



**NATIONAL STANDARD OF THE
PEOPLE'S REPUBLIC OF CHINA**

GB/T 13772.2-2018

**Textiles - Determination of the slippage resistance of yarns at a
seam in woven fabrics - Part 2: Fixed load method**

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1 Scope

This Part of GB/T 13772 specifies a method for determining the slippage resistance of yarns at a seam in woven fabrics using the fixed-load method.

This Part applies to all woven fabrics and elastic woven fabrics (including fabrics containing stretch yarns) intended for use in apparel and decorative applications.

This Part does not apply to industrial fabrics, such as webbing.

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.

GB/T 6529, Textiles -- Standard atmospheres for conditioning and testing (GB/T 6529-2008, ISO 139.2005, MOD)

GB/T 8629, Textiles -- Domestic washing and drying procedures for textile testing (GB/T 8629-2017, ISO 6330.2012, MOD)

GB/T 16825.1, Verification of static uniaxial testing machines -- Part 1.

Tension/compression testing machines -- Verification and calibration of the force-measuring system (GB/T 16825.1-2008, ISO 7500-1.2004, IDT)

GB/T 19022, Measurement management systems -- Requirements for measurement processes and measuring equipment (GB/T 19022-2003, ISO 10012.2003, IDT)

GB/T 19981.2, Textiles -- Professional care, dry cleaning and wet cleaning of fabrics and garments -- Part 2.Procedure for testing performance when cleaning and finishing using tetrachloroethene (GB/T 19981.2-2014, ISO 3175-2.2010, MOD)

GB/T 24118-2009, Textiles -- Stitch types -- Classification and terminology (ISO 4915.1991, IDT)

3 Terms and definitions

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

3.1 constant rate of extension testing machine

A testing instrument in which, throughout the test, one specimen grip remains stationary while the other moves at a constant speed, causing the specimen's elongation to be directly proportional to time.

3.2 grab test

A fabric tensile test in which the specimen is gripped at the middle of its width.

3.3 yarn slippage

seam slippage The displacement of weft (or warp) yarns relative to warp (or weft) yarns in a woven fabric caused by stretching.

NOTE. Seam slippage is a property of the fabric; do not confuse it with seam strength.

3.4 warp slippage

The warp yarns are perpendicular to the direction of stretching and undergo displacement relative to the weft yarns.

3.5 weft slippage

The weft yarn is perpendicular to the direction of stretching and shifts along the warp yarns.

3.6 seam allowance

The distance from the stitch line or suture material to the edge of the fabric.

3.7 seam opening

The maximum distance of the gap formed by yarn slippage in a fabric.

4 Principle

The rectangular specimen is folded and sewn across its width, then cut along the fold line. The specimen is clamped, and a tensile load is applied perpendicular to the seam.

The amount of seam openings occurring under the specified load is measured.

5 Sampling

Sampling methods shall be determined in accordance with the specifications for the relevant products or by agreement among the parties concerned.

In the absence of relevant sampling specifications, Annex A provides a suitable sampling procedure for fabric specimens, and Annex B presents a diagram for cutting the specimens. For garment seam specimens, Annex C outlines a suitable sampling method.

The test specimens shall be representative and taken from areas free of folds, creases, and selvages.

6.1.1 Metrological confirmation of the constant rate of extension testing machine shall

be conducted in accordance with GB/T 19022. The constant rate of extension testing machine shall possess the general characteristics specified in 6.1.2~6.1.7.

6.1.2 The constant rate of extension testing machine shall be capable of indicating or

recording the maximum force applied to the specimen to stretch it to the point of rupture.

Under operating conditions, the instrument shall meet the Class 1 accuracy requirements specified in GB/T 16825.1. At any point within the instrument's full scale, the error in indicating or recording the maximum force shall not exceed $\pm 1\%$, and the error in recording elongation shall not exceed ± 1 mm.

6.1.3 If a data acquisition circuit and software are used to obtain force values, the data

acquisition frequency shall be no less than 8 times per second.

6.1.4 The instrument shall be capable of setting a tensile speed of 50 mm/min, with an

accuracy of $\pm 10\%$.

6.1.6 The center point of the instrument grips shall lie on the axis of tension. The

gripping lines shall be perpendicular to the axis of tension. The gripping surfaces shall lie in the same plane.

The grips shall be capable of holding the specimen without slippage. The gripping surfaces shall be flat. The specimen shall not be sheared or damaged during gripping.

Grips with other forms of gripping surfaces may be used only when flat gripping surfaces fail to prevent specimen slippage. Suitable padding materials may be used on the gripping surfaces.

6.1.7 For the grab test, the dimensions of the clamped specimen shall be (25 mm $\pm$ 1

mm) $\times$ (25 mm $\pm$ 1 mm). This size may be achieved using one of the following methods.

a) The rear gripping surface has a width of 25 mm and a length of at least 40 mm (50 mm is preferable); the length of the gripping surface is perpendicular to the line of tension. The dimensions of the front gripping surface are identical to those of the rear gripping surface, but its length is parallel to the line of tension.

b) The rear gripping surface has a width of 25 mm and a length of at least 40 mm (50 mm is preferable). The length of the gripping surface is perpendicular to the line of tension. The dimensions of the front gripping surface are 25 mm $\times$ 25 mm.

6.2 Sample cutting equipment

Suitable specimen cutting equipment.

6.3 Sewing machine

Electronically controlled single-needle lockstitch machine capable of producing the type 301 stitch specified in GB/T 24118-2009 (see Figure 1).

Figure 1 -- Type 301 stitch pattern

The Type 301 stitch consists of two threads, a needle thread and a bobbin thread. The needle thread passes through the material from above, interlocks with the bobbin thread, and is pulled tight upwards, positioning the point of intersection midway through the