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Light conveyor belts — Tolerances on widths and lengths of cut light conveyor belts

Courroies transporteuses légères — Tolérances sur largeurs et longueurs des courroies transporteuses légères à bords tranchés

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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 15147 was prepared by Technical Committee ISO/TC 41, *Pulleys and belts (including veebelts)*, Subcommittee SC 3, *Conveyor belts*.

This second edition cancels and replaces the first edition (ISO 15147:1999), which has been technically revised.

Light conveyor belts — Tolerances on widths and lengths of cut light conveyor belts

1 Scope

This International Standard specifies methods for the measurement of widths and lengths of cut light conveyor belts as described in ISO 21183-1 and specifies the tolerances on the dimensions.

NOTE The widths and lengths of light conveyor belts are not standardized.

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable to 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 21183-1, *Light conveyor belts — Part 1: Principal characteristics and applications*

3 Widths

When measured in accordance with 5.1, the difference between the measured width and the specified cut width shall not vary by more than the tolerance specified in Table 1.

It is recommended that actual cut widths of belt be specified in incremental steps of 50 mm for cut widths up to 1 m, and in incremental steps of 100 mm for cut widths over 1 m.

Table 1 — Tolerances on cut widths of light conveyor belts

Width mm		For belts containing materials with low moisture absorption (e.g. polyester)	For belts with higher moisture absorption (e.g. cotton or polyamide)
over	up to and including		
-	200	± 1 mm	± 2 mm
200	600	± 2 mm	± 3 mm
600	1 000	± 4 mm	± 5 mm
1 000	2 000	± 6 mm	± 6 mm
2 000	4 000	± 7 mm	± 0,3 % of width
4 000	-	± 8 mm	± 0,3 % of width

4 Lengths

4.1 Endless belts and open-ended belts with ends prepared for splicing

When measured in accordance with 5.2, the difference between the measured endless length and the specified endless length shall not vary by more than the tolerance specified in Table 2.

Table 2 — Tolerances on lengths of endless belts and of open-ended belts with ends prepared for splicing

Length m		Tolerance
over	up to and including	
-	2	±10 mm
2	7	±20 mm
7	-	± 0,3 %

4.2 Open-ended belts with ends not prepared for splicing (slab belting)

When measured in accordance with 5.3, the difference between the measured length and the manufacturer's stated length shall not vary by more than $^{+2,5\%}_{0}$.

5 Methods of measurement and verification of dimensions

5.1 Determination of the cut width

5.1.1 The measurements in 5.2 or 5.3 may be taken at the same time as the measurements in 5.1.

5.1.2 Unroll the conveyor belt on a flat hard surface free from tension.

5.1.3 Measure at three equidistant locations, throughout the length of the belt and at right angles to the cut edges, the width of the conveyor belt to the nearest 0,5 mm, using a suitable linear measure (e.g. a steel tape).

5.2 Determination of the length of an endless light conveyor belt

5.2.1 Lay the conveyor belt flat, and free from tension.

5.2.2 Mark the inside edge of the belt with an appropriate marker to indicate the point at which measurements begin (points A, B, C, D, etc., the last point being point X).

Using a steel tape measure, make individual measurements along the flat part of the belt only (see Figure 1).

Rotate the belt and make consecutive measurements along the flat part of the belt ($\overline{BC}$; $\overline{CD}$; etc.) (see Figure 1), continuing until the last measurement can be taken, e.g. $\overline{XA}$.

5.2.3 Calculate the endless length, l_e, of the belt as the sum of all the individual measurements minus the product of π and the belt thickness,

i.e. [$\overline{AB}$ + $\overline{BC}$ + $\overline{CD}$ ..+.. $\overline{XA}$ ..] − [πa]

where a is the belt thickness.

The calculation with the subtraction sum [πa] is strictly correct only for conveyor belts with a symmetrical construction, i.e. with the neutral line in the belt middle. It is in most cases sufficiently exact also for conveyor belts with an asymmetrical construction. However, short or thick conveyor belts with asymmetrical constructions may need a more precise calculation. The subtraction sum then becomes 2[πa_i] where a_i is the distance between the neutral line and the inner belt surface (running surface). The value of a_i sshall be enquired of the belt manufacturer.

(For symmetrical belt constructions, $a_i = \frac{a}{2}$ and 2 [πa_i] becomes πa.)

This value is the internal endless length of the belt.

In cases where the method of measurement described above is not applicable, e.g. when the endless belt is very short, another suitable method of measurement should be agreed between the belt user and supplier.

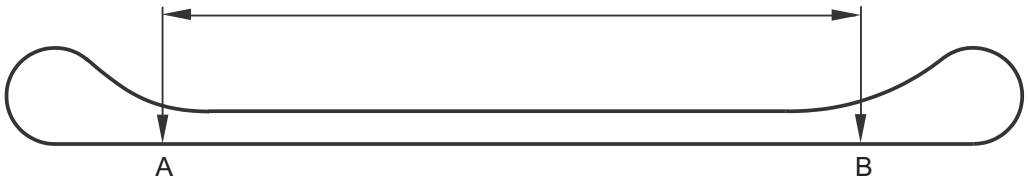

Figure 1 — Measurement of the length of an endless light conveyor belt

5.3 Determination of the length of an open-ended light conveyor belt and of slab belting

Determine the length of an open-ended light conveyor belt and of slab belting by employing any suitable mechanical, electromechanical or photoelectric means of linear measurement which does not exert any tension in to the conveyor belt and which is accurate to $^{+1\%}_{0}$ of the recorded or designated length.

With the end of the roll coinciding with the zero mark on the measuring surface, unroll the conveyor belt along the surface in such a manner that no tension is introduced. On reaching the limit of the surface, mark the roll by some suitable method on both edges to coincide with a known division of length. Re-roll the portion that has been measured. Lay out, free from tension, a further portion of the unmeasured length and measure from the marked edges as before. Repeat this process until the end of the roll appears. Measure the final length and record the overall length as the sum of the individual measurements taken.

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