



Designation: E6 – 15^{e4}

Standard Terminology Relating to Methods of Mechanical Testing¹

This standard is issued under the fixed designation E6; the number immediately following the designation indicates the year of original adoption or, in the case of revision, the year of last revision. A number in parentheses indicates the year of last reappraisal. A superscript epsilon (ϵ) indicates an editorial change since the last revision or reappraisal.

This standard has been approved for use by agencies of the U.S. Department of Defense.

¹ NOTE—Editorial changes were made throughout in May 2017.

² NOTE—Editorial changes were made throughout in April 2019.

³ NOTE—Editorial changes were made throughout in May 2020.

⁴ NOTE—Editorial changes were made throughout in May 2021.

1. Scope

1.1 This terminology covers the principal terms relating to methods of mechanical testing of solids. The general definitions are restricted and interpreted, when necessary, to make them particularly applicable and practicable for use in standards requiring or relating to mechanical tests. These definitions are published to encourage uniformity of terminology in product specifications.

1.2 Terms relating to fatigue and fracture testing are defined in Terminology [E1823](#).

1.3 *This international standard was developed in accordance with internationally recognized principles on standardization established in the Decision on Principles for the Development of International Standards, Guides and Recommendations issued by the World Trade Organization Technical Barriers to Trade (TBT) Committee.*

2. Referenced Documents

2.1 ASTM Standards:²

[E8/E8M Test Methods for Tension Testing of Metallic Materials](#)

[E796 Test Method for Ductility Testing of Metallic Foil \(Withdrawn 2009\)](#)³

[E1823 Terminology Relating to Fatigue and Fracture Testing](#)

¹ This terminology is under the jurisdiction of ASTM Committee [E28](#) on Mechanical Testing and is the direct responsibility of Subcommittee [E28.91](#) on Terminology except where designated otherwise. A subcommittee designation in parentheses following a definition indicates the subcommittee with responsibility for that definition.

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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.

2.2 ISO Standard:⁴

[ISO/IEC Guide 99:2007 International Vocabulary of metrology—Basic and general concepts and terms \(VIM\)](#)

2.3 NIST Technical Notes:

[NIST Technical Note 1297 Guidelines for Evaluating and Expressing the Uncertainty of NIST Measurement Results](#)⁵

2.4 BIPM Standard:⁶

[JCGM 200 : International vocabulary of metrology — Basic and general concepts and associated terms \(VIM\)](#).

3. Index of Cross-References and Associated Definitions

3.1 The terms listed below are associated with terminology that is fundamental or commonly used. The definition for the term of interest is related to or is given below the definition for the fundamental term cited.

Term	
angular strain	see strain
axial strain	see strain
bending strain	see strain
chord modulus	see modulus of elasticity
direct verification	see verification
compressive stress	see stress
elastic constants	see modulus of elasticity and Poisson's ratio
elastic modulus	see modulus of elasticity
engineering strain	see strain
engineering stress	see stress
fracture stress	see stress
indirect verification	see verification
linear (tensile or compressive) strain	see strain
macrostrain	see strain
malleability	see ductility
microstrain	see strain
modulus of rigidity	see modulus of elasticity
nominal stress	see stress

⁴ Available from International Organization for Standardization (ISO), 1 rue de Varembe, Case postale 56, CH-1211, Geneva 20, Switzerland, <http://www.iso.ch>.

⁵ Available from National Institute of Standards and Technology (NIST), 100 Bureau Dr., Stop 1070, Gaithersburg, MD 20899-1070, <http://www.nist.gov>.

⁶ Available from BIPM - Pavillon de Breteuil F-92312 Sèvres Cedex FRANCE. This document is available free-of-charge at <https://www.bipm.org/en/publications/guides/vim.html>