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StandardTest Methods for Testing Multi-Wire Steel Strand[1]

This standard is issued under the fixed designation A1061/A1061M; 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 reapproval. A superscript epsilon (ε) indicates an editorial change since the last revision or reapproval.

1. Scope

1.1 These test methods describe procedures for testing the mechanical as well as relaxation properties of multi-wire steel strand.

1.2 These test methods are intended for use in evaluating specific strand properties prescribed in specifications for multi-wire steel strand, but they do not quantify acceptance criteria specified in the applicable specification for the strand being tested.

1.3 The values stated in either SI units or inch-pound units are to be regarded separately as standard. The values stated in each system may not be exact equivalents; therefore, each system shall be used independently of the other. Combining values from the two systems may result in non-conformance with the standard.

1.4 *This standard does not purport to address all of the safety concerns, if any, associated with its use. It is the responsibility of the user of this standard to establish appropriate safety and health practices and determine the applicability of regulatory limitations prior to use.*

2. Referenced Documents

2.1 *ASTM Standards:*[2]

A370 Test Methods and Definitions for Mechanical Testing of Steel Products

E4 Practices for Force Verification of Testing Machines

E83 Practice for Verification and Classification of Extensometer Systems

E328 Test Methods for Stress Relaxation for Materials and Structures

3. Terminology

3.1 *Definitions of Terms Specific to This Standard:*

3.1.1 *free span, n*—the distance between the gripping jaws occupied by the length of strand to be tested in which the strand is not contacted or detrimentally influenced by the gripping system.

3.1.2 *length of lay, n*—the axial distance required to make one complete revolution of any wire of a strand.

3.1.3 *strand, n*—two or more steel wires wound together in a helical form.

4. Significance and Use

4.1 The mechanical properties of the strand are determined by a test in which fracture of the specimen occurs in the free span between the jaws of the testing machine.

4.2 Mechanical properties of the strand will be negatively affected if proper care is not taken to prevent damage such as severe bending, abrasion, or nicking of the strand during sampling.

4.3 Premature failure of the test specimens may result if there is appreciable notching, cutting, or bending of the specimen by the gripping devices of the testing machine.

4.4 Errors in testing will result if the wires constituting the strand are not loaded uniformly.

4.5 The mechanical properties of the strand will be materially affected by excessive heating during specimen collection or preparation.

4.6 Gripping difficulties will be minimized by following the suggested methods of gripping described in Section 7.

5. Apparatus

5.1 Tensile test machine calibrated in accordance with Practices E4.

5.2 Class B-1 extensometer as described in Practice E83.

5.3 Class D extensometer as described in Practice E83.

6. Sampling

6.1 Unless otherwise specified in the material standard, test specimens shall be taken from the finished product prior to packaging. The number of test specimen(s) shall be taken as specified in the applicable specification for the material strand being tested.

[1] These test methods are under the jurisdiction of ASTM Committee A01 on Steel, Stainless Steel and Related Alloys and is the direct responsibility of Subcommittee A01.05 on Steel Reinforcement.

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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.