BRITISH STANDARD

BS EN
12881-2:2005
+A1:2008

Conveyor belts — Fire simulation flammability testing —

Part 2: Large scale fire test

ICS 13.220.40; 53.040.20

Confirmed
December 2009

BSI
British Standards

National foreword

This British Standard is the UK implementation of EN 12881-2:2005+A1:2008. It supersedes BS EN 12881-2:2005 which is withdrawn.

The start and finish of text introduced or altered by amendment is indicated in the text by tags. Tags indicating changes to CEN text carry the number of the CEN amendment. For example, text altered by CEN amendment A1 is indicated by ⟨A1⟩ ⟨A1⟩.

The UK participation in its preparation was entrusted to Technical Committee PRI/67, Conveyor belts.

A list of organizations represented on this committee can be obtained on request to its secretary.

This publication does not purport to include all the necessary provisions of a contract. Users are responsible for its correct application.

Compliance with a British Standard cannot confer immunity from legal obligations.

This British Standard was published under the authority of the Standards Policy and Strategy Committee on 22 February 2006

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EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN 12881-2:2005+A1

April 2008

ICS 13.220.40; 53.040.20

Supersedes EN 12881-2:2005

English Version

Conveyor belts - Fire simulation flammability testing - Part 2: Large scale fire test

Courroies transporteuses - Essais de simulation d'inflammation - Partie 2: Essai au feu à grande échelle

Fördergurte - Brandtechnische Prüfungen - Teil 2: Brandstreckenprüfung

This European Standard was approved by CEN on 21 March 2005 and includes Amendment 1 approved by CEN on 21 February 2008.

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EUROPÄISCHES KOMITEE FÜR NORMUNG

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Ref. No. EN 12881-2:2005+A1:2008: E

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Foreword

This document (EN 12881-2:2005+A1:2008) has been prepared by Technical Committee CEN/TC 188 “Conveyor belts”, the secretariat of which is held by BSI.

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of an identical text or by endorsement, at the latest by October 2008, and conflicting national standards shall be withdrawn at the latest by October 2008.

This document supersedes EN 12881-2:2005.

This document includes Amendment 1, approved by CEN on 2008-02-21.

The start and finish of text introduced or altered by amendment is indicated in the text by tags [A1] [A1].

This European Standard 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(s).

[A1] For relationship with EU Directives, see informative Annexes ZA and ZB, which are integral parts of this document. [A1]

The other part of EN 12281 is:

[A1] EN 12881-1+A1:2008 [A1], *Conveyor belts – Fire simulation flammability testing – Part 1: Propane burner tests*

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, 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 and the United Kingdom.

Introduction

The method of test described in this part of EN 12881 is intended to provide an indication of the reaction of a conveyor belt when exposed to a large fire. The fire being simulated is one not caused by a local heat source but by materials around the conveyor belt which catch fire following exposure to other heat sources. Attention is drawn to the fact that in assessing the overall flammability characteristics of conveyor belting for specific installations, it is not sufficient to rely solely on any single method of test but consideration should also to be given to the individual site location.

1 Scope

This part of EN 12881 describes a method of test for the assessment of fire propagation along a conveyor belt when the belt is exposed to a heat source.

2 Normative references

The following referenced documents are indispensable for the application of this European Standard. 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, *Thermocouples - Part 1: Reference tables (IEC 60584-1:1995)*

ISO 3130, *Wood – Determination of moisture content for physical and mechanical tests*

3 Apparatus

3.1 Fire gallery lined with fire clay bricks having a cross sectional area of 8 m^2 and a length of at least 70 m . The fuel in the fire object area shall be supported by four steel arches 1 m apart (see Figures 1a) and 1b)).

3.2 Trestle for positioning the conveyor belt in the fire gallery during the test. The trestle shall be 18 m long and 1,2 m wide having idlers with a pitch of 1,5 m and a troughing angle of 30°.

3.3 Fire object comprising a) 260 kg of air-dried coniferous wood in the form of round timber, having a diameter of 8 cm to 12 cm and a length of 1,25 m, cut in the longitudinal direction and having moisture content of (10 ± 2) % measured as described in ISO 3130; and

b) 40 kg of smaller wood pieces and wood shavings for ignition

(see Figures 1a) and 1b)).

3.4 Anemometer for measuring the air speed in the fire gallery positioned 10 m in front of the test piece in the direction of the air flow.

3.5 Row of thermocouples, Type K (Ni-Cr/Ni) according to EN 60584-1, positioned in the longitudinal direction above the test piece, a distance of approximately 3 m from each other and 100 mm under the roof of the fire gallery (see Figures 1a) and 1b)).

4 Preparation

4.1 Test piece

The test piece shall be cut 18 m long at full belt width.

4.2 Temperature before the test

The ambient temperature shall be between 5 °C and 30 °C before the test.

4.3 Number of tests

One test shall be carried out.

5 Procedure

WARNING — The tests described in this part of EN 12881 can generate large amounts of smoke and heat. It is therefore essential to conduct the tests with caution, having due regard to health and safety considerations and to terminate any test immediately if at any time it is considered advisable to do so. In this regard it is recommended that no test should be supervised by only one person.

Install the trestle (3.2) centrally along the longitudinal axis of the fire gallery (3.1) at a distance of 25 m from the beginning of the gallery in the direction of the air flow (see Figure 1a).

Place the half round timber between the gallery wall and the steel arch supports equally distributed over the three spaces. In the first two spaces place the 40 kg of wood for ignition on the ground near the wall.

Lay the test piece centrally in the longitudinal direction on the trestle with the bottom cover down such that a 13 m length of the test piece is behind the fire object (3.3) in the direction of the air flow (see Figure 1a)). Fix both ends of the test piece in this position, ensuring that the distance from the lowest point of the test piece to the roof of the gallery is 1,5 m (see Figure 1a)). Position the thermocouples (3.5) in accordance with Figures 1a) and 1b).

Before starting the test, adjust the air flow on the fresh air side to 1,2 m/s. Set the wood on both sides of the gallery on fire and observe the extent of the fire. Measure and record continuously the temperature at the test piece and under the roof, the composition of the gas and the speed of the air flow.

6 Interpretation of results

At the end of the test measure the fire propagation at the test piece from the end of the fire object in the direction of the air flow. The test piece shall have passed the test if the fire has not propagated more than 10 m behind the fire object (see Figure 1a)).

7 Test report

The test report shall include the following particulars:

a) reference to this European Standard, i.e. A1 EN 12881-2:2005+A1:2008 A1;

b) name of institution carrying out the test;

c) name of belt manufacturer;

d) description of the conveyor belt, taken from the product standard or specification;

e) distance that the fire has propagated (see Clause 6);

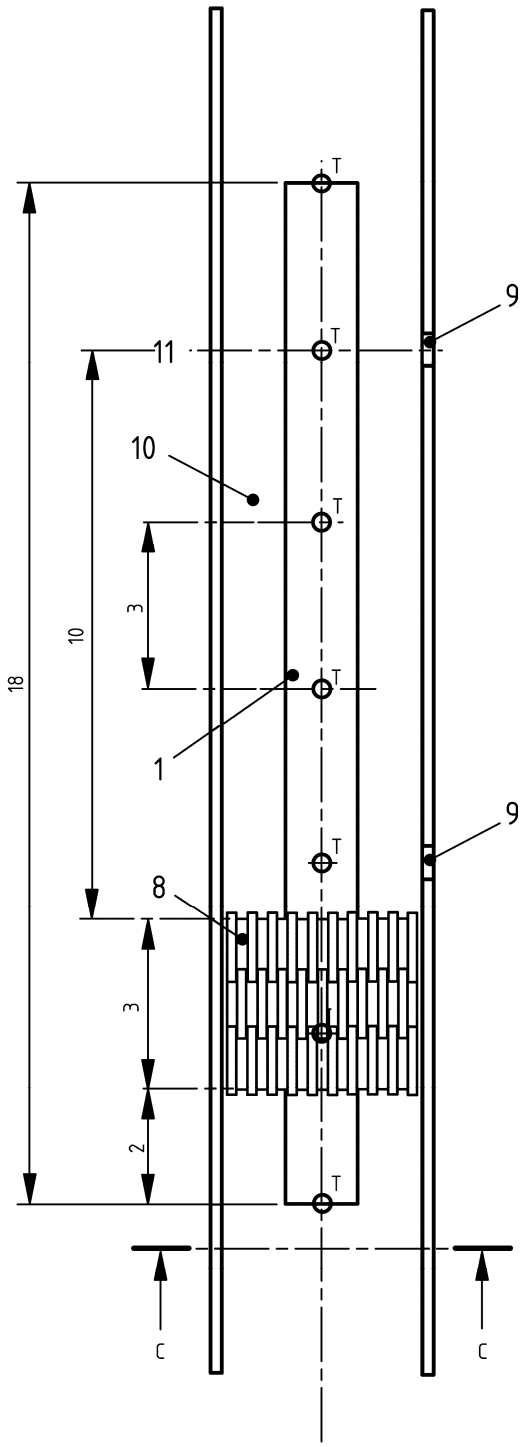
f) date of the test;

g) signature and name of person responsible for the test;

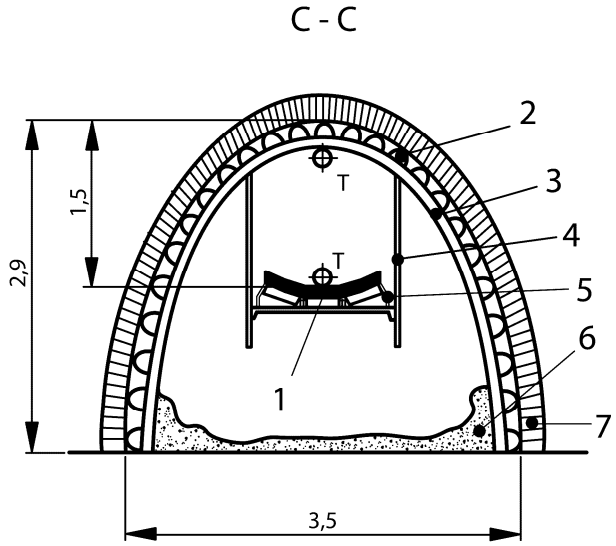
h) any deviation from this standard;

i) the following statement: "The test results relate only to the behaviour of the test pieces of a product under the particular conditions of test; they are not intended to be the sole criterion for assessing the potential fire hazard of the product in use".

Dimensions in metres
Tolerances ± 0,05 m



a) Position of the test piece and fire object



b) Fire gallery cross section

Key
1 Conveyor belt/test piece
2 Timber lining
3 Steel arch support
4 Suspension
5 Trestle
6 Small wood, wood shavings
7 Fire clay bricks
8 Fire object
9 Window
10 Fire gallery
11 Limit for fire propagation
T Thermocouple
Type K (Ni-Cr/Ni) according to EN 60584-1

Figure 1 —Test arrangement

Annex ZA
(informative)

Relationship between this European Standard and the Essential Requirements of EU Directive 98/37/EC

This European Standard has been prepared under a mandate given to CEN by the European Commission and the European Free Trade Association to provide one means of conforming to Essential Requirements of the New Approach Directive for machinery, 98/37/EC, amended by Directive 98/79/EC.

Once this standard is cited in the Official Journal of the European Communities under that Directive and has been implemented as a national standard in at least one Member State, compliance with the normative clauses of this standard confers, within the limits of the scope of this standard, a presumption of conformity with the corresponding Essential Requirement

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of that Directive and associated EFTA regulations.

WARNING — Other requirements and other EU Directives may be applicable to the product(s) falling within the scope of this standard.

Annex ZB
(informative)

A1 Relationship between this European Standard and the Essential Requirements of EU Directive 2006/42/EC

This European Standard has been prepared under a mandate given to CEN by the European Commission and the European Free Trade Association to provide one means of conforming to Essential Requirements of the New Approach Directive for machinery, 2006/42/EC.

Once this standard is cited in the Official Journal of the European Communities under that Directive and has been implemented as a national standard in at least one Member State, compliance with the normative clauses of this standard confers, within the limits of the scope of this standard, a presumption of conformity with Essential Requirements

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of that Directive and associated EFTA regulations.

WARNING — Other requirements and other EU Directives may be applicable to the product(s) falling within the scope of this standard. A1

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