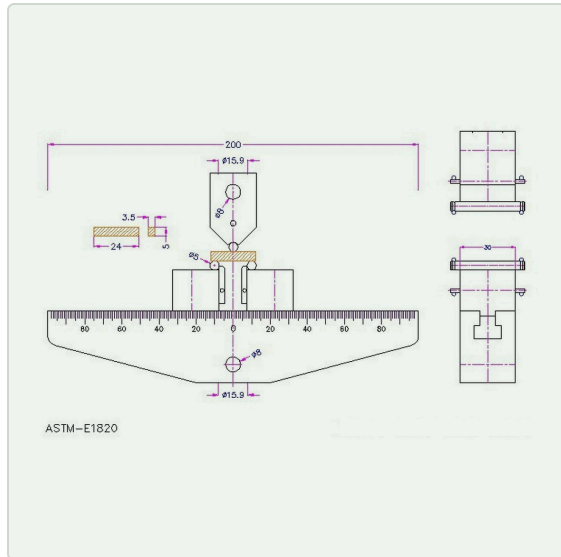


SE(B) Three-Point Bend Fixture for Fracture Toughness

Built to ASTM E1820 — Standard Test Method for Measurement of Fracture Toughness



OVERVIEW

Three-point bend fixture for fracture toughness testing of single-edge-notched bend specimens. Rolling supports and a central loading nose apply bending with minimal friction, while the open notch area accepts a crack-mouth opening displacement gage for J-integral, K and CTOD evaluation, including resistance-curve testing.

KEY FEATURES

- Free-rolling support rollers minimize friction effects on toughness results
- Adjustable span for a range of SE(B) specimen sizes
- Clear access for clip gages, knife edges and crack-growth instrumentation
- Hardened, ground rollers and loading nose for durability
- Specimen centering aids for repeatable notch alignment

TECHNICAL SPECIFICATIONS

Test method	Three-point bend, J / K / CTOD fracture toughness
Test type / loading	Quasi-static, displacement-controlled loading
Specimens	Fatigue-precracked SE(B) bend specimens, per ASTM E1820 geometry
Load capacity	50 kN standard; higher capacities on request
Fixture material	Hardened tool steel, corrosion-resistant finish
Contact surfaces	Hardened, ground support rollers and loading nose
Machine connection	Clevis pin or threaded adapter, to suit customer frame
Compatible frames	Electromechanical and servo-hydraulic universal test machines

APPLICATIONS

- J-R curve and CTOD testing of metals
- Weld and heat-affected zone qualification
- Structural and pressure vessel steels
- Aerospace alloy fracture characterization

ABOUT THE STANDARD

ASTM E1820 determines fracture toughness of metallic materials using J-integral, stress intensity (K) and crack-tip opening displacement (CTOD) parameters. Fatigue-precracked specimens, including single-edge bend and compact specimens, are loaded while load, displacement and crack extension are measured. It covers both single-point toughness values and resistance curves for elastic-plastic materials.

Ordering & customization: Specify specimen width, thickness, span, capacity, test temperature and machine connection. Elevated and low-temperature versions available on request.

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-E1820-BF