrical energy;
- b) hazards associated with the impingement of small naked flames on the cover and/or carcass of a conveyor belt at rest;
- c) hazards caused by the stalling of a conveyor belt and the continued operation of the driving mechanism causing localized heating of the conveyor belt through contact with the driving drum or cylinder or some other source of frictional heat;
- d) hazards caused by the propagation of a flame along a belt which has been exposed to a relatively high energy source such as a fire.

The risk, or probable rate of occurrence of these hazards and the degree of harm they can cause will vary depending upon the particular circumstances of the application or site of application, which are many and varied. Consequently the level of safety required will vary from one application to another, depending upon the risks judged to be pertinent. The hazards listed above should not be taken as the only properties affecting safety in operation. Other aspects such as health or environmental requirements should be considered. Depending on the individual end use requirement, these other factors can affect the category of belt selected and additional safety precautions may need to be employed.

This European Standard is therefore designed to enable the user to select the category of conveyor belt most suited to the particular circumstances of the application.

## 1 Scope

This European Standard specifies electrical and flammability safety requirements for general purpose conveyor belts not intended for use in underground installations and a means of categorizing conveyor belts in terms of the level of safety sought in their end use application. This European Standard does not provide electrical safety requirements for volume resistance which may be measured by the methods in EN ISO 21178 and which is relevant to some types of light conveyor belts.

This European Standard is not applicable to conveyor belts which are manufactured before the date of publication of this document by CEN.

NOTE 1 Directive 94/9/EC concerning equipment and protective systems intended for use in potentially explosive atmospheres can be applicable to the type of machine or equipment covered by this European Standard. The present standard is not intended to provide means of complying with the essential health and safety requirements of Directive 94/9/EC, this being covered in EN 14973.

NOTE 2 EN 12882 is not a product standard but is intended to help users of conveyor belts to select the required electrical and flammability safety properties needed following a suitable risk assessment. No requirements are, therefore, included for marking, information to be supplied, etc., these matters being covered in relevant product standards such as EN ISO 14890 and EN ISO 15236-1.

## 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.

EN 619, *Continuous handling equipment and systems – Safety and EMC requirements for equipment for mechanical handling of unit loads*

EN 620, *Continuous handling equipment and systems – Safety and EMC requirements for fixed belt conveyors for bulk materials*

EN 1554, *Conveyor belts – Drum friction testing*

EN 12881-1, *Conveyor belts – Fire simulation flammability testing – Part 1: Propane burner tests*

EN ISO 284, *Conveyor belts – Electrical conductivity – Specification and test method (ISO 284)*

EN ISO 340, *Conveyor belts – Laboratory scale flammability characteristics – Requirements and test method (ISO 340)*

EN ISO 12100, *Safety of machinery – Basic concepts, general principles for design – Part 2: Technical principles (ISO 12100)*

## 3 Terms and definitions

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

### 3.1

#### **afterflame**

flame which persists after the ignition source has been removed

**prEN 12882:2013 (E)****3.2****afterglow**

persistence of glowing, after cessation of flaming or, if no flaming occurs, after the ignition source has been removed

**3.3****flame**, noun

zone of combustion in the gaseous phase usually with emission of light

**3.4****flame**, verb

to undergo combustion in the gaseous phase with emission of light

**3.5****glowing**

made luminous by heat, (without flame)

**3.6****undamaged**

part remaining of a conveyor belt after the termination of the propane gallery fire test described in accordance with EN 12881-1 and which shows no evidence of embrittlement, cracking, blistering or other blemishes not originally present

**4 Safety requirements****4.1 Electrical conductivity**

**4.1.1** When tested in accordance with EN ISO 284, all general purpose conveyor belts shall have an electrical surface resistance not greater than 300 MΩ.

**4.2 Flame retardation**

**4.2.1** Conveyor belts in category 2A, or 3A, (see Clause 5 and Table 1), when tested in accordance with EN ISO 340 with covers intact, shall have an aggregate of the times for duration of afterflame for all six tests of less than 45 s and no individual result shall be greater than 15 s.

**4.2.2** Conveyor belts in category 2B, 3B, 4A, 4B, 5A, 5B and 5C (see Clause 5 and Table 1), when tested in accordance with EN ISO 340 with covers intact and also with covers removed, shall have an aggregate of the times for duration of afterflame for each group of six tests, (i.e. six tests with covers intact and six tests with covers removed) of less than 45 s and no individual result shall be greater than 15 s.

**4.3 Fire simulation**

Conveyor belts in categories 4A and 4B, 5A, 5B and 5C (see Clause 5 and Table 1), when tested in accordance with Method A of EN 12881-1, shall retain a length of undamaged conveyor belt of not less than 100 mm across the whole width of the conveyor belt after the end of the test.

Or when tested in accordance with Method C of EN 12881-1 but with an ignition time of 15 minutes, shall retain a length of undamaged conveyor belt of not less than 600 mm across the whole width of the conveyor belt after the end of the test or the maximum average temperature rise shall not exceed 140°C and the length of the test piece that remains undamaged shall not be less than 50 mm across the whole width of the conveyor belt.

Or when tested in accordance with Method D of EN 12881-1, shall retain a length of undamaged conveyor belt of not less than 400 mm across the whole width of the conveyor belt (for belting to be supplied at up to



1200mm in width) and shall retain a length of undamaged conveyor belt of not less than 600 mm across the whole width of the conveyor belt (for belting to be supplied over 1200mm in width).

#### 4.4 Drum friction

**4.4.1** Conveyor belts in categories 3A, 3B and 4B (see Clause 5 and Table 1), when tested in accordance with Method B1 of EN 1554 (constant load of 343 N), shall exhibit no flame whatsoever throughout the test, which shall continue for 60 min duration, or until the belt breaks, whichever is the shorter time.

**4.4.2** Conveyor belts in category 5A (see Clause 5 and Table 1), when tested in accordance with Method B2 of EN 1554, shall exhibit no flame whatsoever throughout the test, which shall continue for 150 min duration, or until the belt breaks, whichever is the shorter time.

**4.4.3** Conveyor belts in category 5B (see Clause 5 and Table 1), when tested in accordance with Method B2 of EN 1554, shall exhibit no flame or glowing whatsoever throughout the test, which shall continue for 150 min duration, or until the belt breaks, whichever is the shorter time.

**4.4.4** Conveyor belts in category 5C (see Clause 5 and Table 1), when tested in accordance with Method B2 of EN 1554, shall exhibit no flame or glowing whatsoever throughout the test, which shall continue for 150 min duration, or until the belt breaks, whichever is the shorter time, and at no time during the test shall the drum temperature exceed 400 °C.

### 5 Safety categories

NOTE A summarized tabular presentation of the requirements in Clause 4 and Clause 5 is given in Table 1.

#### 5.1 Category 1

A conveyor belt shall be designated only as a category 1 conveyor belt if it complies with the requirements in 4.1.

#### 5.2 Category 2A

A conveyor belt shall be designated as a category 2A conveyor belt only if it complies with the requirements of 4.1 and 4.2.1.

#### 5.3 Category 2B

A conveyor belt shall be designated as a category 2B conveyor belt only if it complies with the requirements of 4.1 and 4.2.2.

#### 5.4 Category 3A

A conveyor belt shall be designated as a category 3A conveyor belt only if it complies with the requirements of 4.1, 4.2.1 and 4.4.1.

If it is not possible to conduct the test specified in 4.4.1, due to the constructional properties of the type of belt selected for safety category 3A, additional safety precautions shall be employed complying with EN ISO 12100, EN 619 or EN 620.

In such event, the conveyor belt shall be described as a category 2A belt.

**prEN 12882:2013 (E)****5.5 Category 3B**

A conveyor belt shall be designated as a category 3B conveyor belt only if it complies with the requirements of 4.1, 4.2.2 and 4.4.1.

If it is not possible to conduct the test specified in 4.4.1 (drum friction test), due to the constructional properties of the type of belt selected for safety category 3B, additional safety precautions shall be employed complying with EN ISO 12100, EN 619 or EN 620.

In such event, the conveyor belt shall be described as a category 2B belt.

**5.6 Category 4A**

A conveyor belt shall be designated as a category 4A conveyor belt only if it complies with the requirements of 4.1, 4.2.2 and 4.3.

**5.7 Category 4B**

A conveyor belt shall be designated as a category 4B conveyor belt only if it complies with the requirements of 4.1, 4.2.2, 4.3 and 4.4.1.

If it is not possible to conduct the test specified in 4.4.1, due to the constructional properties of the type of belt selected for safety category 4B, additional safety precautions shall be employed complying with EN ISO 12100, EN 619 or EN 620.

In such event the conveyor belt shall be described as a category 4A belt.

**5.8 Category 5A**

A conveyor belt shall be designated as a category 5A conveyor belt only if it complies with the requirements of 4.1, 4.2.2, 4.3 and 4.4.2.

If it is not possible to conduct the test specified in 4.4.2, due to the constructional properties of the type of belt selected for safety category 5A, additional safety precautions shall be employed complying with EN ISO 12100, EN 619 or EN 620.

In such event the conveyor belt shall be described as a category 4A belt.

**5.9 Category 5B**

A conveyor belt shall be designated as a category 5B conveyor belt only if it complies with the requirements of 4.1, 4.2.2, 4.3 and 4.4.3.

If it is not possible to conduct the test specified in 4.4.3 (drum friction test), due to the constructional properties of the type of belt selected for the safety category 5B, additional safety precautions shall be employed complying with EN ISO 12100, EN 619 or EN 620.

In such event, the conveyor belt shall be described as a category 4A belt.

**5.10 Category 5C**

A conveyor belt shall be designated as a category 5C conveyor belt only if it complies with the requirements of 4.1, 4.2.2, 4.3 and 4.4.4.

If it is not possible to conduct the test specified in 4.4.4 (drum friction test), due to the constructional properties of the type of belt selected for safety category 5C, additional safety precautions shall be employed complying with EN ISO 12100, EN 619 or EN 620.