# International Standard 4818

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# Household sewing machines — Determination of creep of one ply of material over another

*Machines à coudre domestiques (ou de ménage) — Détermination du glissement l'une sur l'autre de deux épaisseurs d'un même matériau*

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**Descriptors** : equipment for domestic use, sewing machines, tests, materials specifications.

## Foreword

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Draft International Standards adopted by the technical committees are circulated to the member bodies for approval before their acceptance as International Standards by the ISO Council. They are approved in accordance with ISO procedures requiring at least 75 % approval by the member bodies voting.



International Standard ISO 4818 was prepared by Technical Committee ISO/TC 148, *Sewing machines.*





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# Household sewing machines — Determination of creep of one ply of material over another

## 1 Scope and field of application

This International Standard specifies a method for the determination of the amount of creep of one ply of material over another.

The method is applicable to motor-operated household sewing machines, but it may also be possible to apply it to hand- or treadle-operated machines.

## 2 References

ISO 2, *Textiles — Designation of the direction of twist in yarns and related products.*

ISO 139, *Textiles — Standard atmospheres for conditioning and testing.*

ISO 2947, *Textiles — Integrated conversion table for replacing traditional yarn numbers by rounded numbers in the Tex System.*

ISO 2959, *Textiles — Woven fabric descriptions.*

## 3 Definition

For the purpose of this International Standard, the following definition applies:

**creep**: A length $L$ by which one fabric ply apparently becomes shorter during sewing, compared to the other ply to which it is being sewn.

## 4 Principle

Sewing together, at a given speed, two plies of the same material after having made two marking nicks in the long side of the sample. Calculation of the average value $P$ of the results obtained for the three tests carried out. This average value corresponds to the amount of creep of the machine.

## 5 Material and apparatus[1)]

**5.1 Cotton fabric,** as specified in the annex: Six pieces, not creased and not washed, 90 mm × 600 mm. One of the coloured threads shall be in the middle of the cotton fabric piece and parallel to its long side. The long side shall follow the warp thread.

**5.2 Threefold cotton thread,** as specified in the annex.

**5.3 Sewing machine needle Nm 80,** as specified in the annex. The needle system shall be in accordance with the specifications of the sewing machine manufacturer.



## 6 Preparation of the sewing machine

**6.1** Fit the machine with the needle plate and presser foot supplied with the machine, as specified in the manufacturer's manual.

**6.2** Adjust the force of the presser foot as specified in the manufacturer's instruction manual.

If no instructions are specified in the manual, and if the force is adjustable by means of a setting device accessible to the user, the force shall be adjusted to 18 ± 1 N, measured with the presser foot in the down position.

If no force-regulating device is provided for the presser foot, or if it is not accessible to the user, the test shall be carried out with the force as set by the manufacturer.

**6.3** Open out the working surface of the machine in the direction of feed, as the whole sample shall rest straight and completely flat for the duration of the test, behind and in front of the needle.

**6.4** Set the stitch length regulator to a position corresponding to a stitch length of 2,5 mm ± 10 %.

1) Materials other than those specified in the annex may be used, but, if so, this shall be stated in the test report.

**6.5** Set the tension of the lower thread as specified in the manufacturer's instruction manual.

**6.6** Set the needle thread tension, when sewing together two plies of cotton fabric, so that the interlocking of the threads takes place in between the two plies.

**6.7** Set the machine for straight stitch type.

## 7 Procedure

**7.1** Align two plies of cotton fabric on each other and then place this sample between the presser foot and the needle plate. Turn the hand-wheel until the needle pierces the central coloured thread in the sample.

**7.2** Sew the two plies together over a length of approximately 20 mm forwards.

**7.3** Make a small marking nick through both plies, approximately 3 mm long, in line with the needle; lay the material out flat and make another small marking nick through both plies, 500 mm from the first marking nick (see the figure).

**7.4** Continue sewing the two plies together forwards at a speed of 700 stitches per minute ± 5 % to the end of the sample, guiding it lightly by hand.

Machines which cannot reach a maximum speed of 700 stitches per minute shall be tested at the highest possible constant speed.

**7.5** Repeat this test three times.

## 8 Expression of results

Measure the distance between the two marks on each ply of the sample. The difference $L$ found between these two lengths represents the creep over 500 mm of one ply in relation to the other.

Calculate the average value $P$ of the results obtained for the three tests carried out, expressed in millimetres. This value $P$ corresponds to the amount of creep of the machine tested.

## 9 Test report

The test report shall include:

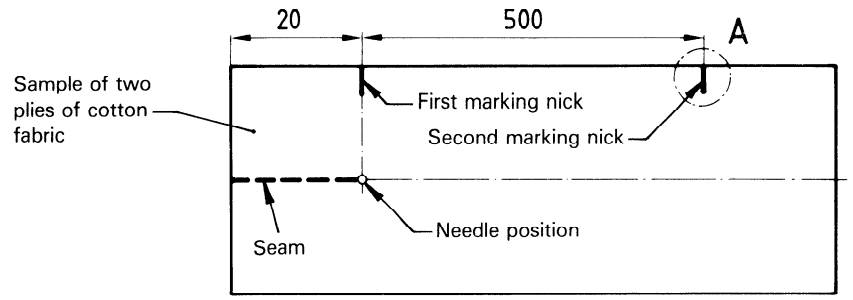
a) a reference to this International Standard;

b) the average value $P$ in millimetres;

c) the highest possible constant speed if the machine could not be tested at the required speed.



Dimensions in millimetres



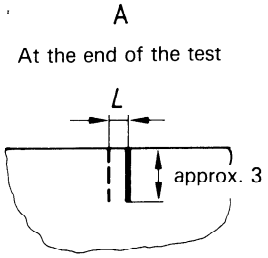




**Figure — Procedure**

# Annex

# Specification of material and apparatus

## A.1 Cotton fabric[1)]

The cotton fabric shall have the following characteristics:

a) state of fabric: bleached, without dressing, with coloured warp threads;

b) composition: cotton;

c) yarn designation: warp — 300 dtex Z 700 ± 25
weft — 300 dtex Z 700 ± 25

d) counting threads per unit length (loomstate):
warp — 27 per cm
weft — 27 per cm

e) weave: plain;

f) mass per unit area (loomstate): 170 ± 10 g/m$^2$

NOTE — For the description of woven fabric, see ISO 2959.

## A.2 Cotton thread

The threefold cotton thread shall be:

a) white;

b) mercerized;

c) Z twisted (left), as specified in ISO 2;

d) ticket No. 50/3 (i.e. 125 dtex × 3) (see note 2);

e) conditioned for 24 h in the standard atmosphere for testing textiles, i.e. at a temperature of 20 ± 2 °C and a relative humidity of 63 % to 67 %, as specified in ISO 139.

NOTES

1 For the designation of yarns, see ISO 1139.

2 The yarn numbering system, Tex System, is not intended to apply to the product designation of sewing threads, for which special systems are recognized by producers and customers (see ISO 2947).



## A.3 Sewing machine needle Nm 80

A.3.1 A sewing machine needle designated Nm 80 is a needle of 0,8 mm diameter at the cylindrical part of the needle blade above the short groove, but below any reinforcement of the blade.



1) A cotton fabric complying with these requirements is available commercially. Details may be obtained from the secretariat of ISO/TC 148 (DIN, Germany, F.R.) or from the ISO Central Secretariat.

### A.3.2 Comparison chart of needle sizes

| Metric designation Nm[1)] | Other types of designation | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Columbia | | Lewis | | Merrow | Singer | Union Special | Willcox and Gibbs | Schiffli | System 81,88 | 292 | 332 | 339 | 459 R | 731 |
| 40 | | | | | | 3 | | | | | 22 | | | 21 | |
| 45 | | | | | | 4 | | | | | 21 | | | 20 | |
| 50 | | | | | | 5 | | | | | 20 | | | 19 | |
| 55 | | | | | 3/0 | 6 | 022 | | | | 18 | | | 18 | |
| 60 | | | | | 2/0 | 8 | | 2/0 | | 3/0 | 16 | | 8 | 17 | |
| 65 | | | 2 1/2 | | 0 | 9 | 025 | 0 | | | 14 | | | 16 | |
| 70 | | | | 10 | 1 | 10 | 027 | 1 | 2/0 | 2/0 | 13 | 2/0 | 10 | 15 | |
| 75 | 1 | 10 | 3 | | | 11 | 029 | | | | 12 | | | 14 | |
| 80 | 1 1/2 | 15 | | 12 | 2 | 12 | 032 | 2 | 0 | 0 | 11 | 0 | 12 | 13 | |
| 85 | 2 | 20 | | | | 13 | | | | 1/2 | 10 | | | | |
| 90 | 2 1/2 | 25 | 3 1/2 | 14 | 3 | 14 | 036 | 3 | 1 | 1 | 9 | 1/2 | 13 | 12 | |
| 95 | 3 | 30 | | | | 15 | | | | | 8 | | | | |
| 100 | 3 1/2 | 35 | 4 | 16 | 4 | 16 | 040 | 4 | 2 | 2 | 7 | 1 | 14 | 11 | 0 |

1) Nm = Numbering metric; corresponding to 100 times diameter, *d*, of the needle blade within its cylindrical part above of the clearance above eye or the short groove — but not within the conic part where the blade diameter increases to the shank diameter.

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