



Designation: A586 – 18

Standard Specification for Metallic-Coated Parallel and Helical Steel Wire Structural Strand¹

This standard is issued under the fixed designation A586; 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 U.S. Department of Defense.

These test methods have been approved for use by agencies of the Department of Defense to replace Method 1013 of Federal Test Method Standard 406.

1. Scope

1.1 This specification covers metallic-coated steel wire structural strand, for use where a high-strength, high-modulus, multiple-wire tension member is desired as a component part of a structure. The strand is available with parallel or helical wire construction.

1.1.1 The strand is available with several metallic coating classes and with two strength grades, as described in Section 4.

1.2 The strand is furnished with Class A weight zinc or zinc-aluminum alloy-coated wires throughout. It can be furnished with Class B weight or Class C weight zinc-coated outer wires as an option.

1.3 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.

1.4 *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
- A902 Terminology Relating to Metallic Coated Steel Products

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 service@astm.org. For *Annual Book of ASTM Standards* volume information, refer to the standard's Document Summary page on the ASTM website.

B6 Specification for Zinc

B750 Specification for GALFAN (Zinc-5 % Aluminum-Mischmetal) in Ingot Form for Hot-Dip Coatings

B997 Specification for Zinc-Aluminum Alloys in Ingot Form for Hot-Dip Coatings

3. Terminology

3.1 See Terminology A902 for definition of terms related to metallic-coated steel wire and strand.

3.2 *Definitions of Terms Specific to This Standard:*

3.2.1 *outer wires (of strand), n*—those wires in the one outer-most layer of the wires composing the strand.

4. Classification

4.1 The wire strand is classified as follows.

4.1.1 *Breaking Strength* is expressed as Grade 1 or Grade 2 for strand having a Class A zinc or zinc-aluminum alloy coating on the outer wires of the strand. Strand with Class B or Class C zinc coating on the outer wires is available in only one grade.

4.1.2 *Coating Weight* is expressed as Class A, Class B, or Class C, based on the weight of coating on the outer wires in the strand. All inner wires have a Class A coating. Zinc (Z) or zinc-aluminum (ZA) must be specified when referencing Class A coating.

5. Ordering Information

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

5.1.1 Description of the product, as helical steel wire strand or parallel steel wire strand,

5.1.2 Length of strand,

5.1.3 Nominal diameter of strand (Table 1 and Table 2),

5.1.4 Coating type: zinc (Z) to zinc-aluminum (ZA),

5.1.5 Coating class for outer wires (Table 3),

5.1.6 Grade, for strand with Class A coating on outer wires,

5.1.7 For helical strand, whether prestretched or nonprestretched,

5.1.8 Mechanical tests if required (see 9.5 and 11.1),

TABLE 1 Properties of Metallic-Coated Steel Structural Strand

Nominal Diameter, in.	Minimum Breaking Strength in Tons of 2000 lb				Approx Gross Metallic Area, in. ²	Approx Weight, lb/ft
	Grade 1			Grade 2		
	Class A Coating Throughout	Class A Coating Inner Wires, Class B Coating Outer Wires	Class A Coating Inner Wires, Class C Coating Outer Wires	Class A Coating Throughout		
1/2	15.0	14.5	14.2	17.3	0.15	0.52
9/16	19.0	18.4	18.0	21.9	0.19	0.66
5/8	24.0	23.3	22.8	27.6	0.23	0.82
11/16	29.0	28.1	27.5	33.4	0.28	0.99
3/4	34.0	33.0	32.3	39.1	0.34	1.2
13/16	40.0	38.8	38.0	46.0	0.40	1.4
7/8	46.0	44.6	43.7	52.9	0.46	1.6
15/16	54.0	52.4	51.3	62.1	0.53	1.9
1	61.0	59.2	57.9	70.2	0.60	2.1
1 1/16	69.0	66.9	65.5	79.4	0.68	2.4
1 1/8	78.0	75.7	74.1	89.7	0.76	2.7
1 3/16	86.0	83.4	81.7	98.9	0.85	3.0
1 1/4	96.0	94.1	92.2	110	0.94	3.3
1 5/16	106	104	102	122	1.0	3.6
1 3/8	116	114	111	133	1.1	4.0
1 7/16	126	123	121	145	1.2	4.3
1 1/2	138	135	132	159	1.4	4.7
1 9/16	150	147	144	173	1.5	5.1
1 5/8	162	159	155	186	1.6	5.6
1 11/16	176	172	169	202	1.7	6.0
1 3/4	188	184	180	216	1.8	6.4
1 13/16	202	198	194	232	2.0	6.9
1 7/8	216	212	207	248	2.1	7.4
1 15/16	230	226	221	265	2.3	7.9
2	245	241	238	282	2.4	8.4
2 1/16	261	257	253	300	2.6	8.9
2 1/8	277	273	269	319	2.7	9.5
2 3/16	293	289	284	337	2.9	10
2 1/4	310	305	301	357	3.0	11
2 5/16	327	322	317	376	3.2	11
2 3/8	344	339	334	396	3.4	12
2 7/16	360	355	349	414	3.6	12
2 1/2	376	370	365	432	3.8	13
2 9/16	392	386	380	451	3.9	14
2 5/8	417	411	404	480	4.1	14
2 11/16	432	425	419	497	4.3	15
2 3/4	452	445	438	520	4.5	16
2 7/8	494	486	479	568	5.0	17
3	538	530	522	619	5.4	19
3 1/8	584	575	566	672	5.9	21
3 1/4	625	616	606	719	6.3	22
3 3/8	673	663	653	774	6.8	24
3 1/2	724	714	702	833	7.4	26
3 5/8	768	757	745	883	7.9	28
3 3/4	822	810	797	945	8.4	30
3 7/8	878	865	852	1010	9.0	32
4	925	911	897	1060	9.6	34

5.1.9 Special packaging requirements (14.1),

5.1.10 Inspection (12.1 and 13.1), and

5.1.11 ASTM Designation and year of issue, as ASTM A586 – ____.

NOTE 1—A typical ordering description is as follows: 2500 ft, 1 in., galvanized helical strand, Class A zinc coating, Grade 1, on wooden reels, to ASTM Specification A586 – ____.

6. Material

6.1 *Base Metal*—The base metal shall be carbon steel made by the open-hearth, basic-oxygen, or electric-furnace process and of such quality that the finished strand and the hard-drawn

individual metallic-coated wires coated by the hot-dip or electrolytic process shall have the properties and characteristics as prescribed in this specification.

6.2 *Zinc*—The slab zinc when used shall conform to Specification B6.

6.3 *Zinc-Aluminum Alloy*—The slab of zinc-aluminum alloy when used shall conform to Specification B750 or B997 at the discretion of the manufacturer.

7. Physical Requirements for Wire

7.1 Tensile Properties: