INTERNATIONAL STANDARD

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Belt drives — Electrical conductivity of antistatic endless synchronous belts — Characteristics and test method

Transmissions par courroies — Conductibilité électrique des courroies synchrones sans fin, anti-électrostatiques — Spécification et méthode d'essai

Reference number
ISO 9563:1990(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 9563 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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Belt drives — Electrical conductivity of antistatic endless synchronous belts — Characteristics and test method

1 Scope

This International Standard specifies the maximum electrical resistance of antistatic endless synchronous belts and a corresponding laboratory method of measurement.

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

The application of this International Standard is limited to cases of dispute about new belts intended for use in an explosive atmosphere, in situations where there is a fire risk, or wherever a static discharge cannot be permitted.

The decision is left to national standards or to agreement between interested parties as to whether the test should be carried out on each belt in a batch or on only a percentage of the batch.

2 Electrical resistance — Specification

2.1 General

In general, the resistance of new antistatic belts should not exceed the maximum value as calculated in 2.2 , although certain combinations of application and materials may permit higher values.

2.2 Resistance value

The electrical resistance, in ohms, of a belt measured in accordance with clause 4 should not exceed

$$\frac{6 \times 10^5 L}{w}$$

where

L is dry distance (measured in a straight line between the electrodes; see 4.2 and figure 1);

w is the width of the belt.

(L and w are expressed in the same units.)

The resistance value relates to belts when new, i.e. to their initial resistance, and should be determined at a temperature of 23 °C ± 2 °C and a relative humidity of (50 ± 5) %.

2.3 Minimum value of electrical resistance

A minimum value of electrical resistance should be considered to avoid the dangers of excessive conductivity (possible ignition of the belt and transmission of electric current). The manufacturer shall be consulted.

NOTES

1 Compliance with calculated maximum resistance values can be proved at other allowable testing temperatures and humidities. As some materials are sensitive to moisture, great care should be taken to avoid breathing on the samples prior to and during resistance tests.

2 Marking on belts needs to be indelible and clearly visible but of the smallest practicable area to avoid introducing unnecessary insulating materials. The position of the marking should be such that it will not materially affect the electrical resistance of the discharge path across the belt surface.

3 Selection and preparation of belts for test

3.1 A belt shall be selected at least 16 h prior to testing.

3.2 Whenever possible, the time between manufacture and testing should not exceed 3 months. In other cases, tests should be made within 2 months of receipt of the belt by the customer.