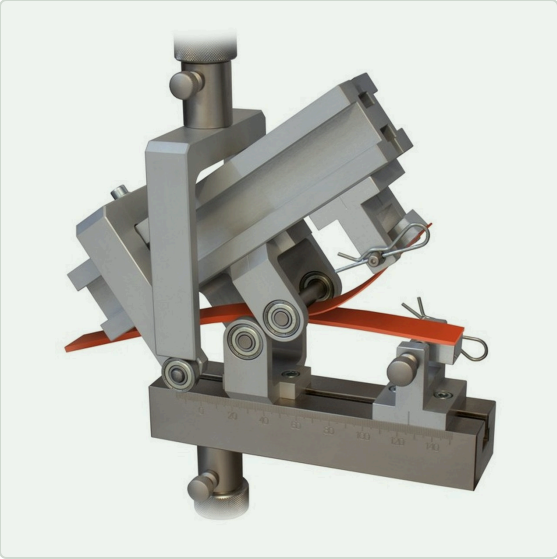
Mixed-Mode Bending (MMB) Fracture Test Fixture

Built to ASTM D6671 — Standard Test Method for Mixed Mode I-Mode II Interlaminar Fracture Toughness of Unidirectional Fiber Reinforced Polymer Matrix Composites



OVERVIEW

Mixed-mode bending (MMB) apparatus for interlaminar fracture toughness testing per ASTM D6671. A lever arm applies load to a pre-cracked double-cantilever specimen through hinge tabs and a mid-span base roller, combining opening (Mode I) and sliding (Mode II) loading. Lever length sets the mode mixture.

KEY FEATURES

- Adjustable lever arm length sets the Mode I / Mode II mixture
- Base rollers and hinge-tab loading per MMB test configuration
- Low-friction pivots and rollers minimize parasitic loads
- Lightweight lever reduces gravity effects on low-load specimens
- Rigid base with clear view of the crack front for measurement

TECHNICAL SPECIFICATIONS

Test method	Mixed-mode bending (MMB) interlaminar fracture
Test type / loading	Lever-applied combined opening and bending
Specimens	Unidirectional beams with insert pre-crack and hinges per ASTM D6671
Load capacity	1 kN typical; sized to application
Fixture material	Aluminum and hardened steel components
Loading members	Low-friction rollers, pivots and hinge-tab yokes
Machine connection	Clevis pin or threaded adapter, to suit customer frame
Compatible frames	Electromechanical universal test machines

APPLICATIONS

- Delamination toughness of UD composites
- Failure criteria and damage tolerance models
- Resin and toughener development
- Aerospace composite research

ABOUT THE STANDARD

ASTM D6671 determines the mixed Mode I-Mode II interlaminar fracture toughness of unidirectional fiber-reinforced polymer matrix composites using the mixed-mode bending test. A beam specimen with an insert-generated delamination is loaded via a lever, and the lever length selects the ratio of Mode II to total strain energy release rate. Results support delamination failure criteria.

Ordering & customization: Specify specimen thickness and width, required mode mixture range, capacity and test machine connection.

Specifications are typical and may vary by configuration; confirm at time of quote. Users should refer to the current edition of the standard for test procedures. Part ref. UGC-D6671-FTF