



Designation: **B856—18 B856 – 22**

Standard Specification for Concentric-Lay-Stranded Aluminum Conductors, Coated Steel Supported (ACSS)¹

This standard is issued under the fixed designation B856; 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.

1. Scope

1.1 This specification covers round wire concentric-lay-stranded aluminum conductors, steel supported (ACSS) for use as overhead electrical conductors (see Explanatory **Note 1**).

1.2 The values stated in inch-pound or SI units are to be regarded separately as standard. Each system shall be used independently of the other. Combining values from the two systems may result in nonconformance with the specification. For conductor sizes designated by AWG or kcmil sizes, the requirements in SI units are numerically converted from the corresponding requirements in inch-pound units. For conductor sizes designated by AWG or kcmil, the requirements in SI units have been numerically converted from corresponding values stated or derived in inch-pound units. For conductor sizes designated by SI units only, the requirements are stated or derived in SI units.

1.2.1 For density, resistivity and temperature, the values stated in SI units are to be regarded as standard.

1.3 *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 The following documents of the issue in effect on date of material purchase form part of this specification to the extent referenced herein:

2.2 *ASTM Standards:*²

[B263/B263M](#) Test Method for Determination of Cross-Sectional Area of Stranded Conductors

[B354](#) Terminology Relating to Uninsulated Metallic Electrical Conductors

[B498/B498M](#) Specification for Zinc-Coated (Galvanized) Steel Core Wire for Use in Overhead Electrical Conductors

[B500/B500M](#) Specification for Metallic Coated or Aluminum Clad Stranded Steel Core for Use in Overhead Electrical Conductors

[B502/B502M](#) Specification for Aluminum-Clad Steel Core Wire for Use in Overhead Electrical Aluminum Conductors

[B549](#) Specification for Concentric-Lay-Stranded Aluminum Conductors, Aluminum-Clad Steel Reinforced for Use in Overhead Electrical Conductors

¹ This specification is under the jurisdiction of ASTM Committee B01 on Electrical Conductors and is the direct responsibility of Subcommittee B01.07 on Conductors of Light Metals.

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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.

- B606/B606M** Specification for High-Strength Zinc-Coated (Galvanized) Steel Core Wire for Aluminum and Aluminum-Alloy Conductors, Steel Reinforced
- B609/B609M** Specification for Aluminum 1350 Round Wire, Annealed and Intermediate Tempers, for Electrical Purposes
- B802/B802M** Specification for Zinc-5 % Aluminum-Mischmetal Alloy-Coated Steel Core Wire for Aluminum Conductors, Steel Reinforced (ACSR)
- B803/B803M** Specification for High-Strength Zinc-5 % Aluminum-Mischmetal Alloy-Coated Steel Core Wire for Use in Overhead Electrical Conductors
- B857** Specification for Shaped Wire Compact Concentric-Lay-Stranded Aluminum Conductors, Coated-Steel Supported (ACSS/TW)
- B957/B957M** Specification for Extra-High-Strength and Ultra-High-Strength Zinc-Coated (Galvanized) Steel Core Wire for Overhead Electrical Conductors
- B958/B958M** Specification for Extra-High-Strength and Ultra-High-Strength Class A Zinc-5% Aluminum-Mischmetal Alloy-Coated Steel Core Wire for Use in Overhead Electrical Conductors
- B1006** Specification for Electrical Overhead Conductor Code Word Names
- E29** Practice for Using Significant Digits in Test Data to Determine Conformance with Specifications
- E527** Practice for Numbering Metals and Alloys in the Unified Numbering System (UNS)

2.3 *Other Standards:*

- Aluminum Association Publication 50 Code words for Overhead Aluminum Electrical Conductors³
- NBS Handbook 100 —Copper Wire Tables of the National Bureau of Standards⁴

3. Terminology

3.1 For definitions of terms relating to conductors refer to definitions found in Specification **B354**.

3.2 *Definitions:*

3.2.1 *aluminum-clad*—aluminum bonded.

3.2.2 *galvanized*—zinc coated.

3.2.3 *Zn-5Al-MM*—Zinc-5% Aluminum-Mischmetal Alloy (*Zn-5Al-MM*)—coated.

3.3 *Abbreviations:*

3.3.1 *ACSS*—aluminum conductor, steel supported.

3.3.2 *ACSS/AW2*—supported with regular strength aluminum-clad ~~core~~steel core wire in accordance with Specification **B502/B502M**.

3.3.3 *ACSS/AW3*—supported with ~~high-strength~~high-strength aluminum-clad ~~core~~steel core wire in accordance with Specification **B502/B502M**.

3.3.4 *ACSS/GA2*—supported with regular strength galvanized steel core wire, coating Class A in accordance with Specification **B498/B498M**.

3.3.5 *ACSS/GC2*—supported with regular strength galvanized steel core wire, coating Class C in accordance with Specification **B498/B498M**.

3.3.6 *ACSS/GA3*—supported with high-strength galvanized steel core ~~wire~~wire, coating Class A in accordance with Specification **B606/B606M**.

3.3.7 *ACSS/GA4*—supported with extra-high strength ~~zinc~~Class A coated-steel ~~galvanized steel~~galvanized steel core wire in accordance with Specification **B957/B957M**.

³ Available from Aluminum Association, Inc., 1525 Wilson Blvd., Suite 600, Arlington, VA 22209, <http://www.aluminum.org>.

⁴ Available from National Technical Information Service (NTIS), 5301 Shawnee Rd., Alexandria, VA 22312, <http://www.ntis.gov>.

3.3.8 *ACSS/GA5*—supported with ultra-high strength ~~zinc~~-Class A ~~coated steel~~-galvanized steel core wire in accordance with Specification [B957B957/B957M](#).

3.3.9 *ACSS/MA2*—supported with regular strength Zn-5Al-MM ~~coated steel~~ core wire, coating Class A in accordance with Specification [B802/B802M](#).

3.3.10 *ACSS/MA3*—supported with high-strength Zn-5Al-MM ~~coated steel core wire~~-wire, coating Class A in accordance with Specification [B803B803/B803M](#).

3.3.11 *ACSS/MA4*—supported with extra-high strength ~~Zinc-5% Aluminum-Mischmetal Alloy (Zn-5Al-MM) Coated steel core wire~~-Zn-5Al-MM steel core wire, coating Class A in accordance with Specification [B958B958/B958M](#).

3.3.12 *ACSS/MA5*—supported with ultra-high strength ~~Zinc-5% Aluminum-Mischmetal Alloy (Zn-5Al-MM) Coated steel core wire~~-Zn-5Al-MM steel core wire, coating Class A in accordance with Specification [B958B958/B958M](#).

4. Ordering Information

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

4.1.1 Quantity of each size, stranding, and class,

4.1.2 Conductor size, circular-mil area or AWG, and diameter (see Section 9 and Table 1),

4.1.3 Number of wires, aluminum and steel,

4.1.4 Type of steel core wire and class (if applicable) of coating (see 5.2),

4.1.5 Direction of lay of outer layer of aluminum wires if other than right hand (see 7.3),

4.1.6 Special tension test, if desired (see 14.3),

4.1.7 Package size and type (see 16.1),

4.1.8 Special package markings, if required (see 16.4),

4.1.9 Heavy wood lagging, if required (see 16.3), and

4.1.10 Place of inspection (see Section 15).

5. Requirement for Wires

5.1 After stranding, the round aluminum wires shall conform to the requirements of Specification [B609/B609M](#) for 1350-0 temper, except for elongation requirements. The elongation shall not be less than 20 % after stranding.

5.2 Before stranding, the steel core wire shall meet the requirements of Specification [B498/B498M](#), [B606B606/B606M](#), [B802/B802M](#), [B803B803/B803M](#), [B957B957/B957M](#), or [B958B958/B958M](#), whichever is applicable.

5.3 The stranded steel core shall meet the requirements of Specification [B500/B500M](#) as applicable.

6. Joints

6.1 Electric-butt welds, cold-pressure welds, and electric-butt, cold-upset welds in the finished individual aluminum wires composing the conductor may be made during the stranding process. No weld shall occur within 50 ft (15 m) of a weld in the same wire or in any other wire of the completed conductor (see Explanatory Note 2).

TABLE 1 Construction Requirements of Aluminum Conductors, Steel Supported (ACSS)

Size (kcmil)	Stranding	ACSS Conductor	Aluminum Wire			Steel Wires			Nominal Outside Diameter, in.	Nominal Mass GA(X) or MA(X) (lb/1000 ft)	Rated Strength (by type and coating of steel wires)							
			Class	Number	Diameter (in.)	Layers	Number	Diameter (in.)			Layers	GA2 or MA2 (kips)	GA3 or MA3 (kips)	GA4 or MA4 (kips)	GA5 or MA5 (kips)	AW2 (kips)	AW3 (kips)	
266.8	26/7	Partridge/ACSS	AA	26	0.1013	2	2	7	0.0788	1	0.642	366.8	8.88	9.73	10.8	11.4	8.37	8.88
266.8	30/7	Junco/ACSS	AA	30	0.0943	2	2	7	0.0943	1	0.660	417.4	11.7	13.0	14.4	15.2	11.2	11.7
300.0	26/7	Ostrich/ACSS	AA	26	0.1074	2	2	7	0.0835	1	0.680	412.4	10.0	10.9	12.1	12.8	9.40	10.0
336.4	26/7	Linnet/ACSS	AA	26	0.1137	2	2	7	0.0885	1	0.720	462.5	11.2	12.3	13.6	14.4	10.5	11.2
336.4	30/7	Oriole/ACSS	AA	30	0.1059	2	2	7	0.1059	1	0.741	526.3	14.8	16.3	18.2	19.1	14.2	14.8
397.5	24/7	Brambling/ACSS	AA	24	0.1287	2	2	7	0.0858	1	0.772	511.4	11.0	12.1	13.3	14.1	10.4	11.0
397.5	26/7	Ibis/ACSS	AA	26	0.1236	2	2	7	0.0962	1	0.783	546.5	13.0	14.2	15.8	16.5	12.4	13.0
397.5	30/7	Lark/ACSS	AA	30	0.1151	2	2	7	0.1151	1	0.806	621.9	17.5	19.3	21.5	22.6	16.7	17.5
477.0	24/7	Flicker/ACSS	AA	24	0.1410	2	2	7	0.0940	1	0.846	613.6	13.0	14.2	15.7	16.4	12.5	13.0
477.0	26/7	Hawk/ACSS	AA	26	0.1354	2	2	7	0.1053	1	0.858	655.8	15.6	17.1	18.9	19.8	14.9	15.6
477.0	30/7	Heron/ACSS	AA	30	0.1261	2	2	7	0.1261	1	0.883	746.3	21.0	22.7	25.3	26.7	20.1	20.5
556.5	24/7	Parakeet/ACSS	AA	24	0.1523	2	2	7	0.1015	1	0.914	716.1	15.2	16.6	18.3	19.1	14.6	15.2
556.5	26/7	Dove/ACSS	AA	26	0.1463	2	2	7	0.1138	1	0.927	765.1	18.2	19.9	22.1	23.1	17.5	18.2
556.5	30/7	Eagle/ACSS	AA	30	0.1362	2	2	7	0.1362	1	0.953	870.6	24.5	26.5	29.6	31.1	22.9	24.0
605.0	24/7	Peacock/ACSS	AA	24	0.1588	2	2	7	0.1058	1	0.953	778.3	16.5	18.0	19.9	20.8	15.9	16.5
605.0	26/7	Squab/ACSS	AA	26	0.1525	2	2	7	0.1186	1	0.966	831.8	19.7	21.7	24.0	25.1	19.0	19.7
605.0	30/7	Wood Duck/ACSS	AA	30	0.1420	2	2	7	0.1420	1	0.994	946.5	26.0	28.3	31.6	33.3	24.4	25.5
605.0	30/19	Teal/ACSS	AA	30	0.1420	2	2	19	0.0852	2	0.994	938.6	26.6	29.3	32.6	34.7	25.0	26.6
636.0	24/7	Rook/ACSS	AA	24	0.1628	2	2	7	0.1085	1	0.977	818.2	17.3	19.0	20.9	21.9	16.7	17.3
636.0	26/7	Grosbeak/ACSS	AA	26	0.1564	2	2	7	0.1216	1	0.990	874.4	20.7	22.4	24.8	26.0	19.9	20.3
636.0	30/7	Scoter/ACSS	AA	30	0.1456	2	2	7	0.1456	1	1.019	995.0	27.4	29.7	33.2	35.0	25.1	26.8
636.0	30/19	Egret/ACSS	AA	30	0.1456	2	2	19	0.0874	2	1.019	986.8	28.0	30.9	34.3	36.6	26.3	28.0
666.6	24/7	Flamingo/ACSS	AA	24	0.1667	2	2	7	0.1111	1	1.000	857.6	18.2	19.9	21.9	22.9	17.5	18.2
666.6	26/7	Gannet/ACSS	AA	26	0.1601	2	2	7	0.1245	1	1.014	916.4	21.7	23.4	26.0	27.3	20.9	21.3
715.5	24/7	Stilt/ACSS	AA	24	0.1727	2	2	7	0.1151	1	1.036	920.5	19.5	21.3	23.5	24.6	18.8	19.5
715.5	26/7	Starling/ACSS	AA	26	0.1659	2	2	7	0.1290	1	1.051	983.7	23.3	25.2	27.9	29.3	22.0	22.9
715.5	30/19	Redwing/ACSS	AA	30	0.1544	2	2	19	0.0927	2	1.081	937.9	30.9	34.1	37.9	39.8	29.5	30.9
795.0	24/7	Cuckoo/ACSS	AA	24	0.1820	2	2	7	0.1213	1	1.092	1,023	21.7	23.3	25.7	26.9	20.9	21.3
795.0	26/7	Drake/ACSS	AA	26	0.1749	2	2	7	0.1360	1	1.108	1,093	25.9	28.0	31.0	32.6	24.4	25.4
795.0	42/7	Macaw/ACSS	AA	42	0.1376	3	3	7	0.0764	1	1.055	857.5	11.8	12.6	13.6	14.2	11.4	11.8
795.0	45/7	Tern/ACSS	AA	45	0.1329	3	3	7	0.0886	1	1.063	894.9	14.2	15.2	16.5	17.4	13.5	14.2
795.0	54/7	Condor/ACSS	AA	54	0.1213	3	3	7	0.1213	1	1.092	1,023	21.7	23.3	25.7	26.9	20.9	21.3
795.0	30/19	Mallard/ACSS	AA	30	0.1628	2	2	19	0.0977	2	1.140	1,233	34.3	37.9	42.1	44.3	32.9	34.3
900.0	45/7	Ruddy/ACSS	AA	45	0.1414	3	3	7	0.0943	1	1.131	1,013	15.8	17.0	18.5	19.2	15.3	15.8
900.0	54/7	Canary/ACSS	AA	54	0.1291	3	3	7	0.1291	1	1.162	1,158	24.6	26.4	29.1	30.5	23.2	24.1
954.0	24/7	Redbird/ACSS	AA	24	0.1994	2	2	7	0.1329	1	1.196	1,227	26.0	28.0	30.9	32.3	24.6	25.5
954.0	45/7	Rail/ACSS	AA	45	0.1456	3	3	7	0.0971	1	1.165	1,074	16.7	18.0	19.6	20.4	16.2	16.7
954.0	48/7	Towhee/ACSS	AA	48	0.1410	3	3	7	0.1097	1	1.175	1,122	19.7	21.3	23.3	24.3	19.0	19.7
954.0	54/7	Cardinal/ACSS	AA	54	0.1329	3	3	7	0.1329	1	1.196	1,227	26.0	28.0	30.9	32.3	24.6	25.5
954.0	30/19	Canvasback/ACSS	AA	30	0.1783	2	2	19	0.1070	2	1.248	1,480	41.1	45.4	50.5	53.1	39.4	41.1
1033.5	42/7	Snowbird/ACSS	AA	42	0.1569	3	3	7	0.0871	1	1.203	1,115	15.4	16.4	17.7	18.5	14.8	15.4
1033.5	45/7	Oriole/ACSS	AA	45	0.1515	3	3	7	0.1010	1	1.212	1,163	18.1	19.5	21.2	22.0	17.6	18.1
1033.5	54/7	Curlew/ACSS	AA	54	0.1383	3	3	7	0.1383	1	1.245	1,330	28.2	30.3	33.4	35.0	26.1	27.7
1113.0	45/7	Bluejay/ACSS	AA	45	0.1573	3	3	7	0.1048	1	1.258	1,253	19.5	21.0	22.8	23.8	18.9	19.5
1113.0	54/19	Finch/ACSS	AA	54	0.1436	3	3	19	0.0861	2	1.292	1,429	30.4	33.2	36.5	38.7	28.7	30.4
1192.5	45/7	Bunting/ACSS	AA	45	0.1628	3	3	7	0.1085	1	1.302	1,342	20.9	22.5	24.5	25.4	20.3	20.9
1192.5	54/19	Grackle/ACSS	AA	54	0.1486	3	3	19	0.0892	2	1.302	1,531	32.6	35.5	39.1	41.5	30.8	32.6
1272.0	45/7	Bittern/ACSS	AA	45	0.1681	3	3	7	0.1121	1	1.338	1,432	22.3	24.0	26.1	27.1	21.6	22.3
1272.0	54/19	Pheasant/ACSS	AA	54	0.1535	3	3	19	0.0921	2	1.382	1,633	34.1	37.3	41.1	43.0	32.8	34.1

TABLE 1 Continued

Size (kcmil)	Stranding	ACSS Conductor Codeword ^A	Aluminum Wire			Steel Wires			Nominal Mass GA(X) or MA(X) (lb/1000 ft)	Rated Strength (by type and coating of steel wires)						
			Class	Number	Diameter (in.)	Layers	Number	Diameter (in.)		Layers	Nominal Outside Diameter, in.	GA2 or MA2 (kips)	GA3 or MA3 (kips)	GA4 or MA4 (kips)	GA5 or MA5 (kips)	AW2 (kips)
1351.0	45/7	Dipper/ACSS	AA	45	0.1733	3	7	0.1155	1	1.386	23.7	25.5	27.7	28.8	33.0	23.7
1351.0	54/19	Martin/ACSS	AA	54	0.1582	3	19	0.0949	2	1.424	36.2	39.6	43.6	45.6	34.9	36.2
1431.0	45/7	Bobolink/ACSS	AA	45	0.1783	3	7	0.1189	1	1.427	25.1	27.0	29.4	30.5	24.3	25.1
1431.0	54/19	Plover/ACSS	AA	54	0.1628	3	19	0.0977	2	1.465	38.4	41.9	46.2	48.3	36.9	38.4
1510.0	45/7	Nuthatch/ACSS	AA	45	0.1832	3	7	0.1221	1	1.466	26.5	28.1	30.6	31.8	25.7	26.1
1510.0	54/19	Parrot/ACSS	AA	54	0.1672	3	19	0.1003	2	1.505	40.4	44.2	48.7	51.0	38.9	40.4
1590.0	42/7	Ratite/ACSS	AA	42	0.1946	3	7	0.1081	1	1.492	23.4	25.0	26.9	27.9	22.7	23.4
1590.0	45/7	Lapwing/ACSS	AA	45	0.1880	3	7	0.1253	1	1.504	17.90	29.6	32.2	33.5	27.0	27.5
1590.0	54/19	Falcon/ACSS	AA	54	0.1716	3	19	0.1030	2	1.545	2.041	46.6	51.4	53.7	41.1	42.6
1780.0	84/19	Chukar/ACSS	AA	84	0.1456	3	19	0.0873	2	1.601	2.071	35.3	41.6	43.9	33.6	35.3
2034.5	72/7	Mockingbird/ ACSS	AA	72	0.1681	3	7	0.1121	1	1.681	27.2	28.9	31.0	32.0	26.5	27.2
2057.0	76/19	Roadrunner/ ACSS	AA	76	0.1645	3	19	0.0768	2	1.700	31.7	33.9	36.5	38.3	30.3	31.7
2156.0	84/19	Bluebird/ACSS	AA	84	0.1602	3	19	0.0961	2	1.762	42.1	45.5	49.6	51.7	40.7	42.1
2167.0	72/7	Kiwi/ACSS	AA	72	0.1735	3	7	0.1157	1	1.735	29.0	30.8	33.0	34.1	28.2	29.0
2312.0	76/19	Thrasher/ACSS	AA	76	0.1744	3	19	0.0814	2	1.802	2.524	38.1	41.0	43.0	34.1	35.6
2515.0	76/19	Joree/ACSS	AA	76	0.1819	3	19	0.0849	2	1.880	2.745	38.7	41.4	44.6	37.1	38.7
101.8	12/7	Petrel/ACSS	AA(HS)	12	0.0921	1	7	0.0921	1	0.461	253.8	10.2	11.4	12.8	9.7	10.2
110.8	12/7	Minorca/ACSS	AA(HS)	12	0.0961	1	7	0.0961	1	0.481	276.3	11.1	12.4	13.9	10.6	11.1
134.6	12/7	Leghorn/ACSS	AA(HS)	12	0.1059	1	7	0.1059	1	0.550	335.5	13.5	15.0	16.9	12.9	13.5
159.0	12/7	Guinea/ACSS	AA(HS)	12	0.1151	1	7	0.1151	1	0.576	396.3	15.9	17.8	20.0	15.2	15.9
176.9	12/7	Dotterell/ACSS	AA(HS)	12	0.1214	1	7	0.1214	1	0.607	440.9	17.7	19.4	21.8	16.9	17.3
190.8	12/7	Dorking/ACSS	AA(HS)	12	0.1261	1	7	0.1261	1	0.631	475.7	19.1	20.9	23.5	18.3	18.7
203.2	16/19	Brahma/ACSS	AA(HS)	16	0.1127	2	19	0.0977	2	0.714	674.6	30.5	34.1	38.3	29.1	30.5
211.3	12/7	Cochin/ACSS	AA(HS)	12	0.1327	1	7	0.1327	1	0.664	526.8	21.2	23.1	26.0	19.7	20.7

^A Code words shown in this column are obtained from Specification B1006. They are provided for information only.

Conversion factors – inch-pound to SI:

1 kcmil = 0.5067 mm²

1 inch = 25.4 mm

1 lb/1000 ft = 4.4482 kg/km

1 kip (1000 lbf) = 4.448 kN

6.2 There shall be no joints of any kind made in the finished coated steel wires.

7. Lay

7.1 The length of lay of the various layers of aluminum wires in a conductor shall conform to [Table 2](#) (see Explanatory [Note 3](#)).

7.2 The length of lay of the various layers of steel wires in a conductor shall conform to Specification [B500/B500M](#).

7.3 The direction of lay of the outside layer of aluminum wires shall be right hand unless otherwise specified in the purchase order. The direction of lay of the aluminum and steel wires shall be reversed in successive layers.

7.4 In a conductor having multiple layers of aluminum wires, the ~~lay ratio~~ length of lay of any aluminum layer shall not be ~~greater~~ less than the ~~length of lay ratio~~ length of lay of the aluminum layer immediately beneath it. ~~Similarly, in a conductor having multiple layers of steel wires in the core, the lay ratio of a steel layer shall not be greater than the lay ratio of the steel layer immediately beneath it.~~

8. Construction

8.1 The number and diameter of the aluminum and steel wires and the area of cross section of the aluminum wires for standard constructions are shown in [Table 1](#).

8.2 ACSS may be constructed using steel core wire with a number of different types. The acceptable core wires are, but not limited to:

8.2.1 Regular strength ~~Galvanized~~galvanized steel core wires, with coating Classes A or C (designated GA2 and GC2) in accordance with Specification [B498/B498M](#) (see Explanatory [Note 98](#));

8.2.2 High-strength galvanized steel core wire, coating Class A (designated GA3) in accordance with Specification ~~B606~~[B606/B606M](#) (see Explanatory [Note 98](#));

8.2.3 Regular strength Zn-5Al-MM ~~coated~~steel core wire, coating Class A (designated MA2) in accordance with Specification [B802/B802M](#);

8.2.4 High-strength Zn-5Al-MM ~~coated~~steel core wire, coating Class A (designated MA3) in accordance with Specification ~~B803~~[B803/B803M](#);

8.2.5 Extra-high-strength galvanized steel core wire coating Class A (designated GA4) in accordance with Specification ~~B957~~[B957/B957M](#) (see Explanatory [Note 98](#));

8.2.6 Extra-high-strength Zn-5Al-MM ~~coated~~steel core wire, coating Class A (designated MA4) in accordance with Specification ~~B958~~[B958/B958M](#);

8.2.7 Ultra-high-strength galvanized steel core wire coating Class A (designated GA5) in accordance with Specification ~~B957~~[B957/B957M](#) (see Explanatory [Note 98](#));

TABLE 2 Lay Factors for Aluminum Conductors, Steel-Supported (ACSS), Concentric-Lay-Stranded^A

Stranding Class	Stranding	Ratio of Length of Lay of a Layer to Nominal Outside Diameter of That Layer							
		Aluminum Wire Layers							
		First (Outside)		Second		Third		Fourth (Inside)	
		min	max	min	max	min	max	min	max
AA	76/19, 84/19, 72/7, 54/19, 54/7, 45/7 30/19, 30/7, 26/7, 24/7 16/19, 12/7	10	13	10	16	10	17	10	17
		10	13	10	16	10	17	...	...
		10	13	10	16	...	...	...	...
		10	14.5	...	...	...	...	...	...

^A See Specification [B500/B500M](#) for lay factors of the steel core wires.

8.2.8 Ultra-high-strength Zn-5Al-MM coated-steel core wire, coating Class A (designated MA5) in accordance with Specification [B958B958/B958M](#);

8.2.9 Regular strength ~~Aluminum-Clad~~ aluminum-clad steel (designated ~~AW2~~AW2) in accordance with Specification ~~B502~~[B502/B502/B502M](#);

8.2.10 High-strength ~~Aluminum-Clad~~ aluminum-clad steel (designated ~~AW3~~AW3) in accordance with Specification ~~B502~~[B502/B502/B502M](#).

8.3 The number and diameter of aluminum and steel wires and the area of cross section of aluminum wires shall conform to the requirements prescribed in [Table 1](#).

8.4 All steel wires shall lie naturally in their position in the stranded core, and where the core is cut, the wire ends shall remain in position or be readily replaced by hand and then remain approximately in position. This requirement also applies to the outer layer of aluminum wires of a conductor.

8.5 The stranded steel core shall be free from waviness and kinks.

8.6 Before stranding, aluminum and steel wires shall have approximately uniform temperatures.

8.7 The diameter of the finished conductor shall be not less than 99 % nor more than 101 % of that shown in [Table 1](#) when measured with a diameter tape between the closing die(s) and the capstan of the strander.

9. Rated Strength of Conductor

9.1 The rated strength of the completed ACSS conductor shall be taken as the aggregate strengths of the aluminum and steel components, calculated as follows. The strength contribution of the aluminum wires shall be taken as that percentage, indicated in [Table 3](#), of the sum of the strengths of the 1350-0 wires calculated from their minimum average tensile strengths specified in Specification [B609/B609M](#). The strength contribution of the steel core wires shall be taken as that percentage, indicated in [Table 3](#), of the sum of the strengths of the steel wires, calculated from their specified nominal wire diameter and the appropriate minimum ultimate tensile strengths given in Specification [B498/B498M](#), [B502B502/B502M](#), [B549B606/B606M](#), [B606](#), ~~B802/B802M~~, [B803B803/B803M](#), [B957B957/B957M](#), or [B958B958/B958M](#), whichever is applicable.

9.2 Rated strength and breaking strength values shall be rounded to three significant figures, in the final value only, in accordance with the rounding method of Practice [E29](#).

9.3 Rated strength of typical constructions are given in [Table 1](#).

TABLE 3 Standard Increments and Rating Factors for Mass, Resistivity, and Rated Strength Determination

Stranding Design Aluminum/Steel	Standard Increments Due to Stranding (for Mass and Resistivity) Increase		Rating Factors (for Rated Strength)	
	Aluminum, %	Steel, %	Aluminum, %	Steel, %
12/7	2.5	0.4	96	100
24/7	2.5	0.4	96	100
26/7	2.5	0.4	96	100
30/7	2.75	0.4	96	100
42/7	2.5	0.4	96	100
45/7	2.5	0.4	96	100
48/7	2.5	0.4	96	100
54/7	2.5	0.4	96	100
72/7	3.0	0.4	96	100
16/19	2.5	0.6	96	100
30/19	2.75	0.6	96	100
54/19	3.0	0.6	96	100
76/19	3.0	0.6	96	100
84/19	3.0	0.6	96	100