Designation: A121 – 13

Standard Specification for Metallic-Coated Carbon Steel Barbed Wire[1]

This standard is issued under the fixed designation A121; 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 metallic-coated steel barbed wire, consisting of a strand of two wires.

1.2 The barbed wire is available with aluminum, zinc, and zinc-5 % aluminum-mischmetal alloy coatings, with a number of coating weights, in a number of different constructions (designs), and in two grades. Not all designs are available in all coating types.

1.3 The values stated in inch-pound units are to be regarded as the standard. The values given in parentheses are for information only.

1.4 The text of this specification references notes and footnotes that provide explanatory information. These notes and footnotes (excluding those in tables) shall not be considered as requirements of the specification.

2. Referenced Documents

2.1 *ASTM Standards:*[2]

A90/A90M Test Method for Weight [Mass] of Coating on Iron and Steel Articles with Zinc or Zinc-Alloy Coatings

A428/A428M Test Method for Weight [Mass] of Coating on Aluminum-Coated Iron or Steel Articles

A641/A641M Specification for Zinc–Coated (Galvanized) Carbon Steel Wire

A700 Practices for Packaging, Marking, and Loading Methods for Steel Products for Shipment

A809 Specification for Aluminum-Coated (Aluminized) Carbon Steel Wire

A856/A856M Specification for Zinc-5 % Aluminum-Mischmetal Alloy-Coated Carbon Steel Wire

A902 Terminology Relating to Metallic Coated Steel Products

2.2 *Federal Standard:*

Fed. Std. No. 123 Marking for Shipments (Civil Agencies)[3]

2.3 *Military Standards:*

MIL-STD-129 Marking for Shipment and Storage[3]

MIL-STD-163 Steel Mill Products Preparation for Shipment and Storage[3]

3. Terminology

3.1 *Definitions*—For definitions of terms not specified in this specification, refer to Terminology A902.

4. Classification

4.1 The barbed wire covered by this specification is classified as described in this section.

4.2 *Design Number*— Numbers describing standard sizes and constructions, as listed in Table 1.

4.3 *Metallic Coating Type:*

4.3.1 *Coating Type A*— Made from aluminum-coated strand wire. See 6.3. (Only one coating weight for each wire size.)

4.3.2 *Coating Type Z*— Made from zinc-coated strand wire. See Table 2.

4.3.3 *Coating Type ZA*— Made from zinc-5 % aluminum-mischmetal alloy (Zn-5AL-MM) coated strand wire. See Table 3.

4.4 *Metallic Coating Class*—The specified amount of coating (coating weight (mass)) on the strand wire.

4.5 *Grades:*

4.5.1 *Standard Grade*— Barbs spaced on 4 or 5-in. (102 or 127-mm) centers as indicated in Table 1.

4.5.2 *High-Security Grade*—Barbs spaced on 3-in. (76-mm) centers with Coating Type A, Z, or ZA only.

NOTE 1—The design numbers are related to the characteristics of the construction of the barbed wire, with the number groups related, in order, to the steel wire gage of the strand wires, number of barb points, spacing of barbs, steel wire gage of the barbs, and a letter indicating the shape of the barbs.

[1] This specification is under the jurisdiction of ASTM Committee A05 on Metallic-Coated Iron and Steel Products and is the direct responsibility of Subcommittee A05.12 on Wire Specifications.

Current edition approved April 1, 2013. Published May 2013. Originally approved in 1928. Last previous edition approved in 2007 as A121 - 07. DOI: 10.1520/A0121-13.

[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] Available from Standardization Documents Order Desk, DODSSP, Bldg. 4, Section D, 700 Robbins Ave., Philadelphia, PA 19111-5098

Copyright © ASTM International, 100 Barr Harbor Drive, PO Box C700, West Conshohocken, PA 19428-2959. United States

Documents
Document Sharing Hub
Full document details: ASTM A121-13

TABLE 1 Standard Sizes and Constructions for Barbed Wire

Design Number	Size, Steel Wire Gage	Nominal Diameter of Coated Wire, in. (mm)	Number of Barb Points	Spacing of Barbs, in. (mm)	Diameter of Barbs, Steel Wire Gage[A]	Shape of Barbs
			Metallic Coating Type A			
12-4-3-14R	12½	0.099 (2.51)	4	3 (76)	14	Round
12-4-5-14R	12½	0.099 (2.51)	4	5 (127)	14	Round
12-4-3-12R[B]	12½	0.099 (2.51)	4	3 (76)	12	Round
			Metallic Coating Type Z and Type ZA			
12-2-4-12F	12½	0.099 (2.51)	2	4 (102)	12½ [C]	Flat
12-2-4-13F	12½	0.099 (2.51)	2	4 (102)	13[C]	Flat
12-2-4-14R	12½	0.099 (2.51)	2	4 (102)	14	Round
12-2-5-12F	12½	0.099 (2.51)	2	5 (127)	12½ [C]	Flat
12-2-5-14R	12½	0.099 (2.51)	2	5 (127)	14	Round
12-4-5-14H	12½	0.099 (2.51)	4	5 (127)	14[C]	Half-round
12-4-5-14R	12½	0.099 (2.51)	4	5 (127)	14	Round
13-2-4-14R	13½	0.086 (2.18)	2	4 (102)	14	Round
13-4-5-14R	13½	0.086 (2.18)	4	5 (127)	14	Round
14-2-4-14F	14	0.080 (2.03)	2	4 (102)	14	Flat
14-2-5-14F	14	0.080 (2.03)	2	5 (127)	14	Flat
14-4-3-14F	14	0.080 (2.03)	4	3 (76)	14	Flat
14-4-5-14F	14	0.080 (2.03)	4	5 (127)	14	Flat
14-2-5-14R	14	0.080 (2.03)	2	5 (127)	14	Round
14-4-5-14R	14	0.080 (2.03)	4	5 (127)	14	Round
15-2-5-13F	15½	0.067 (1.70)	2	5 (127)	13¾ [C]	Flat
15-2-5-14R	15½	0.067 (1.70)	2	5 (127)	14	Round
15-4-5-16R	15½	0.067 (1.70)	4	5 (127)	16½	Round
15-4-3-16R	15½	0.067 (1.70)	4	3 (76)	16½	Round

[A]The nominal diameter of the wire used in making the barbs shall be as follows:
12½ gage 0.099 in. (2.51 mm)
13 gage 0.092 in. (2.34 mm)
13¾ gage 0.083 in. (2.11 mm)
14 gage 0.080 in. (2.03 mm)
16½ gage 0.058 in. (1.47 mm)
[B]Design Number 12–4–3–12R, Metallic Coated Type A, is High-Security Grade. All other design numbers are for standard grade.
[C]The gage of the half-round and flat barbs is designated by the gage of the round wire from which the barbs are rolled.

TABLE 2 Minimum Weight of Coating on Type Z Barbed Wire

Size, Steel Wire Gage	Nominal Diameter of Type Z		Minimum Weight of Coating of Uncoated Wire Surface, oz/ft² (g/m²)	
	in.	(mm)	Class 1	Class 3
12½	0.099	(2.51)	0.28 (85)	0.80 (245)
13	0.092	(2.34)	0.28 (85)	0.75 (230)
13½	0.086	(2.18)	0.25 (75)	0.70 (215)
13¾	0.083	(2.11)	[A]	0.70 (215)
14	0.080	(2.03)	0.25 (75)	0.70 (215)
15½	0.067	(1.70)	[A]	0.65 (200)
16½	0.058	(1.47)	[A]	0.60 (200)

[A]These sizes only furnished with Class 3 Coating (Section 8).

TABLE 3 Minimum Weight of Coating on Type ZA Barbed Wire

Size, Steel Wire Gage	Nominal Diameter of Type ZA		Minimum Weight of Coating of Uncoated Wire Surface, oz/ft² (g/m²) Class		
	in.	(mm)	Class 1	Class 3	Class 60
12½	0.099	(2.51)	0.28 (85)	0.80 (245)	0.60 (183)
13	0.092	(2.34)	0.28 (85)	0.75 (230)	0.60 (183)
13½	0.086	(2.18)	0.25 (75)	0.70 (215)	0.60 (183)
13¾	0.083	(2.11)	0.25 (75)	0.70 (215)	0.60 (183)
14	0.080	(2.03)	0.25 (75)	0.70 (215)	0.60 (183)
15½	0.067	(1.70)	0.20 (61)	0.65 (198)	n/a
16½	0.058	(1.47)	0.20 (61)	0.60 (183)	n/a

5. Ordering Information

5.1 Orders for material under this specification shall include the following information, as necessary to describe the desired product.

5.1.1 Name of material (steel barbed wire),

5.1.2 Quantity (number of spools and length of barbed wire on each, or total length) (see 7.5 for standard size of spools),

5.1.3 Metallic coating type (see 4.3),

5.1.4 Metallic coating class (for Types Z and ZA) (see Table 2 or Table 3),

5.1.5 Design Number (see Table 1),

5.1.6 For Coating Type A barbed wire, whether aluminum alloy barbs are required or prohibited (see 6.2.1). If not stated, the choice shall be at the manufacturer's option,

5.1.7 ASTM designation and year of issue, and

5.1.8 Certification or test report, or both, if required.

NOTE 2—A typical ordering description is as follows: Steel barbed wire, 20 spools of 80 rods each, Coating Type Z, Coating Class 3, Design Number 12-2-4-14R, to ASTM Specification A121-latest edition, with certification.

5.2 All spools of barbed wire accepted by the purchaser shall be billed on the basis of the original length of the spools before sampling, unless changed by contractual agreement.

6. Material

6.1 *Base Metal*—The base metal of the steel strand wires and steel barbs shall be of good commercial quality carbon steel, capable of meeting the breaking strength requirement in 7.7. The base metal for aluminum barbs shall be such that

AVA Documents
Document Sharing Hub

Full document details: ASTM A121-13