



Standard Specification for Steel Strand, Seven-Wire, Uncoated, Compacted, Stress- Relieved for Prestressed Concrete¹

This standard is issued under the fixed designation A 779/A 779M; 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 This specification describes three grades of compacted, seven-wire, uncoated, stress-relieved strand for use in pre-tensioned and post-tensioned prestressed concrete construction.

1.2 Supplement I describes low-relaxation strand and low-relaxation testing.

1.3 The values stated in either inch-pound or SI units are to be regarded as standard. Within the text, the inch-pound units are shown in parentheses. The values stated in each system are not exact equivalents; therefore, each system shall be used independently of the other, without combining values in any way.

2. Referenced Documents

2.1 ASTM Standards:

A 370 Test Methods and Definitions for Mechanical Testing of Steel Products²

A 751 Test Methods, Practices, and Terminology for Chemical Analysis of Steel Products²

E 328 Methods for Stress Relaxation Tests for Materials and Structures³

3. Terminology

3.1 Definitions of Terms Specific to This Standard:

3.1.1 *strand*—a group of wires having a center wire enclosed tightly by six helically placed outer wires with a uniform pitch of not less than 14 and not more than 18 times the nominal diameter of the strand.

3.1.2 *compacted strand*—strand that has been compacted by drawing through a die or a similar compacting process and subsequently stress-relieved prior to winding into coils or reelless packs.

3.1.3 *lot*—all of the compacted strand of the same grade and package size produced on the same production equipment and submitted for inspection at the same time.

4. Classification

4.1 *Grade 1700 (245)*—Nominal diameter of 18.0 mm (0.7 in.) with tensile failure stress of 1705 MPa (247 ksi) based on nominal area of the strand.

4.2 *Grade 1800 (260)*—Nominal diameter of 15.2 mm (0.6 in.) with tensile failure stress of 1815 MPa (263 ksi) based on nominal area of the strand.

4.3 *Grade 1860 (270)*—Nominal diameter of 12.7 mm (0.5 in.) with tensile failure stress of 1860 MPa (270 ksi) based on nominal area of the strand.

5. Ordering Information

5.1 Orders for compacted stress relieved strand should include the following information:

5.1.1 Quantity (meters (feet)),

5.1.2 Grade of strand (Section 4),

5.1.3 Special inspection requirements, if desired (see Section 13),

5.1.4 Packaging,

5.1.5 ASTM designation and date of issue, and

5.1.6 Special requirements, if any.

NOTE 1—A typical ordering description is as follows: 100 000 m Grade 260 compacted low-relaxation strand in approximately 3700 m reelless packs to ASTM A 779/A 779M (328 000 ft Grade 1800 compacted low-relaxation strand in approximately 12 000 ft-reelless packs to ASTM A 779/A 779M.)

6. Materials and Manufacture

6.1 The steel shall be of such quality that, when processed, the finished wire shall be free of detrimental flaws and undue segregation.

6.2 Wire from which the strand is to be fabricated shall be in the cold-drawn condition and have a common dry-drawn finish.

6.3 After stranding and compacting, all strand shall be subjected to a stress-relieving continuous thermal treatment to produce the desired mechanical properties. Temper colors

¹ This specification is under the jurisdiction of ASTM Committee A-1 on Steel, Stainless Steel, and Related Alloys and is the direct responsibility of Subcommittee A01.05 on Steel Reinforcement.

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² Annual Book of ASTM Standards, Vol 01.03.

³ Annual Book of ASTM Standards, Vol 03.01.

