

# JIS

**JAPANESE INDUSTRIAL STANDARD**

**Testing methods for  
in-plane shear properties of  
carbon fiber reinforced plastics  
by  $\pm 45^\circ$  tension method and  
two pairs of rails method**

**JIS K 7079<sup>-1991</sup>**

**Translated and Published**

**by**

**Japanese Standards Association**

**In the event of any doubt arising,  
the original Standard in Japanese is to be final authority.**

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1. Scope

This Japanese Industrial Standard specifies the methods for testing the in-plane shear properties of carbon fiber reinforced plastics (hereafter referred to as the "CFRP") by  $\pm 45^\circ$  tension method and two pairs of rails method.

- Remarks 1. This testing method covers the determination of the in-plane shear strength, in-plane shear strain at failure, in-plane shear modulus of elasticity, in-plane shear stress - strain curve of CFRP.
2. The units and numerical values given in { } in this Standard are based on the conventional unit system and are appended informative reference.
3. Applicable Standards to this Standard are shown in the following.
- JIS B 7502 Micrometer Callipers for External Measurement
- JIS B 7507 Vernier Callipers
- JIS K 6900 Glossary of Terms Used in Plastic Industry
- JIS K 7072 Preparation of Carbon Fibre Reinforced Plastic Panels for Test Purpose
- JIS K 7100 Standard Atmospheres for Conditioning and Testing of Plastics
- JIS Z 8401 Rules for Rounding off of Numerical Values

2. Definitions

For the main terms used in this Standard the definition in JIS K 6900 apply, and the rest of the terms shall be as follows.

- (1) in-plane shear strength The in-plane shear strength obtainable when the maximum in-plane shear load is divided by the original cross-sectional area of test specimen. It should be noted, however, that in the method B this is the value obtainable when the maximum in-plane shear load applied to test specimen is divided by the cross-sectional area of the face of laminate of test specimen.
- (2) in-plane shear strain Strain caused by in-plane shear stress applied to test specimen.
- (3) in-plane shear strain at failure In-plane shear strain corresponding to the maximum in-plane shear load.