

---

---

**Wood-based panels — Wet-process  
fibreboard —**

**Part 2:  
Requirements**

*Panneaux à base de bois — Panneau de fibres obtenu par procédé  
humide —*

*Partie 2: Spécifications*

STANDARDSISO.COM : Click to view the full PDF of ISO 27769-2:2009



**PDF disclaimer**

This PDF file may contain embedded typefaces. In accordance with Adobe's licensing policy, this file may be printed or viewed but shall not be edited unless the typefaces which are embedded are licensed to and installed on the computer performing the editing. In downloading this file, parties accept therein the responsibility of not infringing Adobe's licensing policy. The ISO Central Secretariat accepts no liability in this area.

Adobe is a trademark of Adobe Systems Incorporated.

Details of the software products used to create this PDF file can be found in the General Info relative to the file; the PDF-creation parameters were optimized for printing. Every care has been taken to ensure that the file is suitable for use by ISO member bodies. In the unlikely event that a problem relating to it is found, please inform the Central Secretariat at the address given below.

STANDARDSISO.COM : Click to view the full PDF of ISO 27769-2:2009



**COPYRIGHT PROTECTED DOCUMENT**

© ISO 2009

All rights reserved. Unless otherwise specified, no part of this publication may be reproduced or utilized in any form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from either ISO at the address below or ISO's member body in the country of the requester.

ISO copyright office  
Case postale 56 • CH-1211 Geneva 20  
Tel. + 41 22 749 01 11  
Fax + 41 22 749 09 47  
E-mail [copyright@iso.org](mailto:copyright@iso.org)  
Web [www.iso.org](http://www.iso.org)

Published in Switzerland

# Contents

Page

Foreword.....	iv
<b>1</b> <b>Scope</b> .....	<b>1</b>
<b>2</b> <b>Normative references</b> .....	<b>1</b>
<b>3</b> <b>Terms and definitions</b> .....	<b>2</b>
<b>4</b> <b>Expression of specification limits and general requirements</b> .....	<b>2</b>
4.1 <b>Expression of specification limits</b> .....	2
4.2 <b>Lower specification limits</b> .....	2
4.3 <b>Upper specification limits</b> .....	2
4.4 <b>Density variation, dimension and moisture content requirements</b> .....	3
<b>5</b> <b>Requirements for softboards</b> .....	<b>3</b>
5.1 <b>Requirements for general purpose softboard for use in dry conditions</b> .....	3
5.2 <b>Requirements for general purpose softboard for use in humid conditions</b> .....	4
5.3 <b>Requirements for general purpose softboard for use in high-humidity conditions</b> .....	4
5.4 <b>Requirements for general purpose softboard for use in exterior conditions</b> .....	4
5.5 <b>Requirements for load-bearing softboard for use in dry conditions</b> .....	5
5.6 <b>Requirements for load-bearing softboard for use in humid conditions</b> .....	5
<b>6</b> <b>Requirements for hardboards</b> .....	<b>5</b>
6.1 <b>Requirements for general purpose hardboard for use in dry conditions</b> .....	5
6.2 <b>Requirements for general purpose hardboard for use in humid conditions</b> .....	6
6.3 <b>Requirements for general purpose hardboard for use in high-humidity conditions</b> .....	6
6.4 <b>Requirements for general purpose hardboard for use in exterior conditions</b> .....	7
6.5 <b>Requirements for load-bearing hardboard for use in dry conditions</b> .....	7
6.6 <b>Requirements for load-bearing hardboard for use in humid conditions</b> .....	8
<b>Annex A</b> (normative) <b>Calculation of 5-percentile and 95-percentile values</b> .....	<b>9</b>
<b>Bibliography</b> .....	<b>11</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.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

The main task of technical committees is to prepare International Standards. Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

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.

ISO 27769-2 was prepared by Technical Committee ISO/TC 89, *Wood-based panels*, Subcommittee SC 1, *Fibre boards*.

ISO 27769 consists of the following parts, under the general title *Wood-based panels — Wet-process fibreboard*:

- *Part 1: Classifications*
- *Part 2: Requirements*

# Wood-based panels — Wet-process fibreboard —

## Part 2: Requirements

### 1 Scope

This part of ISO 27769 specifies the manufacturing property requirements for wet-process fibreboard.

**NOTE** The values listed in this part of ISO 27769 relate to product properties used to classify fibreboards into one of the different types. The values are not characteristic values to be used for design purposes. When fibreboard is classified as load-bearing and nominated for structural applications, characteristic strength and stiffness values are established based upon testing in accordance with ISO 16572 or equivalent ASTM or EN Standards. Alternatively, for specific load-bearing applications (e.g. walls, roofs, floors and I-joist webs), the load-bearing fibreboard would meet the specific performance requirements for that intended application.

### 2 Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 9426, *Wood-based panels — Determination of dimensions of panels*

ISO 9427, *Wood-based panels — Determination of density*

ISO 16978, *Wood-based panels — Determination of modulus of elasticity in bending and of bending strength*

ISO 16979, *Wood-based panels — Determination of moisture content*

ISO 16983, *Wood-based panels — Determination of swelling in thickness after immersion in water*

ISO 16984, *Wood-based panels — Determination of tensile strength perpendicular to the plane of the panel*

ISO 16998, *Wood-based panels — Determination of moisture resistance — Boil test*

ISO 17064, *Wood-based panels — Fibreboard, particleboard and oriented strand board (OSB) — Vocabulary*

ISO 20585, *Wood-based panels — Determination of wet bending strength after immersion in water at 70 °C or 100 °C (boiling temperature)*

ISO 27769-1:—<sup>1)</sup>, *Wood-based panels — Wet-process fibreboard — Part 1: Classifications*

---

1) To be published.

### 3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 17064 and ISO 27769-1 apply.

## 4 Expression of specification limits and general requirements

### 4.1 Expression of specification limits

This part of ISO 27769 may be used to evaluate groups of panels or production batches. To evaluate a group of panels in accordance with this part of ISO 27769 the following shall be required.

- a) The mandatory tests of ISO 27769-1:—, Tables 3 and 4 shall be carried out on samples of the group. The test specimens shall be conditioned as specified in each test method.
- b) The results of the tests shall be evaluated against the appropriate specification limits given in Tables 1 to 13, according to the grade and thickness range of the panels. Table 1 applies to all classes and thickness ranges of panels.

For density variation and dimensions (see Table 1), the specification limits are based on the mean values for individual panels (calculated in accordance with Annex A) and are the maximum tolerances for density variation and dimensions.

The specification limits given in Tables 2 to 13 are based on 5 (lower) or 95 (upper) percentile expressions, according to 4.2 and 4.3.

NOTE This part of ISO 27769 cannot be used to properly evaluate single panels, but can be used as an approximation. The upper or lower specification limits can be taken as maximum or minimum values.

### 4.2 Lower specification limits

The requirements in Tables 2 to 13 are the lower specification limits for the following properties:

- a) bending strength/modulus of rupture (MOR);
- b) modulus of elasticity (MOE);
- c) internal bond;
- d) internal bond after boil test;
- e) wet bending strength (MOR) after immersion in water.

The 5-percentile values based on the mean values for individual panels and calculated in accordance with Annex A shall be equal to or greater than the lower specification limits in Tables 2 to 13.

### 4.3 Upper specification limits

The requirements in Tables 2 to 13 are the upper specification limits for the following properties:

- a) thickness swelling after 2 h (softboards);
- b) thickness swelling after 24 h (hardboards).

The 95-percentile values based on the mean values for individual panels and calculated in accordance with Annex A shall be equal to or less than the upper specification limits in Tables 2 to 13.

#### 4.4 Density variation, dimension and moisture content requirements

At least 95 % of the mean values of the individual panels shall be within the maximum tolerances stated in Table 1.

Table 1 — Requirements for density variation, dimensions and moisture content

Tolerance on nominal dimensions	Test method	Requirement		
Density variation within panel	ISO 9427	± 10 % max from mean		
Length and width	ISO 9426	± 2 mm/m, max ± 5 mm		
Squareness	ISO 9426	≤ 2 mm/m		
Thickness	ISO 9426	Thickness range, nominal (mm)		
Softboard	—	≤ 10	> 10 to 19	> 19
Unsanded board		± 1,0	± 1,2	± 1,8
Hardboard		≤ 3,5	> 3,5 to 5,5	> 5,5
Unsanded board	—	± 0,4	± 0,5	± 0,7
Sanded board		± 0,3	± 0,3	± 0,3
Decorative board		± 0,6	± 0,6	± 0,6
Moisture content (advisory only)	ISO 16979	4 % to 13 %		

## 5 Requirements for softboards

### 5.1 Requirements for general purpose softboard for use in dry conditions

Requirements for SB-GP REG (regular general purpose softboard) are listed in Table 2.

Table 2 — Requirements for SB-GP REG

Dimensions in millimetres

Property	Test method	Unit	Requirement			
			Thickness range nominal			
			≤ 10	> 10 to 19	> 19 to 36	> 36
Bending strength (MOR)	ISO 16978	MPa	0,9	0,8	0,7	0,7
Thickness swelling after 2 h	ISO 16983	%	10	10	10	10

**5.2 Requirements for general purpose softboard for use in humid conditions**

The requirements for SB-GP MR (moisture resistant general purpose softboard) are given in Table 3.

**Table 3 — Requirements for SB-GP MR**

Dimensions in millimetres

Property	Test method	Unit	Requirement			
			Thickness range nominal			
			≤ 10	> 10 to 19	> 19 to 36	> 36
Bending strength (MOR)	ISO 16978	MPa	1,1	1,0	0,8	0,8
Thickness swelling after 2 h	ISO 16983	%	8	8	8	8

**5.3 Requirements for general purpose softboard for use in high-humidity conditions**

The requirements for SB-GP HMR (high moisture resistant general purpose softboard) are given in Table 4.

**Table 4 — Requirements for SB-GP HMR**

Dimensions in millimetres

Property	Test method	Unit	Requirement			
			Thickness range nominal			
			≤ 10	> 10 to 19	> 19 to 36	> 36
Bending strength (MOR)	ISO 16978	MPa	1,2	1,1	0,9	0,8
Thickness swelling after 2 h	ISO 16983	%	7	7	7	7

**5.4 Requirements for general purpose softboard for use in exterior conditions**

The requirements for SB-GP EXT (exterior general purpose softboard) are given in Table 5.

**Table 5 — Requirements for SB-GP EXT**

Dimensions in millimetres

Property	Test method	Unit	Requirement			
			Thickness range nominal			
			≤ 10	> 10 to 19	> 19 to 36	> 36
Bending strength (MOR)	ISO 16978	MPa	1,3	1,2	1,0	0,8
Thickness swelling after 2 h	ISO 16983	%	6	6	6	6

## 5.5 Requirements for load-bearing softboard for use in dry conditions

The requirements for SB-LB REG (regular load-bearing softboard) used for instantaneous or short-term load duration only are given in Table 6.

Table 6 — Requirements for SB-LB REG

Dimensions in millimetres

Property	Test method	Unit	Requirement			
			Thickness range nominal			
			≤ 10	> 10 to 19	> 19 to 36	> 36
Bending strength (MOR)	ISO 16978	MPa	1,2	1,1	1,0	0,8
Modulus of elasticity (MOE)	ISO 16978	MPa	150	140	120	100
Thickness swelling after 2 h	ISO 16983	%	8	8	8	8

## 5.6 Requirements for load-bearing softboard for use in humid conditions

The requirements for SB-LB MR (moisture resistant load-bearing softboard) used for instantaneous or short-term load duration only are given in Table 7.

Table 7 — Requirements for SB-LB MR

Dimensions in millimetres

Property	Test method	Unit	Requirement			
			Thickness range nominal			
			≤ 10	> 10 to 19	> 19 to 36	> 36
Bending strength (MOR)	ISO 16978	MPa	1,3	1,2	1,1	0,9
Modulus of elasticity (MOE)	ISO 16978	MPa	180	170	150	120
Thickness swelling after 2 h	ISO 16983	%	6	6	6	6

## 6 Requirements for hardboards

### 6.1 Requirements for general purpose hardboard for use in dry conditions

The requirements for HB-GP REG (regular general purpose hardboard) are given in Table 8.

Table 8 — Requirements for HB-GP REG

Dimensions in millimetres

Property	Test method	Unit	Requirement		
			Thickness range nominal		
			≤ 3,5	> 3,5 to 5,5	> 5,5
Bending strength (MOR)	ISO 16978	MPa	28	28	25
Internal bond	ISO 16984	MPa	0,45	0,45	0,45
Thickness swelling after 24 h	ISO 16983	%	35	30	25

## 6.2 Requirements for general purpose hardboard for use in humid conditions

The requirements for HB-GP MR (moisture resistant general purpose hardboard) are given in Table 9.

**Table 9 — Requirements for HB-GP MR**

Dimensions in millimetres

Property	Test method	Unit	Requirement		
			Thickness range nominal		
			≤ 3,5	> 3,5 to 5,5	> 5,5
<b>Bending strength (MOR)</b>	ISO 16978	MPa	32	32	30
<b>Internal bond</b>	ISO 16984	MPa	0,55	0,55	0,50
<b>Thickness swelling after 24 h</b>	ISO 16983	%	22	18	15
<b>Moisture resistance</b> Option 1: Internal bond strength after boil test	ISO 16998	MPa	0,25	0,25	0,25

## 6.3 Requirements for general purpose hardboard for use in high-humidity conditions

The requirements for HB-GP HMR (high moisture resistant general purpose hardboard) are given in Table 10.

**Table 10 — Requirements for HB-GP HMR**

Dimensions in millimetres

Property	Test method	Unit	Requirement		
			Thickness range nominal		
			≤ 3,5	> 3,5 to 5,5	> 5,5
<b>Bending strength (MOR)</b>	ISO 16978	MPa	32	32	30
<b>Modulus of elasticity (MOE)</b>	ISO 16978	MPa	2 500	2 500	2 300
<b>Internal bond</b>	ISO 16984	MPa	0,60	0,60	0,50
<b>Thickness swelling after 24 h</b>	ISO 16983	%	17	15	12
<b>Moisture resistance</b> Option 1: Internal bond strength after boil test	ISO 16998	MPa	0,30	0,30	0,30

#### 6.4 Requirements for general purpose hardboard for use in exterior conditions

The requirements for HB-GP EXT (exterior general purpose hardboard) are given in Table 11.

**Table 11 — Requirements for HB-GP EXT**

Dimensions in millimetres

Property	Test method	Unit	Requirement		
			Thickness range nominal		
			≤ 3,5	> 3,5 to 5,5	> 5,5
<b>Bending strength (MOR)</b>	ISO 16978	MPa	40	35	32
<b>Modulus of elasticity (MOE)</b>	ISO 16978	MPa	3 600	3 100	2 900
<b>Internal bond</b>	ISO 16984	MPa	0,70	0,60	0,50
<b>Thickness swelling after 24 h</b>	ISO 16983	%	12	10	8
<b>Moisture resistance</b>					
Option 1: Internal bond strength after boil test	ISO 16998	MPa	0,40	0,35	0,30
Option 2: Bending strength after immersion in water at 70 °C	ISO 20585 Method A	MPa	8	7	6

#### 6.5 Requirements for load-bearing hardboard for use in dry conditions

The requirements for HB-LB REG (regular load-bearing hardboard) are given in Table 12.

**Table 12 — Requirements for HB-LB REG**

Dimensions in millimetres

Property	Test method	Unit	Requirement		
			Thickness range nominal		
			≤ 3,5	> 3,5 to 5,5	> 5,5
<b>Bending strength (MOR)</b>	ISO 16978	MPa	32	32	30
<b>Modulus of elasticity (MOE)</b>	ISO 16978	MPa	2 500	2 500	2 300
<b>Internal bond</b>	ISO 16984	MPa	0,60	0,60	0,60
<b>Thickness swelling after 24 h</b>	ISO 16983	%	35	30	25

**6.6 Requirements for load-bearing hardboard for use in humid conditions**

The requirements for HB-LB MR (moisture resistant load-bearing hardboard) are given in Table 13.

**Table 13 — Requirements for HB-LB MR**

Dimensions in millimetres

Property	Test method	Unit	Requirement		
			Thickness range nominal		
			≤ 3,5	> 3,5 to 5,5	> 5,5
<b>Bending strength (MOR)</b>	ISO 16978	MPa	38	34	32
<b>Modulus of elasticity (MOE)</b>	ISO 16978	MPa	3 700	3 100	2 900
<b>Internal bond</b>	ISO 16984	MPa	0,80	0,70	0,65
<b>Thickness swelling after 24 h</b>	ISO 16983	%	17	15	12
<b>Moisture resistance</b>					
Option 1: Internal bond strength after boil test	ISO 16998	MPa	0,40	0,35	0,32
Option 2: Bending strength after immersion in water at 70 °C	ISO 20585 Method A	MPa	8	7	6

STANDARDSISO.COM : Click to view the full PDF of ISO 27769-2:2009