



Designation: A740 – 21 (Reapproved 2026)

Standard Specification for Hardware Cloth (Woven or Welded Galvanized Steel Wire Fabric)¹

This standard is issued under the fixed designation A740; 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 U.S. Department of Defense.

1. Scope

1.1 This specification covers woven or welded galvanized steel wire fabric commercially known as hardware cloth. It is customarily used for window and screen door guards, tree guards, industrial machine guards, sand screens, and grain bins. It serves as a protective screen against rodents and is used for many other home, farm, and industrial purposes.

1.2 *Units*—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 establish appropriate safety, health, and environmental practices and determine the applicability of regulatory limitations prior to use.*

1.4 *This international standard was developed in accordance with internationally recognized principles on standardization established in the Decision on Principles for the Development of International Standards, Guides and Recommendations issued by the World Trade Organization Technical Barriers to Trade (TBT) Committee.*

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
B6 Specification for Zinc
E29 Practice for Using Significant Digits in Test Data to Determine Conformance with Specifications

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.

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² For referenced ASTM standards, visit the ASTM website, www.astm.org, or contact ASTM Customer Service at www.astm.org/contact. For *Annual Book of ASTM Standards* volume information, refer to the standard's Document Summary page on the ASTM website.

2.2 Military Standards:³

MIL-STD-129 Military Marking for Shipment and Storage
MIL-STD-147 Palletized Unit Loads

3. Terminology

3.1 Definitions of Terms Specific to This Standard:

3.1.1 *hardware cloth, n*—as used in this specification, designates a material composed of cold-drawn steel wires which have been fabricated into fabric (or so-called “mesh”), formed by the process of weaving or electrical welding, and subsequently galvanized (zinc coated) by the hot-dip process.

3.1.1.1 *Discussion*—The finished material consists essentially of a series of longitudinal (warp) and transverse (filler) wires arranged substantially at right angles to each other.

3.1.2 *mesh size, n*—as it pertains to cloth, is the dimensional center-to-center distance between warp wires and filler wires in that order.

3.1.2.1 *Discussion*—Measurements include the width of one opening plus the thickness of one parallel zinc-coated wire. Examples are 1 by 2 in., ½ by 1 in., etc. Thus, a 1 by 2 in. mesh denotes that the warp and filler wires are spaced on 1 in. (25.4 mm) and 2 in. (50.8 mm) centers respectively. For fabric with a square mesh, the mesh size is indicated by a single value.

4. Ordering Information

4.1 Orders for material under this specification shall include the following information:

- 4.1.1 Quantity (number of rolls),
- 4.1.2 Name of material (1.1),
- 4.1.3 Mesh size (Table 1),
- 4.1.4 Wire size (Table 1),
- 4.1.5 Width (5.7.1),
- 4.1.6 Roll length (5.7.2),
- 4.1.7 Woven or welded, if necessary (Table 1), and
- 4.1.8 ASTM designation and year of issue.

³ Available from Standardization Documents Order Desk, DODSSP, Bldg. 4, Section D, 700 Robbins Ave., Philadelphia, PA 19111-5098, <http://www.dodssp.daps.mil>.

TABLE 1 Mesh Size, Wire Size, and Weight^A

Mesh Size, in. (mm)	Construction	Diameter of Wire After Galvanizing, in. (mm)	Approximate Weight, lb/100 ft ² (kg/m ²)
1 by ½ (25.4 by 12.7)	Welded	0.062 (1.57)	38 (1.86)
1 by ½ (25.4 by 12.7)	Welded	0.057 (1.45)	34 (1.66)
¾ (19.0)	Welded	0.062 (1.57)	38 (1.86)
¾ (19.0)	welded	0.057 (1.45)	36 (1.77)
¾ (19.0)	Welded	0.041 (1.04)	13 (0.65)
⅝ (15.9)	Welded	0.047 (1.20)	25 (1.21)
½ by 1 (12.7 by 25.4)	Welded	0.062 (1.57)	38 (1.86)
½ by 1 (12.7 by 25.4)	Welded	0.057 (1.45)	34 (1.66)
½ by 1 (12.7 by 25.4)	Welded	0.041 (1.04)	16 (0.78)
½ (12.7)	Welded	0.062 (1.57)	52 (2.54)
½ (12.7)	Welded	0.041 (1.04)	25 (1.22)
½ (12.7)	Woven	0.041 (1.04)	27 (1.32)
½ (12.7)	Welded	0.0317 (0.805)	14 (0.70)
½ (12.7)	Welded	0.0258 (0.655)	10 (0.47)
⅝ ₁₂ (10.6)	Welded	0.0354 (0.899)	23 (1.11)
⅓ (8.5)	Welded	0.0317 (0.805)	23 (1.11)
⅓ (8.5)	Woven	0.0317 (0.805)	26 (1.27)
¼ (6.4)	Woven	0.0258 (0.655)	25 (1.22)
¼ (6.4)	Welded	0.0217 (0.551)	14 (0.69)
⅙ (3.2)	Woven	0.0173 (0.439)	22 (1.07)

^A First dimension of rectangular meshes is spacing of warp wires (see 3.1.2.1).

NOTE 1—A typical ordering description is as follows: “ten 100 ft Rolls of ¼ in. Hardware Cloth, Wire Size 0.0258 in., 24 in. wide, to ASTM A740 – ____.”

5. Manufacture

5.1 *Base Metal*—The base metal of hardware cloth shall be of good commercial quality carbon steel wire.

5.2 *Zinc for Coating*—The zinc used in the galvanizing process shall be any grade of zinc conforming to Specification B6.

5.3 *Fabrication*—Hardware cloth shall be of wire woven or welded into squares or rectangles and then galvanized by the hot-dip process. The mesh size and wire size after galvanizing shall conform to Table 1. Approximate weights for the product are also shown in Table 1.

5.4 *Mesh Count*—The mesh size in inches shall be determined by counting the meshes for any interval of one continuous linear foot, in the direction of either the warp or filler wires and finding the mesh size in Table 2.

5.5 *Wire Diameter*—All wire diameter designations in this specification for hardware cloth are finished sizes after galvanizing. Wire diameter for the warp and filler wires shall be determined separately by checking the average measured

diameters of not less than ten warp wires and the same number of filler wires, taken at random from a single roll of finished hardware cloth.

5.6 Weight of Coating:

5.6.1 The weight of zinc coating shall be determined on a sample of cloth approximately 25 in.² (161 cm²) in area. The coating shall be tested for weight by a stripping test in accordance with Test Method A90/A90M. Wire diameter for calculating purposes shall be the average measured diameters, after stripping, of at least five warp wires and an equal number of filler wires.

5.6.2 As the fabric is galvanized after welding/weaving the coating weight will be much higher than the present specification and we suggest the following with the addition of Table 3.

5.6.3 Coating weight thus determined shall be to the minimums shown in Table 3. The values are a minimum as determined by the rounding method in Practice E29.

5.7 Width and Length:

5.7.1 Stock widths of all standard sizes of hardware cloth are 24, 30, 36, and 48 in. (610, 762, 914, and 1219 mm).

5.7.2 Unless otherwise specified, hardware cloth shall be furnished in standard stock rolls of 50 linear ft (15.2 m) or 100 linear ft (30.5 m) in length. No standard stock roll shall contain more than two pieces, and no single piece shall be less than 10 linear ft (3.0 m) in length.

5.8 *Splices*—Splices not more than 1½ in. (38 mm) long, and with no projecting ends (tails), shall be permitted at any point of any individual wire if the number of splices does not exceed 30 in any roll, or two in any square foot (0.093 m²).

5.9 *Edges*—Both edges of woven cloth shall be selvaged. Edges, either woven or welded, shall be so formed as to prevent raveling.

6. Permissible Variations

6.1 For specified wire diameters 0.0317 in. (0.805 mm) or larger, the average diameter as determined in 5.5 for either the warp or filler wires shall not be more than 0.0015 in. (0.038 mm) below the diameter specified. For specified diameters smaller than 0.0317 in., the average value as determined in 5.5 shall not be more than 0.001 in. (0.025 mm) below the specified diameter.

6.2 The average diameter of the stripped wire as determined in 5.6.1 shall not be below the specified diameter more than 0.0025 in. (0.064 mm) for sizes 0.0317 in. (0.805 mm) or larger, or more than 0.002 in. (0.051 mm) for sizes smaller than 0.0317 in.

TABLE 2 Mesh Count Versus Mesh Size

Mesh Count in 1 ft (305 mm)	Mesh Size, in. (mm)
96	⅙ (3.2)
48	¼ (6.4)
36	⅓ (8.5)
29	⅝ ₁₂ (10.6)
24	½ (12.7)
19	⅝ (15.9)
16	¾ (19.0)
12	1 (25.4)

TABLE 3 Mesh Size and Minimum Coating Weight—Surface Area

Mesh Size, in. (mm) ^A	Coating Weight, min, oz/ft ² (g/m ²)
mesh size ≤ ½ (12.7)	1.3 (400)
½ (12.7) < mesh size ≤ ¾ (19)	1.2 (375)
¾ (19) < mesh size ≤ 1 (25.4)	1.1 (335)

^A When the distance between warp and filler wires is different, the minimum distance is taken.