

ASTM D6742 Compression Fixture

Filled-Hole Compression Fixture for Composite Laminates

Built to ASTM D6742 — Standard Practice for Filled-Hole Tension and Compression Testing of Polymer Matrix Composite Laminates



OVERVIEW

Stabilized compression fixture for filled-hole compression (FHC) testing of composite laminates per ASTM D6742. Support plates restrain the specimen against buckling while it is loaded with a fastener installed in the central hole, so the measured strength reflects the effect of the filled hole on laminate compressive performance.

KEY FEATURES

- Support plates restrain the specimen against buckling under compression
- Clearance cutout accommodates the installed fastener head and collar
- Load introduced through hydraulic grips or end loading
- Precision-ground support faces maintain specimen alignment
- Shares specimen geometry approach with open-hole compression fixtures

TECHNICAL SPECIFICATIONS

Test method	Filled-hole compression (FHC)
Test type / loading	Static compression, stabilized against buckling
Specimens	Flat laminates with fastener-filled central hole per ASTM D6742
Load capacity	100 kN standard; higher capacities on request
Fixture material	Hardened steel, corrosion-resistant finish
Support surfaces	Precision-ground plates with fastener clearance cutout
Machine connection	Loaded by hydraulic grips or compression platens
Compatible frames	Electromechanical and servo-hydraulic universal test machines

APPLICATIONS

- Bolted composite joint design data
- Fastener fit and torque studies
- Aerospace laminate allowables
- Material and fastener qualification

ABOUT THE STANDARD

ASTM D6742 is a practice for filled-hole tension and compression testing of multidirectional polymer matrix composite laminates. It adapts the open-hole tension and open-hole compression methods by installing a fastener or pin in the hole. Fastener type, fit and torque affect results, so the practice addresses the installation conditions that must be controlled and reported.

Ordering & customization: Specify specimen width and thickness, fastener size, loading method 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-D6742-CF