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

GB/T 7689.5-2013

**Reinforcements -- Test method for woven fabrics -- Part 5:
Determination of glass fibre tensile breaking force and
elongation at break
(English Translation)**

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Foreword

GB/T 7689 "Reinforcements - Test method for woven fabrics" is divided into five parts:

- Part 1: Determination of thickness;
- Part 2: Determination of number of yarns per unit length of warp and weft;
- Part 3: Determination of width and length;
- Part 4: Determination of flexural stiffness;
- Part 5: Determination of glass fibre tensile breaking force and elongation at break.

This Part is Part 5 of GB/T 7689.

This Part was drafted in accordance with the rules given in GB/T 1.1-2009.

This Part replaces GB/T 7689.5-2001 "Reinforcements. Test method for woven fabrics. Part 5: Determination of tensile breaking force and elongation at break

for glass fibre". The main differences with GB/T 7689.5-2001 are as follows:

- Clarify that the constant rate of elongation is the recommended test method (see 5.1.2);
- For low-density fabric sample whose width is different from the standard type-I and type-II samples, the width shall be called "alternative width", which is the same as the expression approach of ISO 4606:1995. The expression of "other possible samples" in the original standard shall no longer be used. (see 7.1.3, 7.1.3 of version 2001);
- Stipulate that the pretension value shall be subtracted from the breaking force value (see 9.1);
- Add precision (see Chapter 11);
- Add informative Appendix A (see Appendix A).

This Part uses the redrafting method to modify ISO 4606:1995 "Textile glass - Woven fabric - Determination of tensile breaking force and elongation at break by the strip method, MOD".

The technical differences between this Part and ISO 4606:1995 and their reasons are as follows:

Reinforcements - Test method for woven fabrics -
Part 5: Determination of glass fibre tensile breaking
force and elongation at break

1 Scope

This Part of GB/T 7689 specifies the determination method of glass fibre woven fabrics tensile breaking force and elongation at break.

This method is suitable for fabrics that are not impregnated and impregnated with a slurry or hardener; it is not suitable for fabrics that are coated with rubber or plastic (see Appendix A).

2 Normative references

The following documents are indispensable for the application of this document.

For dated references, only the dated version applies to this document. For undated references, the latest edition (including all amendments) applies to this document.

GB/T 2918-1998, Plastics. Standard atmospheres for conditioning and testing (idt ISO 291:1997)

3 Terms and definitions

The following terms and definitions are applicable to this document.

3.1 Initial gauge length

The length of the sample between the jaws at the starting positions of two fixtures under the specified pretension.

3.2 Breaking force

The maximum load that is applied to the sample when the sample is stretched to break.

3.3 Elongation; extension

The length increment of the sample when it is stretched; it is usually expressed in the percentage of the original length.

6 Sampling

Unless otherwise specified by the product specification or the stakeholders, the outermost layer of the fabric that may be damaged shall be removed (at least 1 m shall be removed); approximately 1 m of fabric shall be cut as the laboratory sample.

7.1.1 Type-I sample

The length of the sample shall be 350 mm, so that the effective length of the sample is 200 mm $\pm$ 2 mm. The width of the sample, excluding the burrs (the

split portion of the sample) shall be 50 mm, see 7.2.7.

7.1.2 Type-II sample

The length of the sample shall be 250 mm, so that the effective length of the sample is $100\text{ mm} \pm 1\text{ mm}$. The width of the sample, excluding the burrs (the split portion of the sample) shall be 25 mm, see 7.2.7.

7.1.3 Alternative width

When the warp and weft densities of the fabric are very small (for example, less than 3 pcs/cm), the width of the type-I sample may be greater than 50 mm, and the width of the type-II sample may be greater than 25 mm.

Note: Test results for different sizes of samples and different tensile speeds are not the same, and in most cases, there is no comparability.

7.2.1 In order to prevent the end of the sample from being damaged by the tester fixture, it is necessary to prepare the sample specially. It shall be handled by the steps of 7.2.2 ~ 7.2.8.

7.2.2 Cut a piece of hard paper or cardboard, of which the sizes are larger than or equal to the size of the template (5.2.1).

7.2.3 Lay the fabric completely on hard paper or cardboard; ensure that the warp and weft yarns are straight, unbent and perpendicular to each other.

7.2.4 Place the template (5.2.1) on the fabric; make the entire template on hard paper or cardboard; use the cutting tool (5.2.2) to cut a piece of fabric and hard alternative width (see 7.1.3). In this case, the number of yarns of all the samples of the same fabric shall be the same. The actual width of each sample shall be measured; the arithmetic mean of the widths of five samples shall be calculated and corrected to 1 mm, which shall be included in the test report.