



Designation: A 810 – 00

Standard Specification for Zinc-Coated (Galvanized) Steel Pipe Winding Mesh¹

This standard is issued under the fixed designation A 810; 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 covers various designs of woven or welded zinc-coated wire mesh, galvanized before fabrication, to be used as reinforcement for the concrete applied in the manufacture of negative buoyancy pipe needed for laying pipe in marshes or in water. The mesh is also used as reinforcement for concrete applied to pipe as a bendable or nonbendable mechanical protective coating when laying pipe in a harsh environment.

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

2. Referenced Documents

2.1 ASTM Standards:

A 90/A 90M Test Method for Weight (Mass) of Coating on Iron and Steel Articles with Zinc or Zinc-Alloy Coatings²

A 370 Test Methods and Definitions for Mechanical Testing of Steel Products³

A 902 Terminology Relating to Metallic Coated Steel Products²

B 6 Specification for Zinc⁴

3. Terminology

3.1 *Definitions*—For definitions of terms used in this specification, see Terminology A 902.

4. Ordering Information

4.1 Orders for zinc-coated steel pipe winding mesh under this specification shall include the following information:

- 4.1.1 Quantity (number of rolls),
- 4.1.2 Width and length of rolls,
- 4.1.3 Type of fabric (hexagonal mesh or welded mesh),
- 4.1.4 Wire size (see Table 1 and Table 2),
- 4.1.5 Design number (see Table 1 and Table 2),
- 4.1.6 Mesh dimensions for welded mesh (see 8.1),
- 4.1.7 Packaging, and
- 4.1.8 ASTM designation and year of issue.

5. Materials

5.1 The steel shall be made by any commercially accepted steelmaking process.

5.1.1 The base metal shall be a steel having composition to permit drawing to a finished size and also to ensure freedom from zinc flaking during weaving or welding into mesh.

5.1.2 Wire for Welded and Woven Mesh:

5.1.2.1 *Welded Mesh*—Before welding the galvanized wire shall have a minimum tensile strength of 70 000 psi (483 MPa),

5.1.2.2 *Woven Mesh*—Before weaving the galvanized wire shall have a maximum tensile strength of 75 000 psi (515 MPa),

5.2 Slab zinc used for the coating shall be any grade of zinc conforming to Specification B 6.

6. Manufacture

6.1 *Hexagonal Woven Mesh*—This fabric is manufactured by twisting wires to form a series of openings, hexagonal in shape, as specified in Table 1 and Fig. 1. One of the edges of the fabric shall be constructed to include a selvage wire. In addition to those specified in Table 1 and Fig. 1, other styles (width and line wire configurations) are available to suit the purchaser's requirements. Additional reinforcing wires shall be woven into the mesh upon request.

6.2 *Welded Mesh*—This fabric is manufactured by welding a series of parallel longitudinal wires to transverse wires to form rectangular openings and may or may not be crimped, as specified in Table 2 and Fig. 2 and Fig. 3. In addition to those specified in Table 2 and Fig. 2 and Fig. 3, other styles (width and line wire configurations) are available to suit the purchaser's requirements.

7. Coating Requirements

7.1 The weight of zinc coating shall be in accordance with the values prescribed in Table 3.

7.2 Slight burning of the zinc coating at welded intersections of welded mesh shall not be cause for rejection.

8. Dimensions and Permissible Variations

8.1 *Width of Fabric*—Hexagonal mesh fabric is usually available in 7½-in. (190-mm) width. Welded mesh fabric, crimped, is usually available in 7-in. (178-mm) width having a maximum width of 7½ in. (190 mm) including crimp. Non-crimped welded mesh fabric is usually available in 8-in. (203-mm) width. Other widths of woven and welded fabrics

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² *Annual Book of ASTM Standards*, Vol 01.06.

³ *Annual Book of ASTM Standards*, Vol 01.03.

⁴ *Annual Book of ASTM Standards*, Vol 02.04.

TABLE 1 Standard Sizes and Constructions For Woven Hexagonal Mesh

Design Numbers	Nominal Width, in. (mm)	Nominal Diameter of Zinc-Coated Wire, in. (mm)	Nominal Cross Sectional Area Per Nominal Width, in. ² (mm ²) ^A	Nominal Cross Sectional Area Per Foot (Meter) of Width, in. ² (mm ²) ^{AB}
107 1/2 × 1 1/2 × 17	7 1/2 (190)	0.054 (1.37)	0.0252 (16.26)	0.0430 (91.02)
207 1/2 × 1 1/2 × 1718 ^C	7 1/2 (190)	0.054 (1.37)/0.048 (1.22)	0.0270 (17.42)	0.0489 (103.51)
307 1/2 × 1 1/2 × 1718 ^D	7 1/2 (190)	0.054 (1.37)/0.048 (1.22)	0.0287 (18.52)	0.0519 (109.86)
507 1/2 × 1 1/2 × 1718 ^E	7 1/2 (190)	0.054 (1.37)/0.048 (1.22)	0.0323 (20.84)	0.0580 (122.77)
514 1/4 × 1 1/2 × 1718 ^F	14 1/4 (362)	0.054 (1.37)/0.048 (1.22)	0.0529 (34.13)	0.0475 (100.55)

^ABased on nominal diameter.^BIncludes minimum 1/2-in. (12.70-mm) lap of mesh as applied.^CPlus 0.048 in. (1.22 mm) line wire placed 4 1/2 in. (114.30 mm) from selvage.^DPlus 0.048 in. (1.22 mm) line wires placed 3 in. (76.20 mm) and 6 in. (152.40 mm) from selvage.^EPlus 0.048 in. (1.22 mm) line wires placed 1 1/2 in. (38.10 mm), 3 in. (76.20 mm), 4 1/2 in. (114.30 mm), and 6 in. (152.40 mm) from selvage.^FPlus 0.048 in. (1.22 mm) line wires placed 3 in. (76.20 mm), 6 in. (152.40 mm), 9 in. (228.60 mm), and 12 in. (304.80 mm) from selvage.

TABLE 2 Standard Sizes and Constructions For Welded Wire Mesh

Design Numbers	Nominal Diameter of Zinc-Coated Wire, in. (mm)	Nominal Cross Sectional Area Per Nominal Width, in. ² (mm ²) ^A	Nominal Cross Sectional Area per Foot (Meter) of Width, in. ² (mm ²) ^{AB}
Crimped (all 7 1/2 in. (190.5 mm) wide including crimp)			
1.50 × 1.50	0.059 (1.50)/0.059 (1.50)	0.0219 (14.13)	0.0373 (78.96)
1.60 × 1.60	0.063 (1.60)/0.063 (1.60)	0.0249 (16.06)	0.0426 (90.17)
2.00 × 1.60	0.079 (2.00)/0.063 (1.60)	0.0392 (25.29)	0.0669 (141.61)
2.00 × 2.00	0.079 (2.00)/0.079 (2.00)	0.0392 (25.29)	0.0669 (141.61)
2.50 × 2.00	0.098 (2.50)/0.079 (2.00)	0.0603 (38.90)	0.1030 (218.03)
3.00 × 2.00	0.118 (3.00)/0.079 (2.00)	0.0875 (56.45)	0.1493 (316.03)
Noncrimped (all 8 in. (203.20 mm) wide)			
14 × 14	0.080 (2.03)/0.080 (2.03)	0.0452 (29.16)	0.0694 (146.90)

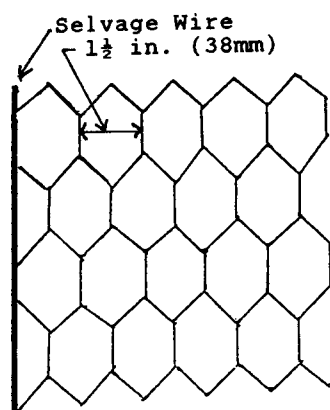
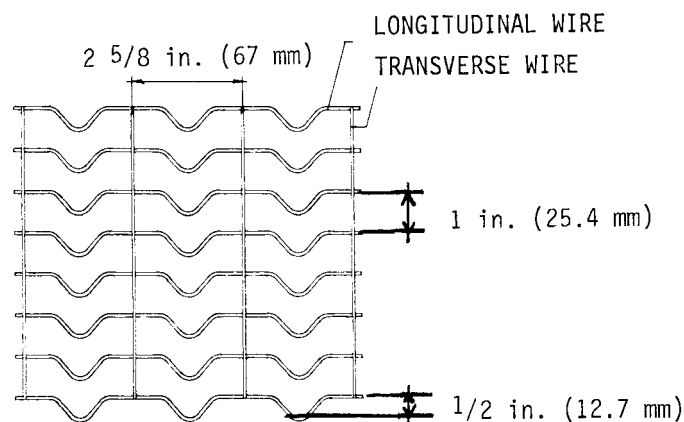
^ABased upon nominal diameter.^BIncludes minimum 1/2-in. (12.70-mm) lap of mesh as applied.

FIG. 1 Hexagonal Mesh (Design 107 1/2 × 1 1/2 × 17)



1 × 2 5/8 in. (25.4 × 67 mm)

FIG. 2 Welded Mesh (Crimped)

are available. Nominal width of fabric shall be as agreed upon between the purchaser and manufacturer.

8.2 *Length of Roll*—Nominal length of rolls shall be as agreed upon between the purchaser and manufacturer.

8.3 *Mesh Size*—Standard openings for hexagonal mesh shall be 1 1/2 in. (38 mm) center to center between parallel sides of the opening as shown in Fig. 1. Standard openings for welded mesh (see Table 4) shall be 1 in. (25 mm) center to center between longitudinal wires, with transverse wires spaced 2 1/2 in. (64 mm), 2 5/8 in. (67 mm), 3 5/8 in. (92 mm) or as agreed upon between the purchaser and manufacturer.

8.4 Tolerances:

8.4.1 Width:

8.4.1.1 *Hexagonal Mesh*—Actual width between outer wires shall not be more than 1/2 in. (13 mm) under the specified width.

8.4.1.2 *Welded Mesh*—Actual width between outer wires shall not be more than 1 3/4 in. (5 mm) under the specified width.

8.4.2 *Length*—Actual length shall be ordered length -0, +3 %.

8.4.3 Mesh Size:

8.4.3.1 For hexagonal mesh, the tolerance shall be ± 1/8 in. (± 3.2 mm).

8.4.3.2 Welded mesh size tolerances shall be in accordance with Table 4.

8.4.4 Wire Size:

8.4.4.1 Permissible variation of the nominal diameter of wire as listed in Table 3 shall be as follows: