INTERNATIONAL STANDARD

ISO
21182

Light conveyor belts — Determination of the coefficient of friction

Courroies transporteuses légères — Détermination du coefficient de frottement

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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 21182 was prepared by Technical Committee ISO/TC 41, *Pulleys and belts (including veebelts)*, Subcommittee SC 3, *Conveyor belts*.

This International Standard is based on EN 1724:1998, prepared by CEN/TC 188.

This second edition cancels and replaces the first edition (ISO 21182:2005), of which it constitutes a minor revision.

Introduction

The coefficient of friction of light conveyor belts has to 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 International Standard 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.

The tests in accordance with this International Standard are limited to dynamic coefficients of friction (μ_D) up to 1,0 and static coefficients of friction (μ_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 mentioned in the test report.

Light conveyor belts — Determination of the coefficient of friction

1 Scope

This International Standard 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 , 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 3574, *Cold-reduced carbon steel sheet of commercial and drawing qualities*

ISO 4287, *Geometrical Product Specifications (GPS) — Surface texture: Profile method — Terms, definitions and surface texture parameters*

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

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

ISO 21183-1, *Light conveyor belts — Part 1: Principal characteristics and applications*

3 Terms and definitions

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

3.1
dynamic coefficient of friction
μ_D
coefficient expressed by

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

where

$\quad F_D$ is the dynamic frictional force, sliding friction;

$\quad F_N$ is the normal force.

3.2
static coefficient of friction
μ_S
coefficient expressed by

$$\mu_S = \frac{F_S}{F_N}$$

where