



**International  
Standard**

**ISO 21182**

**Light conveyor belts —  
Determination of the coefficient of  
friction**

*Courroies transporteuses légères — Détermination du coefficient  
de frottement*

**Third edition  
2025-11**

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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.

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](http://www.iso.org/directives)).

ISO draws attention to the possibility that the implementation of this document may involve the use of (a) patent(s). ISO takes no position concerning the evidence, validity or applicability of any claimed patent rights in respect thereof. As of the date of publication of this document, ISO had not received notice of (a) patent(s) which may be required to implement this document. However, implementers are cautioned that this may not represent the latest information, which may be obtained from the patent database available at [www.iso.org/patents](http://www.iso.org/patents). ISO shall not be held responsible for identifying any or all such patent rights.

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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](http://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 21182:2013), which has been technically revised.

The main changes are as follows:

- addition of test room condition in [7.1](#).

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](http://www.iso.org/members.html).

## Introduction

The coefficient of friction of light conveyor belts must be seen from two different aspects relevant to the choice of the reference material. One aspect is the friction of the underside of the belt. In practice, this is not critical because it is low. Regardless of whether a table of steel or of wood is used, the coefficient of friction is within the range from 0,2 to 0,3 in most cases.

Contrary to this, the top face covers show values over an extended range dependent on their actual function. To achieve this function, the material itself can be modified as well as the surface pattern but the test procedure is the same in every case. So, it becomes clear that the chosen steel panel represents a compromise. Its main properties are reproducibility of the surface finish and uncritical friction behaviour against any kind of belt cover.

This document allows comparison of all kinds of conveyor belt to obtain reliable results as a reference. This can be helpful to buyers who need guidance in choosing the right belt for their particular application.

Tests in accordance with this document are limited to dynamic coefficients of friction ( $\mu_D$ ) up to 1,0 and static coefficients of friction ( $\mu_S$ ) up to 1,5. Higher values can show a mixture of friction, adhesion, deformation and other effects occurring, especially where the surface texture is coarse and is therefore unsuitable for this test.

The method using the standardized metallic test panel is intended especially to compare the coefficients of friction of different light conveyor belts. The values received under practice conditions always depend on the frictional partners.

To determine these effects, it is possible to choose a different frictional partner instead of the panel if required. This is covered in [Clause 9](#).



# Light conveyor belts — Determination of the coefficient of friction

## 1 Scope

This document specifies test methods for determining the dynamic and static coefficients of friction for light conveyor belts according to ISO 21183-1.

## 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 cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 3574, *Cold-reduced carbon steel sheet of commercial and drawing qualities*

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*

ISO 21920-2, *Geometrical product specifications (GPS) — Surface texture: Profile — Part 2: Terms, definitions and surface texture parameters*

## 3 Terms and definitions

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

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

- ISO Online browsing platform: available at <https://www.iso.org/obp>
- IEC Electropedia: available at <https://www.electropedia.org/>

### 3.1 dynamic coefficient of friction

$\mu_D$   
coefficient expressed by

$$\mu_D = \frac{F_D}{F_N}$$

where

$F_D$  is the dynamic frictional force, sliding friction, and  
 $F_N$  is the normal force