

Copper Clad Aluminum (CCA) 15% Products



Copper Clad Aluminum Wire

Copper Clad Aluminum (CCA) is an electrical conductor that has an outer sleeve of copper metallurgically bonded to a solid aluminum core. In this particular case, the copper makes up 15% of the cross sectional area of the conductor. The combination of these two metals makes it uniquely suited to many electrical applications where weight to electrical conductivity issues are important.

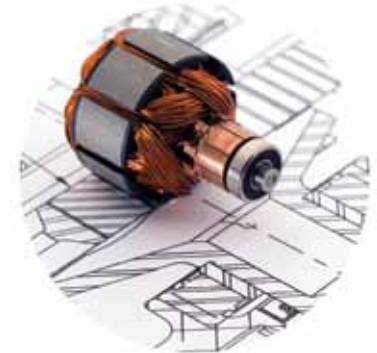
This bimetallic wire is much lighter than solid copper and only slightly heavier than bare aluminum. The density of 15% CCA is 0.13118 lbs/in³ (3.63 gm/cm³) or about 40% lighter than copper (one pound of CCA 15% would be 2.45 times greater in length than one pound of copper at the same diameter).

The copper jacket assures excellent solderability and is 25% thicker than 10% CCA. This product has been processed using a proprietary method to ensure excellent drawability to fine wire sizes. The outer jacket is produced from CDA 102 Oxygen Free Copper, and the core is 1350-EC grade Aluminum.

CCA conducts like solid copper for AC frequencies greater than 5 MHz. This product meets or exceeds the minimum requirements set forth in ASTM B-566 (04).

Advantages:

- Lower cost alternative to using solid copper
- Conductivity of copper
- Lighter weight of aluminum
- High mechanical strength and flexibility
- Corrosion resistant
- No scrap value (theft deterrent)



CCA used in magnet wire applications

Product Summary & Specification

Attribute	ASTM B-566 (04)
Core	Aluminum
Cladding	Copper
Density	0.13118 lbs/in ³ (3.63 gm/cm ³)
DC Conductivity	64.4% min
% Copper by Area	13% - 17%
% Copper by Weight	34% nom
Tensile Strength Annealed	20 kpsi (138 Mpa)
Tensile Strength as Drawn	40 kpsi (276 Mpa)



CCA used in Airbus A380

Physical & Mechanical Properties of 15% Copper Clad Aluminum

AWG*	Diameter in / (mm)	Area in ² / (mm ²)	Minimum Copper Thickness in / (mm)	CCA Weight** lb / k-ft (kg / km)	CCA** ohms / k-ft (ohms / km)
1/0	0.3249 (8.25)	0.08291 (53.49)	0.0130 (0.3305)	130.51 (194.14)	0.153 (0.501)
1	0.2893 (7.35)	0.06572 (42.40)	0.0116 (0.2942)	103.46 (153.91)	0.192 (0.631)
2	0.2576 (6.54)	0.05212 (33.63)	0.0103 (0.2620)	82.05 (122.06)	0.243 (0.796)
3	0.2294 (5.83)	0.04134 (26.67)	0.0092 (0.2333)	65.07 (96.80)	0.306 (1.004)
4	0.2043 (5.19)	0.03278 (21.15)	0.0082 (0.2077)	51.60 (76.76)	0.386 (1.266)
5	0.1819 (4.62)	0.02600 (16.77)	0.0073 (0.1849)	40.92 (60.88)	0.487 (1.596)
6	0.1620 (4.12)	0.02062 (13.30)	0.0065 (0.1647)	32.45 (48.28)	0.613 (2.013)
7	0.1443 (3.66)	0.01635 (10.55)	0.0058 (0.1466)	25.74 (38.29)	0.774 (2.538)
8	0.1285 (3.26)	0.01297 (8.37)	0.0051 (0.1305)	20.41 (30.36)	0.975 (3.200)
9	0.1144 (2.91)	0.01028 (6.63)	0.0046 (0.1162)	16.19 (24.08)	1.230 (4.035)
10	0.1019 (2.59)	0.00816 (5.26)	0.0041 (0.1035)	12.84 (19.10)	1.551 (5.088)
11	0.0907 (2.30)	0.00647 (4.17)	0.0036 (0.0921)	10.18 (15.14)	1.956 (6.416)
12	0.0808 (2.05)	0.00513 (3.31)	0.0032 (0.0820)	8.07 (12.01)	2.466 (8.091)
13	0.0720 (1.83)	0.00407 (2.62)	0.0029 (0.0730)	6.40 (9.52)	3.110 (10.202)
14	0.0641 (1.63)	0.00323 (2.08)	0.0026 (0.0650)	5.08 (7.55)	3.921 (12.864)
15	0.0571 (1.45)	0.00256 (1.65)	0.0023 (0.0578)	4.03 (5.99)	4.944 (16.221)
16	0.0508 (1.29)	0.00203 (1.31)	0.0020 (0.0515)	3.19 (4.75)	6.234 (20.454)
17	0.0453 (1.15)	0.00161 (1.04)	0.0018 (0.0458)	2.53 (3.77)	7.861 (25.792)
18	0.0403 (1.02)	0.00128 (0.82)	0.0016 (0.0407)	2.01 (2.99)	9.913 (32.522)
19	0.0359 (0.91)	0.00101 (0.65)	0.0014 (0.0363)	1.59 (2.37)	12.500 (41.009)
20	0.0320 (0.81)	0.00080 (0.52)	0.0013 (0.0322)	1.26 (1.88)	15.761 (51.711)

* American Wire Gauge

** Resistance values were calculated using: Copper = 100.0% IACS
 Aluminum = 61.3%
 CCA = 65.0% IACS



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