BRITISH STANDARD

BS EN
14971:2006

Textiles — Knitted fabrics — Determination of number of stitches per unit length and unit area

The European Standard EN 14971:2006 has the status of a British Standard

ICS 59.080.30

BSI
British Standards

National foreword

This British Standard is the official English language version of EN 14971:2006.

The UK participation in its preparation was entrusted to Technical Committee TCI/24, Textiles — Physical testing, which has the responsibility to:

— aid enquirers to understand the text;

— present to the responsible international/European committee any enquiries on the interpretation, or proposals for change, and keep UK interests informed;

— monitor related international and European developments and promulgate them in the UK.

A list of organizations represented on this committee can be obtained on request to its secretary.

Cross-references

The British Standards which implement international or European publications referred to in this document may be found in the *BSI Catalogue* under the section entitled "International Standards Correspondence Index", or by using the "Search" facility of the *BSI Electronic Catalogue* or of British Standards Online.

This publication does not purport to include all the necessary provisions of a contract. Users are responsible for its correct application.

Compliance with a British Standard does not of itself confer immunity from legal obligations.

Summary of pages

This document comprises a front cover, an inside front cover, the EN title page, pages 2 to 8, an inside back cover and a back cover.

The BSI copyright notice displayed in this document indicates when the document was last issued.

Amendments issued since publication

Amd. No.	Date	Comments

This British Standard was published under the authority of the Standards Policy and Strategy Committee on 17 February 2006

ISBN 0 580 47630 1

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN 14971

January 2006

ICS 59.080.30

English Version

Textiles - Knitted fabrics - Determination of number of stitches per unit length and unit area

Textiles - Etoffes tricotées - Détermination du nombre de mailles par unité de longueur et unité de surface

Textilien - Maschenwaren - Bestimmung der Maschenzahl je Längeneinheit und Flächeneinheit

This European Standard was approved by CEN on 9 December 2005.

CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration. Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the Central Secretariat or to any CEN member.

This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CEN member into its own language and notified to the Central Secretariat has the same status as the official versions.

CEN members are the national standards bodies of Austria, Belgium, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland and United Kingdom.

EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

Management Centre: rue de Stassart, 36 B-1050 Brussels

Ref. No. EN 14971:2006: E

Contents

Foreword

This European Standard (EN 14971:2006) has been prepared by Technical Committee CEN/TC 248 “Textiles and textile products”, the secretariat of which is held by BSI.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by July 2006, and conflicting national standards shall be withdrawn at the latest by July 2006.

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland and United Kingdom.

1 Scope

This test method determines the number of wales and courses per centimetre in most knitted fabrics.

2 Normative references

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

EN ISO 139, *Textiles — Standard atmospheres for conditioning and testing (ISO 139:2005)*

3 Terms and definitions

For the purposes of this European Standard, the following terms and definitions apply.

3.1
weft-knitted fabrics
generic name applied to knitted fabrics in which the stitches made by each weft thread are formed substantially across the width of the fabric

NOTE Weft-knitted fabrics are characterised by the fact that each weft thread is fed at right angles to the direction in which the fabric is produced.

3.2
warp-knitted fabrics
generic name applied to knitted fabrics in which the stitches made from each warp thread are formed substantially along the length of the fabric

NOTE Warp knitted fabrics are characterised by the fact that each warp thread is fed more or less in line with the direction in which the fabric is produced.

3.3
course
row of stitches across the width of a weft-knitted or of a warp-knitted fabric

3.4
wale
column of stitches along the length of a weft-knitted or of a warp-knitted fabric

3.5
technical face
surface of a fabric that consists wholly of face stitches, i.e. stitches that are so intermeshed in the fabric that its legs are situated above the top arcs of the stitches formed in the same wale in the previous course

3.6
opposite side
technical back
surface of a fabric that consists wholly of reverse stitches, i.e. stitches that are so intermeshed in the fabric that the top arcs and the bottom arcs, as well as the underlaps in a warp-knitted fabric, are situated above the legs of the stitches formed in the same wale in the previous and the following course

NOTE The technical back is sometimes used as the effect side of the garment.

4 Principle

The wales and courses in a representative sample of a knitted fabric are counted using suitable magnifying and counting devices and reported to the length for calculation.

5 Apparatus

5.1 Counting glass, the aperture width of which shall be a minimum 20 mm in each direction. Other suitable apparatus may be used.

5.2 Calibrated ruler, graduated in increments of 1 mm.

5.3 Dissecting needles, scissors or shape blade.

5.4 Suitable optical device with magnification.

6 Conditioning and testing atmosphere

The standard temperate atmosphere for preconditioning, conditioning and testing textiles as specified in EN ISO 139 shall be used.

7 Test specimen

The test specimen shall be large enough to enable the wales and courses to be counted at five different places, selected to represent the fabric as fully as possible. The test specimen shall exclude the edges of the fabric.

8 Procedure

8.1 General

Lay the test specimen on a horizontal surface, un-tensioned, in the standard atmosphere for conditioning and testing (see EN ISO 139) for a minimum of 16 h to ensure that a relaxed state is achieved.

8.2 Preliminary test

Lay a counting glass on the knitted fabric in such a manner that two of the edges are strictly parallel to the wales. Count, with the dissecting needle, the number of wales to the nearest half stitch. If the number of wales is 10 or more per centimetre, then use method A. If the number of wales is less than 10 per centimetre, proceed using method B. Determine the length (L_b) to ensure that the number of wales counted is greater than 30.

Repeat the same procedure for the courses in the fabric.

8.3 Method A: Counting glass

8.3.1 Counting of wales

Note the aperture width (L_a) of the counting device. Lay the counting glass on the knitted fabric in such a manner that two of the edges are strictly parallel to the wales. Count, with the dissecting needle, the number of wales to the nearest half stitch.

Repeat the procedure in at least five different places.

8.3.2 Counting of courses

Note the aperture width (L_a) of the counting device. Lay the counting glass on the knitted fabric in such a manner that two of the edges are strictly parallel to the courses. Count, with the dissecting needle, the number of courses to the nearest half stitch.

Repeat the procedure in at least five different places.

In complex structures the wales and courses recognised on visual inspection of the fabric may be made up of two or more structures. In such case the determination of the number of stitches per area shall be measured.

8.4 Method B: Ruler

8.4.1 Counting of wales

Lay the measuring rule on the knitted fabric parallel to the courses. Using the dissecting needle, count, to the nearest half stitch, the number of wales over the length (L_b) determined in the preliminary test.

Repeat the procedure in at least five different places.

8.4.2 Counting of courses

Lay the measuring rule on the knitted fabric parallel to the wales. Using the dissecting needle, count, to the nearest half stitch, the number of courses over the length (L_b) determined in the preliminary test.

Repeat the procedure in at least five different places.

In complex structures the wales and courses recognised on visual inspection of the fabric may be made up of two or more structures. In such case the determination of the number of stitches per area shall be measured.

9 Calculation and expression of results

Calculate the individual numbers of wales and courses per centimetre.

Calculate the arithmetic mean of the individual results in each direction.

Calculate the number of stitches per square centimetre by multiplying the wale and course direction means.

10 Test report

The test report shall contain the following information:

a) reference to this European Standard, i.e. EN 14971;

b) identification of the sample;

c) method A or B used;

d) measurement face;

e) individual numbers of wales and courses per centimetre;

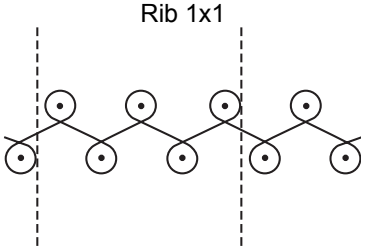
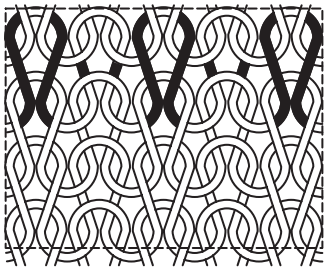
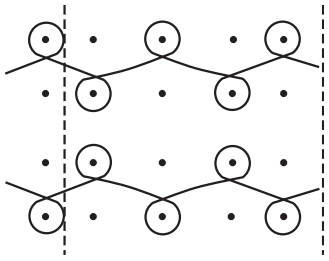
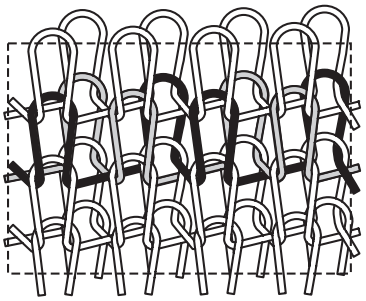
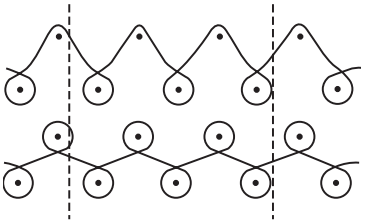
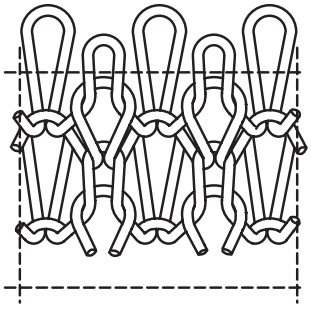
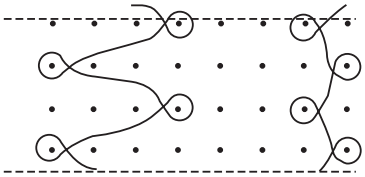
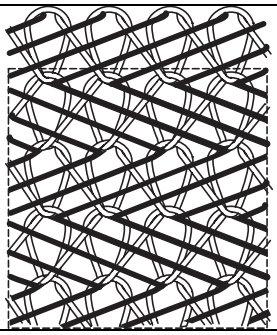
f) arithmetic mean of the individual results in each direction;

g) number of stitches per square centimetre;

h) any deviations from this European Standard which may have affected the results.

Annex A
(informative)

Examples of measurement and calculation

Loop drawing	Indication of the counted stitches on the yarn path drawing	Indication of the counting related to the drawings
Rib 1x1 		No of wales: 5 No of courses: 4
Interlock 		No of wales: 4 No of courses: 3
Half cardigan rib 		No of wales: 5 No of courses: 3
Warp knit: satin 		No of wales: 4 No of courses: 4

Bibliography

[1] EN ISO 4921, *Knitting — Basic concepts — Vocabulary (ISO 4921:2000)*

[2] EN ISO 8388, *Knitted fabrics — Types — Vocabulary (ISO 8388:1998)*

blank

BSI — British Standards Institution

BSI is the independent national body responsible for preparing British Standards. It presents the UK view on standards in Europe and at the international level. It is incorporated by Royal Charter.

Revisions

British Standards are updated by amendment or revision. Users of British Standards should make sure that they possess the latest amendments or editions.

It is the constant aim of BSI to improve the quality of our products and services. We would be grateful if anyone finding an inaccuracy or ambiguity while using this British Standard would inform the Secretary of the technical committee responsible, the identity of which can be found on the inside front cover. Tel: +44 (0)20 8996 9000. Fax: +44 (0)20 8996 7400.

BSI offers members an individual updating service called PLUS which ensures that subscribers automatically receive the latest editions of standards.

Buying standards

Orders for all BSI, international and foreign standards publications should be addressed to Customer Services. Tel: +44 (0)20 8996 9001. Fax: +44 (0)20 8996 7001. Email: orders@bsi-global.com. Standards are also available from the BSI website at http://www.bsi-global.com.

In response to orders for international standards, it is BSI policy to supply the BSI implementation of those that have been published as British Standards, unless otherwise requested.

Information on standards

BSI provides a wide range of information on national, European and international standards through its Library and its Technical Help to Exporters Service. Various BSI electronic information services are also available which give details on all its products and services. Contact the Information Centre. Tel: +44 (0)20 8996 7111. Fax: +44 (0)20 8996 7048. Email: info@bsi-global.com.

Subscribing members of BSI are kept up to date with standards developments and receive substantial discounts on the purchase price of standards. For details of these and other benefits contact Membership Administration. Tel: +44 (0)20 8996 7002. Fax: +44 (0)20 8996 7001. Email: membership@bsi-global.com.

Information regarding online access to British Standards via British Standards Online can be found at http://www.bsi-global.com/bsonline.

Further information about BSI is available on the BSI website at http://www.bsi-global.com.

Copyright

BSI
389 Chiswick High Road
London
W4 4AL