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

GB/T 45473-2025

**Composites and reinforcements fibres - Carbon fibre reinforced
plastics(CFRPs)and metal assemblies - Determination of the
cross tension strength**

**复合材料和增强纤维 碳纤维增强塑料（CFRPs）和金属组件 十字拉伸强度的测定
(English Translation)**

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Foreword

This document is in accordance with the provisions of GB/T 1.1-2020 "Guidelines for standardization work Part 1: Structure and drafting rules for standardization documents" Drafting.

This document is equivalent to ISO 24360:2022 Composite materials and reinforcing fibers - Carbon fiber reinforced plastics (CFRPs) and metal composites. Determination of cross tensile strength of components. The following editorial changes were made to this document.

--- Deleted the "Safety Statement" which is not applicable to my country's actual situation;

---Change "the bonding area is a 25mmx5mm square" to "the bonding area is a 25mmx25mm square", combined with ISO 24360:2022 context, this is an editorial error (see Chapter 4);

--- The color marking of type B specimens has been changed, and the corresponding index numbers have been added (see Figure 1);

--- Deleted the nut on part 6 in the "Schematic diagram of the test fixture for the specimen in tensile mode" (see Figure 4);

--- Added the unit description of the bonding zone size in Figure A.1 (see Appendix A).

1 Scope

This document describes the method for determining the cross-tension strength of carbon fiber reinforced plastics (CFRPs) bonded to metal assemblies.

This method is applicable to the determination of samples bonded to metal components using carbon fiber reinforced plastics.

2 Normative references

The contents of the following documents constitute the essential clauses of this document through normative references in this document.

For referenced documents without a date, only the version corresponding to that date applies to this document; for referenced documents without a date, the latest version (including all amendments) applies to This document.

ISO 7500-1 Calibration and verification of static uniaxial testing machines for metallic materials Part 1: Calibration and verification of static uniaxial testing machines for metallic materials Part 1: Calibration and verification of static uniaxial testing machines for metallic materials suring system)

Note: GB/T 16825.1-2022 Inspection and calibration of static uniaxial testing machines for metallic materials Part 1: Force measurement of tension and/or compression testing machines System verification and calibration (ISO 7500-1:2018, IDT)

Note: GB/T 16997-1997 Method for expressing the main types of failure of adhesives (ISO 10365:1992, IDT)

3 Terms and definitions

For the purposes of this document, the terms and definitions defined in ISO 10365 and the following apply.

3.1 Cross tension force

The force (N) applied to the specimen in the cross tensile test.

3.2

The stress (MPa) is obtained by dividing the maximum cross tensile force by the bond area.

The specimen consists of two rectangular plates as shown in Figure 1.

The overlapping area of each rectangular plate in the specimen shall be coated with adhesive.

One method is to glue two rectangular plates into an A-type cross specimen. Another method is to glue a carbon The fiber reinforced plastic (thickness 4 mm) and metal (thickness 4 mm) laminates were cut into cross-shaped specimens (as shown in Figure 2). Then, according to Figure 3 The grooves on the double-layer test specimen plate are grooved as shown in the figure. The groove depth of the test specimen should be the thickness of the metal or carbon fiber reinforced plastic layer.

The fiber-reinforced plastic layer is completely cut off to obtain a B-type cross specimen. At

least 5 valid test results are required to participate in the calculation of statistical values.