AAAC – All Aluminum Alloy Conductor

AAAC is a concentric-lay stranded bare overhead conductor manufactured from high-strength aluminum alloy wires. It is designed for transmission and distribution applications requiring higher mechanical strength than AAC, better corrosion resistance than ACSR in many environments, and improved sag performance.

Applications

AAAC is mainly used for primary and secondary overhead transmission and distribution lines where higher mechanical strength, improved sag performance, and good corrosion resistance are required. It is widely used in utility networks, coastal areas, humid environments, polluted zones, and routes where a homogeneous alloy conductor is preferred.

Description

AAAC (All Aluminum Alloy Conductor) is a concentric-lay stranded bare overhead conductor made from high-strength aluminum-magnesium-silicon alloy wires. Depending on the standard, the conductor may be described as 6201-T81 aluminum alloy conductor or aluminum alloy 1120 conductor. It provides better tensile performance than AAC and better corrosion resistance than ACSR in many service environments.

Specifications

- **IEC 61089**
- **GB/T 1179**
- **ASTM B399**
- **BS 3242**
- **AS 1531**
- **DIN 48201**
- **NFC 34-125**

Custom specifications and technical confirmation are available on request.

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Farwalk Cable —AAAC Complete Technical Tables

AAAC — IEC 61089

Area (mm²)	Stranding (No/mm)	Overall Diameter (mm)	Weight (kg/km)	Rated Strength (kN)	Max. DC Resistance at 20° C (Ω/km)
16	7/1.84	5.52	50.8	6.04	1.7896
25	7/2.30	6.90	79.5	9.44	1.1453
40	7/2.91	8.73	127.1	15.10	0.7158
63	7/3.65	10.95	200.2	23.06	0.4545
100	19/2.79	14.0	319.3	37.76	0.2877
125	19/3.12	15.6	399.2	47.20	0.2302
160	19/3.53	17.7	511.0	58.56	0.1798
200	19/3.95	19.8	638.7	73.20	0.1439
250	19/4.41	22.1	798.4	91.50	0.1151
315	37/3.55	24.9	1008.4	115.29	0.0916
400	37/4.00	28.0	1280.5	146.40	0.0721
500	37/4.47	31.3	1600.6	183.00	0.0577
630	61/3.91	35.2	2019.8	230.58	0.0458
800	61/4.40	39.6	2564.8	292.80	0.0361
1000	91/4.03	44.3	3209.3	366.00	0.0289

AAAC — GB/T 1179

Nominal Area (mm²)	Stranding (No/mm)	Overall Diameter (mm)	Weight (kg/km)	Rated Strength (kN)	Max. DC Resistance at 20° C (Ω/km)
35	7/2.52	7.56	95	10.81	0.9651
50	7/3.00	9.00	135	15.30	0.6760
70	19/2.20	11.00	189	21.42	0.4820
95	19/2.56	12.80	257	29.07	0.3580
120	19/2.88	14.40	324	36.72	0.2870
150	19/3.23	16.15	405	45.90	0.2290
185	37/2.52	17.65	500	56.61	0.1850
240	37/2.88	20.16	648	73.44	0.1430
300	37/3.23	22.61	810	91.80	0.1140
400	61/2.88	25.92	1080	122.40	0.0858
500	61/3.23	29.07	1350	153.00	0.0686
630	61/3.63	32.67	1701	192.78	0.0544

AAAC — ASTM B399

Code Name	AWG/MCM	Total Area (mm²)	Stranding (No/mm)	Nominal Diameter (mm)	Weight (kg/km)	Rated Strength (kN)	Max. DC Resistance at 20° C (Ω/km)
Akron	6	30.58	7 x 1.68	5.04	43	4.92	2.1588
Alton	4	48.69	7 x 2.12	6.36	68	7.83	1.3557
Ames	2	77.47	7 x 2.67	8.01	108	12.42	0.8547
Azusa	1/0	123.3	7 x 3.37	10.11	171	18.88	0.5365
Anaheim	2/0	155.4	7 x 3.78	11.34	216	23.82	0.4256
Amherst	3/0	195.7	19 x 3.62	14.48	272	31.32	0.3388
Alliance	4/0	246.9	19 x 4.06	16.26	343	39.60	0.2689
Butte	266.8	303.2	19 x 4.49	17.96	421	48.62	0.2192
Cairo	336.4	382.3	19 x 5.05	20.20	531	61.28	0.1738
Darien	397.5	451.9	19 x 5.49	21.96	628	72.42	0.1473
Elgin	477.0	544.6	19 x 6.02	24.08	757	87.27	0.1222
Flint	559.5	636.6	19 x 6.52	26.08	885	101.77	0.1045
Greeley	795.0	927.2	37 x 4.02	28.14	1289	134.62	0.0713

AAAC — BS 3242

Code Name	Nominal Section Area (mm²)	Calculated Sectional Area (mm²)	Stranding (No/mm)	Nominal Diameter (mm)	Nominal Linear Mass (kg/km)	Rated Strength (kgf)	Max. D.C. Resistance at 20° C (Ω/km)
Box	15	18.82	7/1.85	5.55	51	537	1.7495
Acacia	20	23.79	7/2.08	6.24	65	680	1.3840
Alimond	25	30.10	7/2.34	7.02	82	861	1.0934
Cedar	30	35.47	7/2.54	7.62	97	1014	0.9281
-	35	42.18	7/2.77	8.31	115	1205	0.7804
Fir	40	47.87	7/2.95	8.85	131	1367	0.6880
Hazel	50	59.87	7/3.30	9.9	164	1711	0.5498
Pine	60	71.65	7/3.61	10.83	196	2048	0.4594
-	70	84.05	7/3.91	11.73	230	2402	0.3917
Willow	75	89.73	7/4.04	12.12	245	2565	0.3669
-	80	96.52	7/4.19	12.57	264	2758	0.3441
-	90	108.00	7/4.44	13.32	298	3112	0.3023
Oak	100	118.90	7/4.65	13.95	325	3398	0.2769
-	100	118.70	19/2.82	14.1	326	3393	0.2787
Mulberry	125	150.90	19/3.18	15.9	415	4312	0.2192

AAAC — BS 3242 (Continued)

Code Name	Nominal Section Area (mm²)	Calculated Sectional Area (mm²)	Stranding (No/mm)	Nominal Diameter (mm)	Nominal Linear Mass (kg/km)	Rated Strength (kgf)	Max. D.C. Resistance at 20° C (Ω/km)
Ash	150	180.70	19/3.48	17.4	497	5164	0.1831
Elm	175	211.00	19/3.76	18.8	580	6030	0.1568
Poplar	200	239.40	37/2.87	20.09	659	8841	0.1385
-	225	270.30	37/3.05	21.35	744	7724	0.1227
Sycamore	250	303.20	37/3.22	22.54	835	8664	0.1093
Upas	300	362.10	37/3.53	24.71	997	10350	0.09156
Walnut	350	421.80	37/3.81	26.67	1162	12053	0.07860
Yew	400	479.00	37/4.06	28.42	1319	13685	0.06921
Totara	425	498.10	37/4.14	28.98	1372	14233	0.06656
Rubus	500	586.90	61/3.50	31.5	1620	16771	0.05662
Araucaria	700	821.10	61/4.14	37.26	2266	23450	0.04047

AAAC — AS 1531

Code Name	Calculated Cross-Section (mm²)	Stranding (No/mm)	Approx. Overall Diameter (mm)	Approx. Weight (kg/km)	Calculated Breaking Load (kN)	DC Resistance at 20° C Max. (Ω/km)
Diamond	34.4	7/2.50	7.50	94	9.64	0.967
Dolomite	41.6	7/2.75	8.25	114	11.6	0.799
Emerald	49.5	7/3.00	9.00	135	13.9	0.671
Garnet	77.3	7/3.75	11.25	212	21.7	0.430
Jade	111.3	7/4.50	13.50	305	31.2	0.298
Jasper	124.0	7/4.75	14.25	340	34.8	0.268
Opal	157.6	19/3.25	16.25	434	44.2	0.212
Patronite	182.8	19/3.50	17.50	503	51.3	0.183
Pearl	209.8	19/3.75	18.75	577	58.8	0.159
Ruby	261.5	37/3.00	21.00	721	73.5	0.128
Ruthenium	306.9	37/3.25	22.75	846	86.1	0.109
Rutile	336.7	19/4.75	23.75	926	94.4	0.0991
Sapphire	408.7	37/3.75	26.25	1127	115	0.0819
Spinel	506.0	61/3.25	29.25	1398	135	0.0662
Tantalum	586.9	61/3.50	31.50	1621	156	0.0572
Topaz	673.7	61/3.75	33.75	1861	179	0.0498

AAAC — DIN 48201

Nominal Area (mm²)	Theoretical Area (mm²)	Stranding (No/mm)	Overall Diameter (mm)	Weight (kg/km)	Rated Strength (kN)	Electrical Resistance (Ω/km)
16	15.89	7/1.70	5.1	43	4.44	2.0742
25	24.25	7/2.10	6.3	66	6.77	1.3593
35	34.36	7/2.50	7.5	94	9.6	0.9591
50	49.48	7/3.00	9	135	13.82	0.6660
50	48.35	19/1.80	9	133	13.5	0.6849
70	65.81	19/2.10	10.5	181	18.38	0.5032
95	93.27	19/2.50	12.5	256	26.05	0.3551
120	116.99	19/2.80	14	322	32.68	0.2831
150	147.11	37/2.25	15.8	406	41.09	0.2256
185	181.62	37/2.50	17.5	500	50.73	0.1828
240	242.54	61/2.25	20.3	670	67.74	0.1371
300	299.43	61/2.50	22.5	827	83.63	0.1110
400	400.14	61/2.89	26	1104	111.76	0.0831
500	499.83	61/3.23	29.1	1379	139.6	0.0665
625	626.2	91/2.96	32.6	1732	174.9	0.0531
800	802.09	91/3.35	36.9	2218	224.02	0.0415
1000	999.71	91/3.74	41.1	2767	279.22	0.0333

AAAC — NFC 34-125

Code Word	Calculated Sectional Area (mm²)	Stranding (No/mm)	Overall Diameter (mm)	Weight (kg/km)	Breaking Load (kg)	Max. DC Resistance at 20° C (Ω/km)
ASTER 22	21.99	7/2.0	6	60.2	710	1.5
ASTER 34.4	34.36	7/2.5	7.5	94	1105	0.958
ASTER 54.6	54.55	7/3.15	9.45	149	1755	0.603
ASTER 75.5	75.54	19/2.25	11.25	208	2430	0.438
ASTER 117	116.98	19/2.8	14	322	3765	0.283
ASTER 148	148.01	19/3.15	15.75	407	4765	0.224
ASTER 228	227.83	37/2.8	19.6	627	7340	0.146
ASTER 288	288.34	37/3.15	22.05	794	9280	0.115
ASTER 366	366.22	37/3.55	24.85	1009	11785	0.0905
ASTER 570	570.22	61/3.45	31.05	1574	18360	0.0583
ASTER 851	850.66	91/3.45	37.95	2354	27390	0.0391
ASTER 1144	1143.51	91/4.0	44	3164	36260	0.0292
ASTER 1600	1595.93	127/4.0	52	4425	50640	0.0206