
International Standard



8094

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Steel cord conveyor belts — Adhesion strength test of the cover to the core layer

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Descriptors : conveyor belts, tests, adhesion tests, determination, adhesive strength.

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.

Draft International Standards adopted by the technical committees are circulated to the member bodies for approval before their acceptance as International Standards by the ISO Council. They are approved in accordance with ISO procedures requiring at least 75 % approval by the member bodies voting.

International Standard ISO 8094 was prepared by Technical Committee ISO/TC 41, *Pulleys and belts (including veebelts)*.

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Steel cord conveyor belts — Adhesion strength test of the cover to the core layer

1 Scope and field of application

This International Standard specifies a test method for determining the adhesion strength of the cover to the core layer.

It applies exclusively to steel cord conveyor belts.

2 References

ISO 36, *Rubber, vulcanized — Determination of adhesion strength to textile fabric.*¹⁾

ISO 471, *Rubber — Standard temperatures, humidities and times for the conditioning and testing of test pieces.*

ISO 6133, *Rubber and plastics — Analysis of multi-peak traces obtained in determinations of tear strength and adhesion strength.*

3 Test principle

Measurement of the force required to separate the covers from the core layer by stripping.

4 Apparatus

Tensile test machine with jaws, in accordance with the equipment described in ISO 36.

5 Specimens

Take six specimens with the following dimensions :

- a) Belts without weft, with or without textile reinforcement

length (in the longitudinal direction of the belt) :
150 mm min.

width : 25 mm min. and containing at least two steel cords

thickness : full thickness of the belt

- b) Belts with metallic weft

length (in the direction of the cord layer) : 150 mm min.

width : $25 \pm 0,5$ mm

thickness : full thickness of the belt

Cut the specimens parallel to the axis of the belt or transversally as the case may be and at least 50 mm from the belt edge.

Using a knife, cut the cover rubber on either side of the specimen along the upper and lower edges of the cords along a length sufficient for a safe grip in the jaws of the test machine.

6 Procedure

6.1 Carry out the test in accordance with ISO 36, at least five days after manufacture of the belt.

Unless otherwise specified, and so indicated in the test report, carry out the test at 23 ± 2 °C and 50 ± 5 % relative humidity.

6.2 From the first three specimens, fix the top cover in one jaw of the test machine, and the core layer including the cords (without the bottom cover) in the other jaw.

6.3 Start the test machine, with the gap widening speed of the jaws maintained constant at 100 ± 10 mm/min.

6.4 Record a graphical plot of the force.

6.5 From the remaining three specimens, fix the bottom cover in one jaw, and the core layer including the cords in the other jaw, and repeat the test in accordance with 6.3 and 6.4.

6.6 Carry out three tests.

6.7 If the adhesion strength of the cover to the core layer is greater than the tear strength of the core layer, the maximum force obtained is recorded together with the mode of failure.

1) At present at the stage of draft. (Revision of ISO/R 36-1969.)

7 Expression of results

7.1 From the recordings of the separating force variations, determine the median force \tilde{F} in accordance with ISO 6133.

7.2 For each test the adhesion strength T of the cover to the core layer, in newtons per millimetre, is calculated by the formula :

$$T = \frac{\tilde{F}}{b}$$

where b is the width of the specimen expressed in millimetres.

7.3 Calculate separately the mean for the top and the bottom cover by the formula :

$$\bar{T} = \frac{T_1 + T_2 + T_3}{3}$$

7.4 Round off single values T and mean values \bar{T} to 0,1 N/mm.

8 Test report

The test report shall include the following information :

- a) a reference to this International Standard;
- b) the identification of the belt tested;
- c) the width of the specimens;
- d) the adhesion strengths of the top cover and the bottom cover respectively to the core layer in accordance with clause 7;
- e) any operating details not specified in this International Standard or considered as optional, together with any events which are likely to have influenced the results.

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