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Conveyor belts — Characteristics of covers — Classification

*Courroies transporteuses — Caractéristiques des revêtements —
Classification*



Reference number
ISO 10247:1990(E)

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.

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.

International Standard ISO 10247 was prepared by Technical Committee ISO/TC 41, *Pulleys and belts (including veebelts)*.

Annex A of this International Standard is for information only.

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International Organization for Standardization
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Conveyor belts — Characteristics of covers — Classification

1 Scope

This International Standard establishes the classification of covers for general purpose conveyor belts with textile or metal carcasses, for the purposes of giving general guidance for applications. This classification specifies the essential combinations of principal characteristics of belt covers and states the corresponding methods of determination.

NOTE 1 It does not, however, infer any systematic relationship between the test results and the performance of the belt when in service.

2 Normative references

The following standards contain provisions which, through reference in this text, constitute provisions of this part of ISO 10247. At the time of publication, the editions indicated were valid. All standards are subject to revision, and parties to agreements based on this part of ISO 10247 are encouraged to investigate the possibility of applying the most recent editions of the standards indicated below. Members of IEC and ISO maintain registers of currently valid International Standards.

ISO 37:—¹⁾, *Rubber, vulcanized or thermoplastic — Determination of tensile stress-strain properties.*

ISO 188:1982, *Rubber, vulcanized — Accelerated ageing or heat-resistance tests.*

ISO 4649:1985, *Rubber — Determination of abrasion resistance using a rotating cylindrical drum device.*

3 Definitions

For the purposes of this International Standard, the following definitions apply.

3.1 category H (severe cut and gouge service): Covers having the characteristics required for con-

veyor belts assigned to the conveyance of sharp and abrasive materials causing severe wear to the belt, such as metallic ores (as mined), limestone (as quarried), granite (as quarried), quartz, blast-furnace clinker and slag, crushed metallic ores, sandstone (as quarried), stone chippings, slate, coke (cold), broken glass and gravel.

3.2 category D (severe abrasion service): Covers having the characteristics required for conveyor belts assigned to the conveyance of very abrasive materials defined by experience in each case.

3.3 category L (moderate service): Covers having the characteristics required for conveyor belts assigned to the conveyance of: moderately abrasive materials such as rubble, sand (sharp), superphosphate (lump and powder), bone, coal (surface), ashes, unslaked lime and cement (from oven); slightly abrasive materials, non-abrasive and dry materials such as sand (smooth), cement (ground), clay, slaked lime, charcoal, grain, vegetables, fruit, flour, dry powder (inert), wood chips and pulp (dry).

NOTE 2 The above description of types of service conditions is not exhaustive, but serves as an illustration of the variety and types of conveyed materials for which each category of cover is suited.

NOTE 3 Bulk materials are described by the classification and symbolization given in ISO 3435, which gives an accurate description of the material to be handled

- for category H, the majority of the material will be in lump form II, of cohesion 6 and with properties of material o;
- for category D, the majority of the material will be in lump form I or II, of cohesion 4 or 5 and with properties of material o;
- for category L, the majority of the material will be in lump form I, IV, V or VI, of cohesion 3, 4 or 5 and with properties of material n to x, except for o.

1) To be published. (Revision of ISO 37:1977)

4 Classification

Three categories of characteristics of belt covers intended for different service conditions are defined.

The characteristics shall be in accordance with the indications given in table 1.

5 Test methods

5.1 Tensile strength and elongation at break

5.1.1 Test pieces

Dumb-bell-shaped test pieces of shape and dimensions complying with type 1 of ISO 37, taken and conditioned in accordance with ISO 37.

5.1.2 Apparatus

In accordance with ISO 37.

5.1.3 Procedure

In accordance with ISO 37.

5.1.4 Expression of results

In accordance with ISO 37.

5.2 Abrasion resistance

5.2.1 Test pieces

Cylindrical test pieces of shape and dimensions complying with the indications given in ISO 4649:1985, 6.1, taken, prepared and conditioned in accordance with the requirements of ISO 4649:1985, 6.1, 6.3 and 6.4.

5.2.2 Apparatus

In accordance with ISO 4649:1985, figure 1, with a stationary test piece holder, and with the requirements given in ISO 4649:1985, 5.1.

5.2.3 Procedure

In accordance with ISO 4649:1985, clause 8 (stationary test piece).

5.2.4 Expression of results

In accordance with ISO 4649:1985, 9.1.

Table 1 — Classification of conveyor belt covers

Characteristic		Category						Test method
		H		D		L		
		Initial state	Accelerated ageing ¹⁾ Maximum reduction of initial measured value %	Initial state	Accelerated ageing ¹⁾ Maximum reduction of initial measured value %	Initial state	Accelerated ageing ¹⁾ Maximum reduction of initial measured value %	
Tensile strength	min.	24 MPa	25	18 MPa	25	15 MPa	25	ISO 37
Elongation at break	min.	450 %	25	400 %	25	350 %	25	ISO 37
Abrasion resistance (loss in relative volume)	max.	120 mm ³	—	100 mm ³	—	200 mm ³	—	ISO 4649

1) In accordance with ISO 188. Duration and temperature of test, 7 days at 70 °C.

6 Test report

The test report shall include the following information:

- a) reference to this International Standard;
- b) identification of the belt tested;
- c) the results obtained for each specification;
- d) date of the test;
- e) indication of the category of the cover;
- f) any details not specified in the International Standards to which reference is made, as well as any incidents likely to have affected the results.

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Annex A
(informative)

Bibliography

- [1] ISO 3435:1977, *Continuous mechanical handling equipment — Classification and symbolization of bulk materials*.

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