



International
Standard

ISO 7211-2

**Textiles — Methods for analysis of
woven fabrics construction —**

Part 2:

**Determination of number of threads
per unit length**

Textiles — Méthodes d'analyse de la construction des tissus —

Partie 2: Détermination du nombre de fils par unité de longueur

**Second edition
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Contents

Page

Foreword.....	iv
1 Scope.....	1
2 Normative references.....	1
3 Terms and definitions.....	1
4 Principle.....	1
5 Minimum measuring distance.....	2
6 Conditioning and testing atmosphere.....	2
7 Preparation of test specimens.....	2
8 Method A — Dissection of fabric.....	2
8.1 Apparatus.....	2
8.2 Procedure.....	3
9 Method B — Counting glass.....	3
9.1 Apparatus.....	3
9.2 Procedure.....	3
10 Method C — Traversing thread counter.....	3
10.1 Apparatus.....	3
10.2 Procedure.....	3
11 Calculation and expression of results.....	4
12 Test report.....	4

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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 document 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).

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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.

This document was prepared by Technical Committee ISO/TC 38, *Textiles*, Subcommittee SC 24, *Conditioning atmospheres and physical tests for textile fabrics*, in collaboration with the European Committee for Standardization (CEN) Technical Committee CEN/TC 248, *Textiles and textile products*, in accordance with the Agreement on technical cooperation between ISO and CEN (Vienna Agreement).

This second edition cancels and replaces the first edition (ISO 7211-2:1984), which has been technically revised.

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The main changes are as follows:

- in [Clause 5](#), two columns from the former Table have been deleted;
- in [Clause 12](#), "Test report", mandatory items have been added;
- the Annex has been deleted.

A list of all parts in the ISO 7211 series can be found on the ISO website.

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.

Textiles — Methods for analysis of woven fabrics construction —

Part 2: Determination of number of threads per unit length

1 Scope

This document specifies three methods for the determination of the number of threads per centimetre in woven fabrics. Any of the three methods can be used, the choice depending on the character of the fabric. However, in case of dispute, method A takes precedence.

- Method A: Dissection of fabric, suitable for all fabrics. This is the most laborious method but has fewer limitations than the others; in particular, it is the only one that is really suitable for the examination of certain folded structures and other complicated weaves.
- Method B: Counting glass, suitable for fabrics with more than 50 threads per centimetre.
- Method C: Traversing thread counter, suitable for all fabrics.

Where the number of threads per centimetre is low, it can be convenient to express the results as the number of threads per decimetre.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements 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 139, *Textiles — Standard atmospheres for conditioning and testing*

3 Terms and definitions

No terms and definitions are listed in this document.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

- ISO Online browsing platform: available at <http://www.iso.org/obp>
- IEC Electropedia: available at <http://www.electropedia.org/>

4 Principle

Three methods of determining the number of threads per centimetre are specified, any of which can be used, the choice depending on the character of the fabric. The principles are as follows:

Method A: A section of fabric of dimensions in accordance with those given in [Clause 5](#) is dissected and the number of threads counted. The threads that are to be counted are preferably short, 10 mm or 20 mm being suitable.

Method B: The number of threads visible within the aperture of a specified counting glass is determined.

Method C: The number of threads per centimetre of the fabric is determined with the aid of a traversing thread counter.

5 Minimum measuring distance

Use the appropriate minimum measuring distance specified in [Table 1](#).

Table 1 — Minimum measuring distance

Number of threads per centimetre	Minimum measuring distance cm
Less than 10	10
10 to 25	5
25 to 40	3
More than 40	2

For the method A, take test specimens containing at least 100 threads.

For narrow fabrics having a width of 10 cm or less, count all warp threads including the selvedge ends and express the result as threads per full width.

When fabrics are patterned by areas of large differences in the density of thread spacing, select test specimens containing at least one weave repeat (see [Clause 11](#)).

6 Conditioning and testing atmosphere

The atmosphere for conditioning and testing shall be as specified in ISO 139.

7 Preparation of test specimens

No test specimens shall be selected from within 150 mm of either edge of the laboratory sample.

No specially prepared test specimens are required except for method A (see [8.2](#)). Count the threads in at least five different places in the fabric so that they do not contain the same yarns (ends and picks) and represent the fabric as fully as possible. The count of threads is based on the number of the individual threads that are actually present.

Condition the fabric or test specimens in the standard atmosphere (see [Clause 6](#)) for a minimum of 16 h, prior to testing in a tension free state.

8 Method A — Dissection of fabric

8.1 Apparatus

8.1.1 Clamp, holding two short pins parallel and with their points being within $\pm 0,2$ mm of the minimum measuring distance specified in [Clause 5](#).

Alternatively, when a clamp is not available:

8.1.2 Two dissecting needles,

8.1.3 Heavy steel rule, graduated at 0,5 mm,

8.1.4 A pair of pointed forceps.