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

GB/T 13772.1-2008

**Textiles - Determination of the slippage resistance of yarns at a
seam in woven fabrics - Part 1: Fixed seam opening method**

纺织品 机织物接缝处纱线抗滑移的测定 第1部分：定滑移量法

(English Translation)

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1 Scope

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

This method is not applicable to industrial fabrics such as stretch fabrics or beltings.

2 Normative references

The clauses in the following documents, through reference in this part of GB/T 13772, become clauses of this part. 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 16825.1 Metallic materials - Calibration and verification of static uniaxial testing machines - Part 1.Tension/compression testing machines - Calibration and verification of

the force-measuring system (GB/T 16825.1-2002, ISO 7500-1.1999, IDT)

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

FZ/T 01019 Textiles - Stitch types - Classification and terminology (FZ/T 01019-1992, eqv ISO 4915.1991)

3 Terms and definitions

For the purpose of this document, the following terms and definitions apply to this part of GB/T 13772.

3.1

constant rate of extension testing machine

A testing instrument in which one clamp holding the specimen is fixed while the other moves at a constant speed throughout the test, making the specimen's extension proportional to time.

3.2

grab test

A fabric tensile test in which the specimen is held in the middle of its width by clamps.

3.3

yarn slippage seam slippage

Movement of weft (warp) yarns over warp (weft) yarns in a woven fabric due to tension.

NOTE: Seam slippage is a fabric property and shall not be confused with seam strength.

3.4

warp slippage

Movement of warp yarns, perpendicular to the extending direction, over weft yarns.

3.5

weft slippage

Movement of weft yarns, perpendicular to the extending direction, over warp yarns.

3.6

seam allowance

Distance between the seam line and the adjacent selvedge of the sewn material.

3.7

seam opening

Maximum width of the gap formed after yarn slippage in a fabric.

4 Principle

Clamp the specimen with clamps, extend both the sewn and unsewn parts of the same specimen on a tensile testing machine, and record the force-extension curves of the sewn and unsewn specimens at the same starting point on the same abscissa. Find the point where the distance between the two curves parallel to the extension axis is equal to the specified seam opening, and read the force value corresponding to that point as the slippage resistance.

5 Sampling

The sampling method shall be determined in accordance with the relevant product specifications or by agreement between the relevant parties.

If no relevant sampling specifications exist, Annex A provides a suitable sampling procedure as an example.

Annex B provides a schematic diagram of specimen cutting. The specimen shall be representative and shall avoid folded, creased areas, and selvages.

6 Instruments and apparatus

6.1

Constant rate of extension (CRE) testing machine.

6.1.1 Metrological confirmation of the constant rate of extension (CRE) testing machine

shall be performed in accordance with GB/T 19022. The constant rate of extension (CRE) testing machine shall have the general characteristics specified in 6.1.2 ~ 6.1.8.

6.1.2 The tensile testing machine shall have the function of indicating or recording the maximum force applied to the specimen to extend it until failure. Under conditions of use, the instrument shall be of class 1 accuracy in accordance with GB/T 16825.1. At any point within the full scale of the instrument, the error in indicating or recording the maximum force shall not exceed $\pm 1\%$, and the error in recording extension shall not exceed ± 1 mm.

6.1.3 If a data acquisition circuit and software are used to obtain the force value, the data acquisition frequency shall not be less than 8 times per second.

6.1.4 The instrument shall be able to set a tensile speed of 50 mm/min with an accuracy of

±10 %.

6.1.5 The instrument shall be able to set a spacing length of 100 mm.

6.1.6 The center point of the instrument clamps shall be on the tensile axis, the clamping line shall be perpendicular to the tensile line, and the clamping faces shall be on the same plane. The clamping faces shall be able to hold the specimen without slippage, and shall be flat, without shearing or damaging the specimen. If a smooth clamping face cannot prevent specimen slippage, other types of clamps shall be used. Appropriate padding material may be used on the clamping faces.

6.1.7 The dimensions of the specimen clamped during the grab test shall be $(25\text{ mm} \pm 1\text{ mm}) \times (25\text{ mm} \pm 1\text{ mm})$. This dimension can be achieved using one of the following methods.

a) The width of the rear clamping face is 25 mm, and the length is at least 40 mm (50 mm is preferred). The length direction of the clamping face is perpendicular to the tensile line. The dimensions of the front clamping face are the same as the rear clamping face, and its length direction is parallel to the tensile line.

b) The width of the rear clamping face is 25 mm, and the length is at least 40 mm (50 mm is preferred). The length direction of the clamping face is perpendicular to the tensile line. The dimensions of the front clamping face are 25 mm x 25 mm.

6.1.8 If the tensile testing machine is not computer-controlled, a device for recording the force-extension curve is required.

6.2 Equipment for cutting specimens.

6.3 Sewing machine. An electrically controlled single-needle lockstitch machine

capable of sewing the 301 stitch type in FZ/T 01019 (see Figure 1).

The 301 stitch consists of two threads. one needle thread and one bobbin thread. A loop of needle thread is passed through the fabric from the needle side, protruded on the other side to interlace with the bobbin thread; tighten the thread to position the interlaced loop in the middle of the fabric layer.

This stitch is sometimes formed with a single thread, in which case the first stitch differs from subsequent consecutive stitches.

At least two stitches shall be used to describe this stitch type.

Figure 1 -- 301 stitch type

6.4 Sewing machine needles. Throat plate and feed dog, see Table 1 and 9.1.

6.5 Sewing thread. Suitable thread, as specified in Table 1.