
INTERNATIONAL STANDARD



284

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Conveyor belts — Electrical conductivity — Specification and method of test

Courroies transporteuses — Conductibilité électrique — Spécification et méthode d'essai

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Descriptors : belts, conveyor belts, tests, electric testing, electrical conductivity, electrical resistance.

FOREWORD

ISO (the International Organization for Standardization) is a worldwide federation of national standards institutes (ISO Member Bodies). The work of developing International Standards is carried out through ISO Technical Committees. Every Member Body interested in a subject for which a Technical Committee has been set up 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.

Prior to 1972, the results of the work of the Technical Committees were published as ISO Recommendations; these documents are now in the process of being transformed into International Standards. As part of this process, Technical Committee ISO/TC 41 has reviewed ISO Recommendation R 284, and found it technically suitable for transformation. International Standard ISO 284 therefore replaces ISO Recommendation R 284-1962 to which it is technically identical.

ISO Recommendation R 284 was approved by the Member Bodies of the following countries :

Australia	Germany	South Africa, Rep. of
Austria	Greece	Spain
Belgium	India	Sweden
Brazil	Iran	Turkey
Chile	Israel	United Kingdom
Colombia	Italy	U.S.A.
Czechoslovakia	Mexico	U.S.S.R.
Denmark	New Zealand	Yugoslavia
France	Portugal	

No Member Body expressed disapproval of the Recommendation.

No Member Body disapproved the transformation of ISO/R 284 into an International Standard.

Conveyor belts — Electrical conductivity — Specification and method of test

1 SCOPE AND FIELD OF APPLICATION

This International Standard specifies the maximum electrical resistance of a conveyor belt and the corresponding method of measurement.

The test is intended to ensure that the belt is sufficiently conductive to drain off charges of electricity which may form on it in service.

2 SPECIFICATION

The electrical resistance shall not exceed $3 \times 10^8 \Omega$ (300 M Ω).

3 METHOD OF TEST

3.1 Principle

An electrical current of specified voltage is passed via electrodes through a suitably prepared test piece taken from the belt.

3.2 Apparatus

The apparatus shall consist of the following items :

3.2.1 Sheet of insulating material, a little larger than the test piece.

3.2.2 Two cylindrical and coaxial brass electrodes, the base of one being circular and the other annular. The dimensions and masses are given in figure 2. The bases of these electrodes shall be machined flat and polished. A flexible insulated wire shall be connected to each electrode.

3.2.3 Resistance-measuring instrument capable of giving readings between 10^5 and $10^{10} \Omega$ to within $\pm 5\%$.

3.2.4 Source of direct current, of voltage between 40 and 1 000 V, and not causing an energy dissipation of more than 1 W in the test piece.

3.3 Test pieces

3.3.1 Shape and dimensions

The test piece shall be square and shall be cut from the complete thickness of the belt, including covers.

Length of side : 300 mm (12 in) minimum.

Thickness : the thickness of the belt.

3.3.2 Number

Two test pieces shall be used.

3.3.3 Preparation

The preparation of the test piece consists in the following :

3.3.3.1 Clean both surfaces of the test piece by rubbing with fuller's earth, for example, using a clean cloth. After cleaning away all traces of the powder, wipe the surface with a clean cloth moistened with distilled water and then dry with a clean cloth.

3.3.3.2 Paint on one of the surfaces of the test piece, using a solution of polyethylene glycol (or other conducting liquid having at least the same electrical conductivity), two areas, as shown in figure 1, which correspond to the dimensions of the bases of the electrodes.

Great care shall be taken to ensure the accuracy of the dimensions of the areas, but the symmetry of the centre is not critical.

3.3.3.3 Make up the solution as follows :

800 parts, by mass, of anhydrous polyethylene glycol of molecular mass 600;

200 parts, by mass, of water;

one part, by mass, of soft soap.

3.3.4 Conditioning

Immediately before the test, the test piece shall be conditioned for at least 2 h at a temperature of $20 \pm 2^\circ\text{C}$ and at a relative humidity of $65 \pm 5\%$.