



Standard Terminology Relating to Fatigue and Fracture Testing¹

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1. Scope

1.1 This terminology contains definitions, definitions of terms specific to certain standards, symbols, and abbreviations approved for use in standards on fatigue and fracture testing. The definitions are preceded by two lists. The first is an alphabetical listing of symbols used. (Greek symbols are listed in accordance with their spelling in English.) The second is an alphabetical listing of relevant abbreviations.

1.2 This terminology includes **Annex A1** on Units and **Annex A2** on Designation Codes for Specimen Configuration, Applied Loading, and Crack or Notch Orientation.

2. Referenced Documents

2.1 *ASTM Standards:*²

- E6 Terminology Relating to Methods of Mechanical Testing
- E23 Test Methods for Notched Bar Impact Testing of Metallic Materials
- E28 Test Methods for Softening Point of Resins Derived from Pine Chemicals and Hydrocarbons, by Ring-and-Ball Apparatus
- E208 Test Method for Conducting Drop-Weight Test to Determine Nil-Ductility Transition Temperature of Ferritic Steels
- E338 Test Method of Sharp-Notch Tension Testing of High-Strength Sheet Materials (Withdrawn 2010)³
- E399 Test Method for Linear-Elastic Plane-Strain Fracture Toughness K_{Ic} of Metallic Materials
- E436 Test Method for Drop-Weight Tear Tests of Ferritic Steels
- E467 Practice for Verification of Constant Amplitude Dynamic Forces in an Axial Fatigue Testing System
- E468 Practice for Presentation of Constant Amplitude Fa-

- tigue Test Results for Metallic Materials
- E561 Test Method for $K-R$ Curve Determination
- E602 Test Method for Sharp-Notch Tension Testing with Cylindrical Specimens (Withdrawn 2010)³
- E604 Test Method for Dynamic Tear Testing of Metallic Materials
- E606 Test Method for Strain-Controlled Fatigue Testing
- E647 Test Method for Measurement of Fatigue Crack Growth Rates
- E739 Practice for Statistical Analysis of Linear or Linearized Stress-Life ($S-N$) and Strain-Life ($\epsilon-N$) Fatigue Data
- E740 Practice for Fracture Testing with Surface-Crack Tension Specimens
- E813 Test Method for J_{Ic} , A Measure of Fracture Toughness
- E992 Practice for Determination of Fracture Toughness of Steels Using Equivalent Energy Methodology
- E1049 Practices for Cycle Counting in Fatigue Analysis
- E1152 Test Method for Determining $J-R$ -Curves
- E1221 Test Method for Determining Plane-Strain Crack-Arrest Fracture Toughness, K_{Ia} , of Ferritic Steels
- E1290 Test Method for Crack-Tip Opening Displacement (CTOD) Fracture Toughness Measurement (Withdrawn 2013)³
- E1304 Test Method for Plane-Strain (Chevron-Notch) Fracture Toughness of Metallic Materials
- E1450 Test Method for Tension Testing of Structural Alloys in Liquid Helium
- E1457 Test Method for Measurement of Creep Crack Growth Times and Rates in Metals
- E1681 Test Method for Determining Threshold Stress Intensity Factor for Environment-Assisted Cracking of Metallic Materials
- E1737 Test Method for J -Integral Characterization of Fracture Toughness (Withdrawn 1998)³
- E1820 Test Method for Measurement of Fracture Toughness
- E1921 Test Method for Determination of Reference Temperature, T_0 , for Ferritic Steels in the Transition Range
- E1942 Guide for Evaluating Data Acquisition Systems Used in Cyclic Fatigue and Fracture Mechanics Testing
- E2207 Practice for Strain-Controlled Axial-Torsional Fatigue Testing with Thin-Walled Tubular Specimens
- E2208 Guide for Evaluating Non-Contacting Optical Strain Measurement Systems

¹ This terminology is under the jurisdiction of ASTM Committee E08 on Fatigue and Fracture and is the direct responsibility of Subcommittee E08.02 on Standards and Terminology.

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² For referenced ASTM standards, visit the ASTM website, www.astm.org, or contact ASTM Customer Service at service@astm.org. For *Annual Book of ASTM Standards* volume information, refer to the standard's Document Summary page on the ASTM website.

³ The last approved version of this historical standard is referenced on www.astm.org.