



Designation: A 690/A 690M – 05

# Standard Specification for High-Strength Low-Alloy Nickel, Copper, Phosphorus Steel H-Piles and Sheet Piling with Atmospheric Corrosion Resistance for Use in Marine Environments<sup>1</sup>

This standard is issued under the fixed designation A 690/A 690M; 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 Department of Defense.*

## 1. Scope\*

1.1 This specification covers high-strength low-alloy nickel, copper, phosphorus steel H-piles and sheet piling of structural quality for use in the construction of dock walls, sea walls, bulkheads, excavations, and like applications in marine environments.

1.2 The atmospheric corrosion resistance of this steel is substantially better than that of ordinary carbon steels with or without copper addition (see **Note 1**). The steel has also shown to have substantially greater resistance to seawater “Splash Zone” corrosion than ordinary carbon steel (Specifications A 36/A 36M and A 328/A 328M) where exposed to the washing action of rain and the drying action of the wind or sun, or both. Where the steel is not boldly exposed, the usual provisions for the protection of ordinary carbon steel should be considered.

**NOTE 1**—For methods of estimating atmospheric corrosion resistance of low-alloy steels, see Guide **G 101**.

1.3 When the steel is to be welded, it is presupposed that a welding procedure suitable for the grade of steel and intended use or service will be utilized. See Appendix X 3 of Specification A 6/A 6M for information on weldability.

1.4 The values stated in either inch-pound units or SI units are to be regarded as standard. Within the text, the SI units are shown in brackets. The values stated in each system are not exact equivalents; therefore, each system must be used independently of the other. Combining values from the two systems may result in nonconformance with the specification.

## 2. Referenced Documents

### 2.1 ASTM Standards:

<sup>1</sup> This specification is under the jurisdiction of ASTM Committee A01 on Steel, Stainless Steel, and Related Alloys and is the direct responsibility of Subcommittee A01.02 on Structural Steel for Bridges, Buildings, Rolling Stock, and Ships.

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**A 6/A6M** Specification for General Requirements for Rolled Structural Steel Bars, Plates, Shapes, and Sheet Piling

**A 36/A36M** Specification for Carbon Structural Steel

**A 325** Specification for Structural Bolts, Steel, Heat Treated, 120/105 ksi Minimum Tensile Strength

**A 325M** Specification for Structural Bolts, Steel, Heat Treated, 830 MPa Minimum Tensile Strength [Metric]

**A 328/A328M** Specification for Steel Sheet Piling

**A 588/A588M** Specification for High-Strength Low-Alloy Structural Steel with 50 ksi [345 MPa] Minimum Yield Point to 4 in. [100 mm] Thick

**G 101** Guide for Estimating Atmospheric Corrosion Resistance of Low-Alloy Steels

## 3. General Requirements for Delivery

3.1 Structural products furnished under this specification shall conform to the requirements of the current edition of Specification A 6/A 6M, for the specific structural product ordered, unless a conflict exists in which case this specification shall prevail.

3.2 Coils are excluded from qualification to this specification until they are processed into a finished structural product. Structural products produced from coil means structural products that have been cut to individual lengths from a coil. The processor directly controls, or is responsible for, the operations involved in the processing of a coil into finished structural product. Such operations include decoiling, leveling or straightening, hot-forming or cold-forming (if applicable), cutting to length, testing, inspection, conditioning, heat treatment (if applicable), packaging, marking, loading for shipment, and certification.

**NOTE 2**—For structural products produced from coil and furnished without heat treatment or with stress relieving only, two test results are to be reported for each qualifying coil. Additional requirements regarding structural products produced from coil are described in Specification A 6/A 6M.

\*A Summary of Changes section appears at the end of this standard.