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Light conveyor belts —

Part 1: Principal characteristics and applications

Courroies transporteuses légères —

Partie 1: Caractéristiques et applications principales

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Foreword

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ISO 21183-1 was prepared by Technical Committee ISO/TC 41, *Pulleys and belts (including veebelts)*, Subcommittee SC 3, *Conveyor belts*.

This part of ISO 21183 is based on EN 873:1996, prepared by CEN/TC 188.

ISO 21183 consists of the following parts, under the general title *Light conveyor belts*:

— *Part 1: Principal characteristics and applications*

— *Part 2: List of equivalent terms*

Light conveyor belts —

Part 1:
Principal characteristics and applications

1 Scope

This part of ISO 21183 describes the principal characteristics and applications of light conveyor belts. This description is necessary either for limiting the validity of certain standards to light conveyor belts or for excluding light conveyor belts from the validity of certain standards.

2 Description

2.1 Applications

2.1.1 General applications

Light conveyor belts are predominantly used for the indoor transport of unit loads (for example, parcels, boxes, cans, containers, luggage, industrial goods of all kinds and foodstuffs).

In many cases, light conveyor belts are incorporated into a machine as an integral machine element. They are then called machine belts (also known as machine tapes). In that function, they perform either just as a conveying element that additionally participates in a manufacturing action or in a manufacturing process. In such applications, machine belts sometimes get special names.

EXAMPLE 1 Machines using machine belts with a pure conveying function: paper processing machinery (printing, cutting, etc.), letter sorting/cancelling machines, ticket vending/defacing automats, packaging machines.

EXAMPLE 2 Machines using machine belts participating in a manufacturing action or in a manufacturing process: newspaper folding machines, processing machinery for dough, chocolate and sweets, special processing machines for paper and plastic foil, cigarette manufacturing machines.

EXAMPLE 3 Machine belts with special names:

— folder-gluer belts, tube-winder belts, printing blankets;

— processing belts in drying, coating, particle board manufacturing and other uses.

2.1.2 Other applications

Bulk foods conveying with light conveyor belts can be found in the chemical, pharmaceutical, cosmetic, food, agricultural, wood and tobacco industry. However they are almost always in indoor applications or outdoors under cover.

EXAMPLE Granular or powdered materials, corn, rice, fruits, vegetables, wood chips, tobacco.

Outdoor applications of light conveyor belts are seldom encountered but are increasing — for example, agricultural equipment, particularly some harvesting machines.

2.2 Construction

The tensile strength of light conveyor belts is normally provided by mainly synthetic fabric plies (polyamide, polyester, etc.) connected with each other either by bonding agents or by means of intermediate layers of different thickness, usually of thermoplastic material.

The covers on both sides are function-related in material, thickness and texture. All combinations are possible, from no coating via thin impregnation to thick coating and from ultra smooth to very rough surface. Coating materials may be thermoplasts (PVC, TPU, etc.), cross-linked synthetics (rubbers, PUR, etc.) and many others, all in very different hardness and other varieties of formulation.

Highly specialized constructions are found with machine belts — very elastic belts, monolithic foils, surfaces with very high or low friction characteristics, etc.

2.3 Dimensions

Light conveyor belts are almost exclusively manufactured in large widths (up to a few metres) and then are cut to any required dimension. The dimensions of light conveyor belts are not standardized. Standardization would not be suitable as the light conveyor belts are predominantly used on non-standardized installations.

The overall thicknesses vary from a few tenths of a millimetre to several millimetres, depending on the specific application (e.g. 10 mm or more in the case of light conveyor belts for the paper processing industry).

The widths vary from about 10 mm (machine belts) to a few metres (processing belts).

The lengths vary from about 500 mm to about 100 m.

2.4 Properties

The ultimate tensile strengths vary from less than 100 N/mm of belt width to several hundred newtons per millimetre of belt width (e.g. to about 1 000 N/mm of belt width in highly specialized belt constructions with aramid fabrics).

The maximum admissible working load is about 1/10 of the ultimate tensile strength.

As mentioned in 2.2, the properties vary within a broad range and are function-related and, in the case of many types, are designed to meet highly specific application demands.

EXAMPLE 1 Special light conveyor belts for the electronics industry have highly conductive covers with very small electric surface resistances and produce no measurable electric field strength when running. These light conveyor belts are highly antistatic.

EXAMPLE 2 Normal light conveyor belt covers are mostly insulators which usually generate high electric field strengths. Nevertheless, with some belts, no significant electric field strength is produced when the belt is running because of an electrically conductive layer inside the belt. These belts are antistatic in the sense of light conveyor belt technology.

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