

**Konveierilindid. Trumli hõõrdejõu teimimine**

**Conveyor belts - Drum friction testing**

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English Version

## Conveyor belts - Drum friction testing

Courroies transporteuses - Essais de frottement au  
tambour

Fördergurte - Prüfung der Trommelreibung

This European Standard was approved by CEN on 4 May 2012.

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## Foreword

This document (EN 1554:2012) has been prepared by Technical Committee CEN/TC 188 “Conveyor belts”, the secretariat of which is held by SNV.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by December 2012, and conflicting national standards shall be withdrawn at the latest by December 2012.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN [and/or CENELEC] shall not be held responsible for identifying any or all such patent rights.

This document supersedes EN 1554:1998.

This document has been prepared under a mandate given to CEN by the European Commission and the European Free Trade Association, and supports essential requirements of EU Directive.

For relationship with EU Directive, see informative Annex ZA, which is an integral part of this document.

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

## Introduction

The purpose of this European 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 driving mechanism of the conveying system continues to operate, causing localized heating of the conveyor belt through contact with the driving drum or other frictional heat source.

For recommendations concerning safety categories of conveyor belts, reference should be made to EN 12882 and EN 14973.

This document is a type C standard as stated in EN ISO 12100:2010.

## 1 Scope

This European 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 belt tension are described.

**NOTE** For certain belt types, due to their construction, it may not be possible to conduct this test due to the inability of the belt to comply with the requirements of 6.2.3.

## 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 10083-1:2006, *Steels for quenching and tempering — Part 1: General technical delivery conditions*

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

EN ISO 13850, *Safety of machinery — Emergency stop — Principles for design (ISO 13850)*

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

ISO 9329-1, *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 temperatures properties*

## 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 breaks. The presence, or absence, of flame or glow is noted and reported and the maximum temperature of the drive drum is recorded. The test is conducted in still air or/and in moving air.

## 4 Apparatus

A general arrangement of a drum friction testing apparatus is shown in Figure 1.

**4.1 Steel drum** of external diameter  $(210 \pm 1)$  mm mounted on a horizontal axis and capable of being rotated under all load conditions at  $(200 \pm 5)$  rpm throughout the test. The outer shell of the drum is manufactured from tube complying with ISO 9329-1 or ISO 9330-1. The drum shaft material is of grade 2 C 22 of EN 10083-1:2006.

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

Basic dimensions of the drum, shown in Figure 2, are given in order to standardize its thermal characteristics. The variation in diameter along the length of the drum shall not exceed 1 mm.