ASTM C633 Tensile Fixture

Bond Strength Fixture for Thermal Spray Coatings

Built to ASTM C633 — Standard Test Method for Adhesion or Cohesion Strength of Thermal Spray Coatings



OVERVIEW

Self-aligning tensile fixture for adhesion and cohesion testing of thermal spray coatings. The coated substrate fixture is bonded with adhesive to a matching loading fixture, and the assembly is pulled in tension normal to the coating plane. Universal-joint linkages minimize bending so failure reflects true coating bond strength.

KEY FEATURES

- Self-aligning universal joints for load normal to the coating
- Accepts cylindrical substrate and loading fixtures
- Quick-connect threaded fixture holders for fast changeover
- Alignment V-block available for adhesive bonding
- Supplied with adapters to suit your load frame

TECHNICAL SPECIFICATIONS

Test method	Tensile adhesion/cohesion normal to coating plane
Test type / loading	Monotonic tension at constant crosshead rate
Specimens	Coated and loading fixtures, adhesive-bonded, per ASTM C633
Load capacity	50 kN standard; higher capacities on request
Fixture material	Heat-treated alloy steel
Gripping surfaces	Threaded fixture holders with universal joints
Machine connection	Clevis pin or threaded adapter, to suit customer frame
Compatible frames	Electromechanical and servo-hydraulic universal test machines

APPLICATIONS

- Plasma and HVOF coating qualification
- Thermal barrier coating bond strength
- Coating process development and QC
- Aerospace and turbine component coatings

ABOUT THE STANDARD

ASTM C633 determines the degree of adhesion of a thermal spray coating to its substrate, or the cohesive strength of the coating, in tension normal to the surface. A coated cylindrical substrate fixture is bonded to an uncoated loading fixture with an adhesive, then pulled to failure. Failure location distinguishes adhesive, cohesive or adhesive-bond failure.

Ordering & customization: Specify fixture diameter and thread, quantity of substrate fixtures, 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-C633-TF