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Paper, board and corrugated fibreboard — Description and calibration of compression-testing equipment

*Papier, carton et carton ondulé — Description et étalonnage du
matériel pour essai de compression*



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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.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see www.iso.org/patents).

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For an explanation on the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the WTO principles in the Technical Barriers to Trade (TBT) see the following URL: [Foreword - Supplementary information](#)

The committee responsible for this document is ISO/TC 6, *Paper, board and pulps*, Subcommittee SC 2, *Test methods and quality specifications for paper and board*.

This second edition cancels and replaces the first edition (ISO 13820:1996), of which it constitutes a minor revision with the following changes:

- [4.1.2](#) has been updated;
- [5.1](#) has been updated.

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Introduction

This International Standard describes the types of testing equipment available for carrying out compression tests on paper, board, and corrugated fibreboard. It describes two distinct types of instrument. The preferred instrument type, known as the fixed-platen compression tester, develops compressive forces at a constant rate of strain. The other, known as the beam-deflection compression tester, develops compressive forces between one platen driven at constant speed and another platen resting on a deformable beam. With this type neither rate of stress nor rate of strain is constant. The two instrument types give similar but not necessarily the same test results when used for compression tests; literature shows that the beam deflection machine produces results higher than those of the fixed-platen machine.^{[1][2][3]} The extent of the difference depends on the test being conducted and on the characteristics, particularly the elastic characteristics, of the material being tested.

The fixed-platen tester is preferred because of its better reliability, its ability to test over the range of test levels likely to be found, and because the characteristics of existing instruments have been well defined and universally accepted. The beam-deflection tester has been inadequately defined in past International Standards for compression tests; among existing instruments there have been different loading rates, different beam stiffnesses, and therefore different rates of strain. Furthermore, in some countries, the stiffness of beams commonly available is such that no one beam is appropriate for all the test levels likely to be found, so that it has been common practice to use two beams of different stiffnesses interchangeably to cover the full range of loads.

It is expected that the beam-deflection-type tester might be less commonly used in the future, and it can be withdrawn from this International Standard at a future revision.

The testing equipment referred to in this International Standard is used for tests described in ISO 3035^[1], ISO 3037^[2], ISO 7263^[3], and ISO 12192^[4].