

All Aluminum Alloy Conductor (AAAC) Cables

IEC 61089

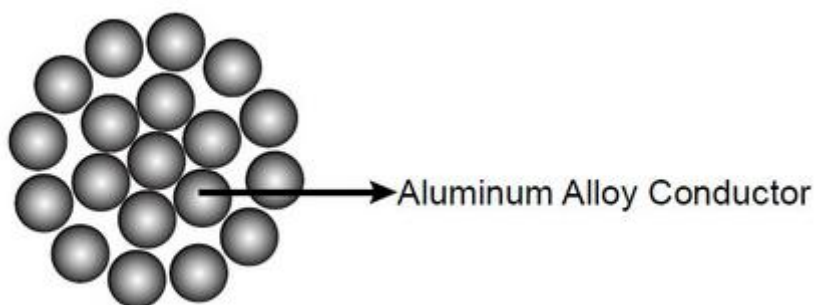
Application

AAAC is mainly used as bare overhead transmission cable and as primary and secondary distribution cable. It is also suitable for laying across basins, rivers and valleys where special geographical features exist.

Standard

Basic design to IEC 61089 standards

Construction



AAAC cable consists of aluminum alloy wires. The aluminum alloy wires are concentrically stranded. This section deals with heat-treatable magnesium silicon type aluminium alloys to the applicable International Standard, the electrical and mechanical properties of which all fall within the values suggested by relevant standard. Conductors to all other recognized specifications can also be supplied. The alloys referred to have higher strength but lower conductivity than pure aluminium.

Being lighter, alloy conductors can sometimes be used to advantage in place of the more conventional ACSR; Having lower breaking loads than the latter, their use becomes particularly favourable when ice and wind loadings are low.

Electrical Properties

Density@20°C	2.70 kg/dm
Temperature Coefficient@20°C	0.00360 (°C)
Resistivity@20°C	0.0326 Ohms mm ² /m
Linear Expansivity	23 x10-6(°C)

Service Conditions

Ambient Temperature	-5°C - 50°C
Wind Pressure	80 - 130kg/m ²
Seismic Acceleration	0.12 - 0.05g
Isokeraunic Level	10 - 18
Relative Humidity	5 - 100%

Construction Parameters

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Code	Nominal Area	Stranding	Overall Diameter	Weight	Rated Strength	Electrical Resistance	Current Rating*
	mm ²	No. × mm	mm	kg/km	KN	Ω/Km	A
16	18.4	18.4	5.49	50.4	5.43	1.7896	86
25	28.8	28.8	6.87	78.7	8.49	1.1453	113
40	46	46	8.67	125.9	13.58	0.7158	151
63	72.5	72.5	10.89	198.3	21.39	0.4545	200
100	115	115	13.9	316.3	33.95	0.2877	266
125	144	144	15.5	395.4	42.44	0.2302	305
160	184	184	17.55	506.1	54.32	0.1798	355
200	230	230	19.65	632.7	67.91	0.1439	407
250	288	288	21.95	790.8	84.88	0.1151	466
315	363	363	24.71	998.9	106.95	0.0916	535
400	460	460	27.86	1268.4	135.81	0.0721	618
450	518	518	29.54	1426.9	152.79	0.0641	663
500	575	575	31.15	1585.5	169.76	0.0577	706
560	645	645	33.03	1778.4	190.14	0.0516	755
630	725	725	35.01	2000.7	213.9	0.0458	809
710	817	817	37.17	2254.8	241.07	0.0407	866
800	921	921	39.42	2540.6	271.62	0.0361	928
900*	1036	1036	41.91	2861.1	305.58	0.0321	992
1000*	1151	1151	44.11	3179	339.53	0.0289	1051
1120*	1289	1289	46.75	3560.5	380.27	0.0258	1118
1250*	1439	1439	49.39	3973.7	424.41	0.0231	1185

(*) Note: The values of current rating mentioned in above Table are based on wind velocity of 0.6 metre/second, solar heat radiation of 1200 watt/metre², ambient temperature of 50° C & conductor temperature of 80°C.

Technical Data

Code	AL Nominal Area	Maximum Resistance DC at 20°		Current Rating	
				Temperate	Tropical
	mm ²	Ω / km	Ω / 1000ft	Amp	Amp
-	-	2.87	0.873	90	73
Box	-	1.79	0.544	121	98
Acacia	-	1.4	0.426	140	114
Almond	25	1.11	0.339	162	131
Ceda	30	0.944	0.288	180	145
-	40	0.794	0.242	200	162

Fir	50	0.7	0.213	217	175
Hazel	100	0.559	0.17	250	201
Pine	-	0.467	0.142	279	224
-	-	0.398	0.121	309	247
Willow	150	0.373	0.114	322	258
-	175	0.347	0.106	337	270
-	300	0.308	0.0938	343	290
Oak	-	0.282	0.0859	384	307
-	-	0.282	0.086	385	307
Mulberry	-	0.222	0.0676	448	356
Ash	-	0.185	0.0565	501	398
Elm	-	0.159	0.048	553	438
Poplar	-	0.14	0.0427	598	473
-	-	0.124	0.0337	647	511
Sycamore	-	0.111	0.0377	694	547
Upas	-	0.0925	0.0282	776	610
-	-	0.0794	0.0242	854	669
Yew	-	0.0698	0.0213	925	723