

This is a preview of "ISO 5628:2019". [Click here to purchase the full version from the ANSI store.](#)

Third edition  
2019-05

---

---

## **Paper and board — Determination of bending stiffness — General principles for two-point, three-point and four-point methods**

*Papier et carton — Détermination de la rigidité à la flexion — Principes généraux pour les méthodes à deux points, à trois points et à quatre points*



Reference number  
ISO 5628:2019(E)

© ISO 2019

This is a preview of "ISO 5628:2019". Click here to purchase the full version from the ANSI store.



**COPYRIGHT PROTECTED DOCUMENT**

© ISO 2019

All rights reserved. Unless otherwise specified, or required in the context of its implementation, no part of this publication may be reproduced or utilized otherwise in any form or by any means, electronic or mechanical, including photocopying, or posting on the internet or an intranet, without prior written permission. Permission can be requested from either ISO at the address below or ISO's member body in the country of the requester.

ISO copyright office  
CP 401 • Ch. de Blandonnet 8  
CH-1214 Vernier, Geneva  
Phone: +41 22 749 01 11  
Fax: +41 22 749 09 47  
Email: [copyright@iso.org](mailto:copyright@iso.org)  
Website: [www.iso.org](http://www.iso.org)

Published in Switzerland

This is a preview of "ISO 5628:2019". [Click here to purchase the full version from the ANSI store.](#)

## Contents

	Page
<b>Foreword</b> .....	<b>iv</b>
<b>Introduction</b> .....	<b>v</b>
<b>1 Scope</b> .....	<b>1</b>
<b>2 Normative references</b> .....	<b>1</b>
<b>3 Terms and definitions</b> .....	<b>1</b>
<b>4 Symbols and units</b> .....	<b>2</b>
<b>5 Theory</b> .....	<b>2</b>
<b>6 Different bending test methods</b> .....	<b>3</b>
6.1 Two-point bending method.....	3
6.2 Three-point bending method.....	4
6.3 Calculation of bending stiffness using the two-point and three-point methods.....	5
6.3.1 Bending stiffness determination.....	5
6.3.2 Geometrical requirement.....	5
6.3.3 Allowable deflections and angles.....	5
6.4 Four-point bending method.....	6
6.4.1 Geometry.....	6
6.4.2 Calculation of bending stiffness.....	7
6.4.3 Measurement conditions.....	7
6.4.4 Geometrical and practical considerations.....	7
<b>7 Apparatus</b> .....	<b>8</b>
<b>8 Sampling and preparation of test pieces</b> .....	<b>8</b>
8.1 Sampling.....	8
8.2 Conditioning.....	8
8.3 Preparation of test pieces.....	8
<b>9 Procedure</b> .....	<b>8</b>
<b>10 Evaluation and calculation</b> .....	<b>9</b>
<b>11 Test report</b> .....	<b>9</b>
<b>Bibliography</b> .....	<b>10</b>

## 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](http://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](http://www.iso.org/patents)).

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

For an explanation of the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT), see [www.iso.org/iso/foreword.html](http://www.iso.org/iso/foreword.html).

This document was prepared by Technical Committee ISO/TC 6, *Paper, board and pulps*, Subcommittee SC 2, *Test methods and quality specifications for paper and board*.

This third edition cancels and replaces the second edition (ISO 5628:2012), of which it constitutes a minor revision. The changes compared to the previous edition are as follows:

- in [6.4.2](#), a Note has been added to clarify the measurement of *F*.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at [www.iso.org/members.html](http://www.iso.org/members.html).

This is a preview of "ISO 5628:2019". [Click here to purchase the full version from the ANSI store.](#)

## Introduction

Bending stiffness is regarded as an important property of paper and board, and a large number of test methods have been used for its determination. This is a result, in part at least, of the wide range in the bending stiffness of paper and board. For paper and board in the grammage range 50 g/m<sup>2</sup> to 500 g/m<sup>2</sup>, bending stiffness might vary by a factor of over 1 000. This wide variation is reflected in the design of instruments intended for the measurement of this property.

A second factor to be taken into account is that, in general terms, bending stiffness (as defined here) can only be determined with accuracy within certain limits with regard to the degree of deformation imposed upon the test piece. These limits depend on the dimensions of the test piece and on the test method used.

This document is intended to enable the bending stiffness (as defined here) to be measured and described in a consistent way, despite the variations in material type and instrument design. It will be found that many commercially available instruments can be regarded as giving results in accordance with this document for only part of the range of bending stiffness, or for only some of the materials for which they were originally designed. It is intended, therefore, that this document will be used as the basis for preparing detailed methods for determining bending stiffness, using particular instruments.