

Block-Shear Fixture for Rigid Adhesive Bonds

Built to ASTM D4501 — Standard Test Method for Shear Strength of Adhesive Bonds Between Rigid Substrates by the Block-Shear Method



OVERVIEW

Compression-loaded block-shear fixture for adhesive bonds between rigid substrates. One bonded block is restrained while a shearing tool pushes the other block parallel to the bond line, producing shear failure in the adhesive layer without the bending and peel that affect lap-shear joints with thin adherends.

KEY FEATURES

- Restrains the base block while the shear tool loads the bonded block
- Shearing edge aligned closely to the bond line to minimize peel moment
- Adjustable clamping for a range of block sizes
- Hardened steel shearing tool and seat for long service life
- Loads in compression using standard platens or a compression adapter

TECHNICAL SPECIFICATIONS

Test method	Block-shear strength of adhesive bonds
Test type / loading	Compression-driven shear parallel to bond line
Specimens	Bonded rigid block assemblies, per ASTM D4501 geometry
Load capacity	50 kN standard; higher capacities on request
Fixture material	Hardened tool steel, corrosion-resistant finish
Contact surfaces	Hardened, ground shearing edge and specimen seat
Machine connection	Clevis pin or threaded adapter, to suit customer frame
Compatible frames	Electromechanical and servo-hydraulic universal test machines

APPLICATIONS

- Glass and ceramic bonding
- Structural and UV-cure adhesives
- Metal-to-metal and plastic-to-metal joints
- Adhesive formulation and QC testing

ABOUT THE STANDARD

ASTM D4501 measures the shear strength of adhesives bonding rigid materials such as glass, ceramics, metals and rigid plastics, using a block-shear specimen. A small block bonded to a larger one is loaded in compression through a shearing tool so the force acts parallel to the bond plane. It is suited to substrates that cannot be made into thin lap-shear adherends.

Ordering & customization: Specify block dimensions and substrate, required capacity and test machine connection when ordering.

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-D4501-SF