



SLOVENSKI STANDARD
oSIST prEN ISO 20238:2017
01-junij-2017

Naprave za kontinuirni transport - Trakovi tračnih transporterjev - Preskušanje trenja na pogonskem bobnu (ISO/DIS 20238:2017)

Conveyor belts - Drum friction testing (ISO/DIS 20238:2017)

Fördergurte - Prüfung der Trommelreibung (ISO/DIS 20238:2017)

Courroies transporteuses - Essais de frottement au tambour (ISO/DIS 20238:2017)

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Conveyor belts — Drum friction testing

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ISO copyright office
Ch. de Blandonnet 8 • CP 401
CH-1214 Vernier, Geneva, Switzerland
Tel. +41 22 749 01 11
Fax +41 22 749 09 47
copyright@iso.org
www.iso.org

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Foreword

This document (ISO/DIS 20238:2017) has been prepared by Technical Committee ISO/TC 41/SC 3 “Conveyor belts”, the secretariat of which is held by JISC.

This document is a draft international standard.

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Introduction

The purpose of this International Standard is to provide a method of test that will assist conveyor belt users in assessing the degree of risk which can be anticipated from the hazard caused when a conveyor belt stalls and the drive mechanism of the conveyor system continues to operate, causing localized heating of the conveyor belt through contact with the driving drum or other frictional heat source.

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Conveyor belts — Drum friction testing

1 Scope

This International Standard describes a method of test to determine the propensity of a conveyor belt to generate heat flame or glow when held stationary, under a given tension, in surface contact around a rotating driven steel drum.

Means of varying the conveyor belt tension are described.

NOTE For conveyor belts containing steel reinforcement, it may not be possible to conduct this test in full due to the inability of the conveyor belt to comply with the requirements of 6.2. In this case premature termination according to 6.3 may be necessary.

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

EN 60584-1 (IEC 60584-1), *Thermocouples — Part 1: Reference tables*

ISO 65:1981, *Carbon steel tubes suitable for screwing in accordance with ISO 7-1*

ISO 9328-1, *Seamless steel tubes for pressure purposes — Technical delivery conditions — Part 1: Unalloyed steels with specified room temperature properties*

ISO 9330-1, *Welded steel tubes for pressure purposes — Technical delivery conditions — Part 1: Unalloyed steel tubes with specified room temperature properties*

ISO 7590, *Steel cord conveyor belts — Methods for the determination of total thickness and cover thickness*

3 Principle

A test piece of conveyor belt, suitably mounted and tensioned, is wrapped half way around a rotating steel drum, simulating a stalled belt. The test is continued at specified tensions for a given time period, or until the belt parts (breaks). The presence, or absence, of flame or glow is noted and reported and the maximum temperature of the drum is recorded. The test is conducted in still air or/and in moving air.

4 Apparatus

4.1 Steel drum

A steel drum of external diameter (210 ± 1) mm mounted on a horizontal axis and capable of being rotated under all load conditions at (200 ± 5) rpm throughout the test. The outer shell of the drum shall be manufactured from tube complying with ISO 9329-1 or ISO 9330-1.

NOTE Experience has shown that motors of between 7,5 kW and 15 kW have proven suitable for maintaining these conditions, although for smaller motors a 'soft start' may be necessary.

Basic dimensions of the drum, shown in Figure 3, are given in order to standardize its thermal characteristics. The variation in diameter along the length of the drum shall not exceed 1 mm.

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Notwithstanding the dimensions and tolerances on the drum diameter and shell thickness shown in [Figure 3](#), the effect of wear down to a minimum shell thickness of 6 mm is permissible, but the overall diameter of the drum shall not thereby become less than 209 mm.

4.2 Drum temperature recording device

A mineral-insulated stainless steel sheathed thermocouple having a maximum outside diameter of 2 mm and complying with EN 60584-1 should be used to determine the drum temperature. The tip of the thermocouple shall be set not more than 0,5 mm below the surface of the drum, midway along its length.

NOTE 1 More than one thermocouple may be fitted in order to provide back-up in the event of failure.

NOTE 2 Take care to see that the effective 'cold junction' temperature is compensated for or, alternatively, is measured and the appropriate correction made.

NOTE 3 The functioning of the rotating contacts should be checked periodically by observing that there is no change in the recorded temperature when the apparatus is run without a test piece.

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