



MARICOPA COUNTY
Department of Transportation

MEMORANDUM

Date: March 3, 2016 Revised and Approved 2016-05-04
To: MAG Specifications and Details Committee
From: Robert Herz, MCDOT Representative
Subject: Update to Section 727 Steel Reinforcement **Case 16-06**

PURPOSE: Adjust ASTM references. ASTM A82 and ASTM A185 have been withdrawn and replaced by ASTM A1064. Delete referenced ASTM B670 (Standard Specification for Precipitation-Hardening Nickel Alloy (UNS N07718) Plate, Sheet, and Strip for High-Temperature Service), it is spurious and does not apply.

REVISION:

SECTION 727

STEEL REINFORCEMENT

727.1 GENERAL:

The following specifications set forth the requirements for bar reinforcement, wire reinforcement, and wire mesh reinforcement. The reinforcement shall conform accurately to the dimensions and details indicated on the plans or otherwise prescribed and before being placed in any concrete work, shall be thoroughly cleaned of all loose rust, mill scale, mortar, oil, dirt, or coating of any character, which would be likely to destroy, reduce, or impair its proper binding with the concrete.

No reinforcing steel will be accepted under this specification until it has been approved by the Engineer. When required by the Engineer, the Contractor or supplier shall furnish a spot sample taken on the project and notify the Engineer as to when and where they will be available. Such samples shall be furnished at the expense of the Contractor or supplier, but the cost of any testing that may be required will be borne by the Contracting Agency. Samples shall only be taken in the presence of the Engineer. The Contractor shall furnish 3 certified mill test reports or certificates of compliance for each heat or size of steel which can be clearly identified with the lot. When such information has been furnished, placing of the steel will not be held up until results of spot samples have been received. Unless otherwise specified, all reinforcing steel bars shall be deformed intermediate grade 40 billet steel in conformance with ASTM A615 ~~and the shapes shall conform with ASTM B670.~~

In testing bar reinforcement, only the theoretical cross-sectional area will be used in all computations.

Reinforcing steel shall be furnished in the sizes, shapes, and lengths shown on the plans. Bending of steel shall conform to the requirements of Section 505.5.2.

The various grades of steel shall not be used interchangeably in structures.

727.2 WIRE REINFORCEMENT:

Wire reinforcement shall in all respects fulfill requirements prescribed in ASTM ~~A82~~ A1064.

727.3 WELDED WIRE MESH REINFORCEMENT:

~~Mesh Welded wire~~ reinforcements shall conform to ASTM-A185 A1064. The ~~gage of the wire size number~~ and the ~~dimension of the mesh wire spacing~~ will be specified in the special provisions or shown on the plans. The welded wire mesh reinforcement shall be so constructed as to retain its original shape and form during necessary handling. The effective cross-sectional area of the metal shall be equal to that specified or indicated on the plans.

727.4 WIRE TIES:

Wire for ties shall be black, annealed, not lighter than 16 gage.

- End of Section -

Reference Information:



Designation: B670 – 07 (Reapproved 2013)

Standard Specification for Precipitation-Hardening Nickel Alloy (UNS N07718) Plate, Sheet, and Strip for High-Temperature Service¹

This standard is issued under the fixed designation B670; 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.

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

1. Scope

1.1 This specification covers rolled precipitation hardenable nickel alloy (N07718)* plate, sheet, and strip in the annealed condition (temper).

1.2 The values stated in inch-pound units are to be regarded as standard. The values given in parentheses are mathematical conversions to SI units that are provided for information only and are not considered standard.

1.3 *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 become familiar with all hazards including those identified in the appropriate Material Safety Data Sheet (MSDS) for this product/material as provided by the manufacturer, 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

B637 Specification for Precipitation-Hardening and Cold Worked Nickel Alloy Bars, Forgings, and Forging Stock for Moderate or High Temperature Service

B906 Specification for General Requirements for Flat-Rolled Nickel and Nickel Alloys Plate, Sheet, and Strip

E29 Practice for Using Significant Digits in Test Data to Determine Conformance with Specifications

E139 Test Methods for Conducting Creep, Creep-Rupture, and Stress-Rupture Tests of Metallic Materials

¹ This specification is under the jurisdiction of ASTM Committee B02 on Nonferrous Metals and Alloys and is the direct responsibility of Subcommittee B02.07 on Refined Nickel and Cobalt and Their Alloys.

Current edition approved Feb. 1, 2013. Published February 2013. Originally approved in 1972. Last previous edition approved in 2007 as B670 – 07. DOI: 10.1520/B0670-07R13.

* New designation established in accordance with ASTM E527 and SAE J1086, Practice for Numbering Metals and Alloys (UNS).

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

3. Terminology

3.1 *Description of Terms Specific to This Standard*—The terms given in **Table 1** shall apply.

4. General Requirements

4.1 Material furnished under this specification shall conform to the applicable requirements of Specification **B90** unless otherwise provided herein.

5. Ordering Information

5.1 It is the responsibility of the purchaser to specify a requirements that are necessary for material ordered to this specification. Examples of such requirements include, but are not limited to, the following:

5.1.1 *Alloy*—Name or UNS number (see **Table 2**).

5.1.2 *ASTM designation*, including year of issue.

5.1.3 *Condition*—See **7.1** and **Appendix X1**.

5.1.4 *Finish*—Specification **B906** or **Appendix X1**.

5.1.5 *Dimensions*—Thickness, width, and length.

5.1.6 *Quantity*:

5.1.7 *Optional Requirements*:

5.1.7.1 *Sheet and Strip*—Whether to be furnished in coil, in cut straight lengths, or in random straight lengths.

5.1.7.2 *Strip*—Whether to be furnished with commercial sli edge, square edge, or round edge.

5.1.7.3 *Plate*—Whether to be furnished specially flattened (see **8.7**); also how plate is to be cut (see **8.2.1** and **8.3.2**).

5.1.8 *Fabrication Details*—Not mandatory but helpful to the manufacturer:

5.1.8.1 *Welding or Brazing*—Process to be employed.

5.1.8.2 *Plate*—Whether material is to be hot-formed.

5.1.9 *Certification*—State if certification or a report of test results is required (see Specification **B906**).

5.1.10 *Samples for Product (Check) Analysis*—Whether the samples should be furnished (see **6.2**).

5.1.11 *Purchaser Inspection*—If the purchaser wishes to witness the tests or inspection of material at the place of manufacture, the purchase order must so state indicating which

ASTM A185/A185M-07 (Withdrawn Version)

Standard Specification for Steel Welded Wire Reinforcement, Plain, for Concrete (Withdrawn 2013)

Withdrawn Standard:  A185/A185M-07 | Developed by Subcommittee: A01.05

WITHDRAWN, REPLACED BY [A1064/A1064M](#)

Format	Pages	
 PDF Version	6	DOWNLOAD PDF

1. Scope

1.1 This specification covers welded wire reinforcement to be used for the reinforcement of concrete.

Note 1

Welded wire for concrete reinforcement has been described by various terms: welded wire fabric, WWF, fabric, and mesh. The wire reinforcement industry prefers the term "welded wire reinforcement" (WWR) as being more representative of the range of products being manufactured. Therefore, the term "welded wire fabric" has been replaced with the term "welded wire reinforcement" in this specification and in related specifications.

1.2 The values stated in 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. (Within the text the inch-pound units are shown in brackets.)

ASTM A82/A82M-07 (Withdrawn Version)

Standard Specification for Steel Wire, Plain, for Concrete Reinforcement (Withdrawn 2013)

Withdrawn Standard:  A82/A82M-07 | Developed by Subcommittee: A01.05

WITHDRAWN, REPLACED BY [A1064/A1064M](#)

Format	Pages	
 PDF Version	4	DOWNLOAD PDF

1. Scope

1.1 This specification covers cold-drawn steel wire, as-drawn or galvanized, to be used as such, or in fabricated form, for the reinforcement of concrete, in sizes not less than 2.03 mm [0.080 in.] nominal diameter.

1.2 Supplement S1 describes high-strength wire, which shall be furnished when specifically ordered. It shall be permissible to furnish high-strength wire in place of regular wire if mutually agreed to by the purchaser and the manufacturer.

1.3 The values stated in 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 (The inch-pound units are shown in brackets except in Table 6.)