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# International Standard



# 3037

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INTERNATIONAL ORGANIZATION FOR STANDARDIZATION • МЕЖДУНАРОДНАЯ ОРГАНИЗАЦИЯ ПО СТАНДАРТИЗАЦИИ • ORGANISATION INTERNATIONALE DE NORMALISATION

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## ● Corrugated fibreboard — Determination of edgewise crush resistance

*Carton ondulé — Détermination de la résistance à la compression de chant*

Second edition — 1982-12-01

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Descriptors : corrugated cardboards, tests, compression test, crushing strength.

## 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.

International Standard ISO 3037 was developed by Technical Committee ISO/TC 6, *Paper, board and pulps*.

This second edition was submitted directly to the ISO Council, in accordance with clause 6.11.2 of part 1 of the Directives for the technical work of ISO. It cancels and replaces the first edition (i.e. ISO 3037-1979), which had been approved by the member bodies of the following countries :

Belgium	Ireland	Sweden
Bulgaria	Israel	Switzerland
Czechoslovakia	New Zealand	Thailand
Egypt, Arab Rep. of	Norway	Turkey
Finland	Poland	United Kingdom
Germany, F. R.	Romania	USA
Hungary	South Africa, Rep. of	USSR
India	Spain	

The member bodies of the following countries had expressed disapproval of the document on technical grounds :

Canada  
France

# Corrugated fibreboard — Determination of edgewise crush resistance

## 0 Introduction

The method of determining the edgewise crush resistance of corrugated fibreboard on which this International Standard is based has been used in many countries for a number of years. However, different instruments are in use and it would cause inconvenience if certain countries had to make immediate changes in their existing instruments. For this reason, two sizes of test piece are given in this International Standard. It is hoped that, when this International Standard is next reviewed, it will be possible to recommend only one size of test piece.

## 1 Scope

This International Standard specifies a method for the determination of the edgewise crush resistance of corrugated fibreboard.

## 2 Field of application

The method is applicable to single-wall (double-faced), double-wall (double-double-faced), and triple-wall corrugated fibreboard.

## 3 References

ISO 186, *Paper and board — Sampling for testing.*

ISO 187, *Paper and board — Conditioning of samples.*

## 4 Principle

Subjection of a rectangular test piece of the corrugated fibreboard, placed between the platens of a crush tester, with the flutes perpendicular to the platens, to a compressive action until failure occurs.

Measurement of the maximum force sustained by the test piece.

## 5 Apparatus and material

### 5.1 Motor-driven, platen-type, crush tester.

The platens shall be large enough to take a test piece of the selected size (see 7.1) without the test piece projecting beyond the platens<sup>1)</sup>. They shall also meet the following requirements :

- deviation from parallel not greater than 1 : 1 000;
- lateral play not exceeding 0,05 mm.

**5.1.1** If the tester operates with one fixed platen, the other having a direct positive drive, the rate at which the platens approach each other shall be  $12,5 \pm 2,5$  mm/min.

**5.1.2** If the tester operates on the principle of beam deflection, the deflection at the moment of collapse shall be between 20 and 80 % of the maximum range of deflection that can be measured with the apparatus.

The force applied by the platens shall be developed at a rate of either

- 110  $\pm$  23 N/s (preferred)
- or 67  $\pm$  23 N/s

when the platens contact the test piece.

**5.1.3** Testers fitted with digital read-out systems may be used provided that it can be shown that the results obtained are comparable with those obtained using the testers described in 5.1.1 and 5.1.2.

### 5.2 Cutting equipment.

A band-saw or a knife and cutting jig may be used to prepare the test pieces. The equipment shall produce cut edges that are clean, straight, and perpendicular to the facings of the board.

1) The platens may be faced with a very fine emery paper, but where this is done, due regard should be paid to maintaining the faces flat and parallel.