



LUMINO INDUSTRIES

AAC/AAAC/ACSR Conductors

LUMINO CONDUCTORS PRODUCT SPECIFICATIONS

Product and technical details of Lumino Conductors

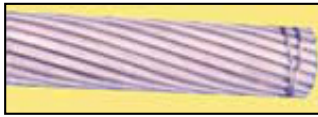


LUMINO AAAC Conductors and Technical Data

AAAC Conductors is a new concept for energy conservation.

Advantages of AAAC Conductors

CORROSION RESISTANCE	AAAC exhibits excellent corrosion resistance specially in sea coast areas and in polluted industrial areas due to absence of steel core.
LOWER POWER LOSSES	Since AAAC is homogeneous (with all strands of Aluminium Alloy) with no steel component the resistance of AAAC is lower as compared to ACSR.
HIGHER AMPACITY	AAAC can carry atleast 15-20% extra current as compared to ACSR of equal size.
LONGER LIFE	Experience in foreign countries shows that All Aluminium Alloy Conductors are in service for over 60 years, which is about double the life of ACSR Conductors.
SURFACE HARDNESS	The surface hardness of AAAC is 80 BHN as compared to 35 BHN of ACSR. This reduces the damage to surface during handling and therefore leading to lesser corona losses and ratio interference at EHV.
THERMAL STABILITY	AAAC are stable upto 90°C against ACSR conductors which are stable upto 75°C.
HIGHER STRENGTH TO WEIGHT RATIO	Since AAAC has higher strength to weight ratio, span can be increased from 2 to 15% resulting in overall reduction of cost in towers supports and other accessories in transmission line system.



PHYSICAL PROPERTIES OF AAAC WIRES

Melting Temperature	652°C	Typical Electrical resistivity at 20°C	53.5
Density	2.7 kg/mm ³	Standard	0.0325
Coefficient of Linear Expansion per °C	23 X 10 ⁻⁶	Typical	0.0320
Brittle Hardness	80 BHN	Ultimate Tensile Strength	30 kg/mm ²
Elongation (percent in 200 mm)	4.5 to 5.5%		
Electrical conductivity at 200°C in LACS	52.5	Modulus of Elasticity in kg/mm ²	
		Initial	5200 to 5600
		Final	6250 to 6450

CONSTRUCTION FOR ALL ALUMINIUM ALLOY CONDUCTOR AS PER IS:398 (PT - IV) 1994

No of wire in Conductor	Construction	LAY RATIO FOR EACH LAYER				
		3 WIRE	6 WIRE	12 WIRE	18 WIRE	24 WIRE
3	3	10 to 14	-	-	-	-
7	1+6	-	10 to 14	-	-	-
19	1+6+12	-	10 to 16	10 to 14	-	-
37	1+6+12+18	-	10 to 17	10 to 16	10 to 14	-
61	1+6+12+18+24	-	10 to 17	10 to 16	10 to 15	10 to 14

EQVT ACSR CODE WORD	ACTUAL AREA (Sq mm)	STRANDING & WIRE		OVERALL DIA (mm) (APPROX)	MASS (APPROX) (Kg. /Km)	RESISTANCE AT 20 degC (Ohms/Km) (MAX)	ULTIMATE BREAKING LOAD (Kn)
		DIAMETER CONDUCTOR NO.	DIA (mm)				
MOLE	15	3	2.50	5.39	40.15	2.3040	4.33
SQUIRREL	22	7	2.00	6.00	60.16	1.5410	6.45
WEASEL	34	7	2.50	7.50	94.00	0.9900	10.11
RABBIT	55	7	3.15	9.45	149.20	0.6210	16.03
RACCOON	80	7	3.81	11.43	218.26	0.4250	23.41
DOG	100	7	4.26	12.78	272.86	0.3390	29.26
DOG (UP)	125	19	2.89	14.45	342.51	0.2735	36.64
COYOTE	148	19	3.15	15.75	406.91	0.2290	43.50
WOLF	173	19	3.40	17.00	474.02	0.1969	50.54
WOLF (UP)	200	19	3.66	18.30	549.40	0.1710	58.66
PANTHER	232	19	3.94	19.70	636.67	0.1471	68.05
PANTHER (UP)	288	37	3.15	22.05	794.05	0.1182	84.71
PANTHER (UP)	346	37	3.45	24.15	952.56	0.0984	101.58
KUNDAH	400	37	3.71	25.97	1101.63	0.0829	117.40
ZEBRA	465	37	4.00	28.00	1280.50	0.0734	136.38
ZEBRA (UP)	525	61	3.31	29.79	1448.39	0.0651	146.03
MOOSE	570	61	3.45	31.05	1573.71	0.0598	158.66
MORCULLA	604	61	3.55	31.95	1666.00	0.0568	167.99
MOOSE (UP)	642	61	3.66	32.94	1771.36	0.0534	178.43
MORCULLA (UP)	695	61	3.81	34.29	1919.13	0.0492	193.25
BERSIMIS	767	61	4.00	36.00	2115.54	0.0446	213.01

LUMINO AAC Conductors and Technical Data for AAC Conductors

CONSTRUCTION FOR ALL ALUMINIUM CONDUCTOR AS PER IS:398 (PT - I) 1996

No of wire in Conductor	Construction	LAY RATIO FOR EACH LAYER		
		6 WIRE	12 WIRE	18 WIRE
7	1+6	10 to 14	-	-
19	1+6+12	10 to 16	10 to 14	-
37	1+6+12+18	10 to 17	10 to 16	10 to 14

**BASIC DATA FOR ALL ALUMINIUM CONDUCTORS AS PER IS 398 (PART - 1): 1996**

CODE WORD	ALUMINIUM AREA (Sq mm)		STRANDING & WIRE DIAMETER CONDUCTOR NO.	CONDUCTOR DIA (mm)	OVERALL DIA (mm) (APPROX.)	MASS (APPROX.) (Kg / Km)	RESISTANCE AT 20 degC (Ohms / Km) (MAX)	ULTIMATE BREAKING LOAD (KN)
	NOMINAL	SECTIONAL						
GNAT	25	26.85	7	2.21	6.63	74	1.096	4.52
ANT	50	52.83	7	3.10	9.30	145	0.5525	8.25
WASP	100	106.00	7	4.39	13.17	290	0.2752	15.96
19/3.18 mm	150	150.90	19	3.18	15.90	415	0.1942	23.28
SPIDER	240	237.60	19	3.99	19.95	654	0.1235	35.74
BUTTERFLY	300	322.70	19	4.65	23.25	888	0.09107	48.74

BASIC DATA FOR ALL ALUMINIUM CONDUCTORS AS PER IS 398 (PART - 1): 1976

CODE WORD	ALUMINIUM AREA (SQ MM)		STRANDING & WIRE DIAMETER CONDUCTOR NO.	CONDUCTOR DIA (mm)	OVERALL DIA (mm) (APPROX)	MASS (APPROX)	RESISTANCE AT 20 degC (Ohms/Km) (MAX)	ULTIMATE BREAKING LOAD (Kg)
	NOMINAL	SECTIONAL						
ROSE	20.89	21.12	7	1.96	5.88	58	1.362	385
LADY BIRD FLY	42.33	42.80	7	2.79	8.37	117	0.6721	737
FLY	62.86	63.55	7	3.40	10.20	174	0.4526	1051
BLUE BOTTLE	72.84	73.65	7	3.66	10.95	201	0.3936	1203
EARWIG	77.70	78.55	7	3.78	11.34	215	0.3662	1272
GRASS HOPPER	83.13	84.05	7	3.91	11.73	230	0.3422	1356
CLEGG	94.56	95.60	7	4.17	12.51	261	0.3009	1523
CATERPILLAR	183.00	186.00	19	3.53	17.65	511	0.1555	2985
CHAFFER	209.90	213.20	19	3.78	18.90	586	0.1356	3381
COCKROACH	261.50	265.80	19	4.22	21.10	730	0.1088	4144
MOTH	367.20	373.10	19	5.00	25.00	1025	0.0774	5695
LOCUST	421.90	428.70	19	5.36	26.80	1176	0.0674	6516
MAY BUG	473.60	486.10	37	4.09	28.63	1343	0.0598	7289
SCORPION	518.40	529.80	37	4.27	29.89	1464	0.0548	7878
IRIS	33.45	33.81	7	2.48	7.44	92	0.8506	582
PANSY	42.02	42.49	7	2.78	8.34	116	0.6770	730

LUMINO ACSR Conductors and Technical Data for ACSR Conductors

CONSTRUCTION FOR ALL ALUMINIUM CONDUCTOR STEEL REINFORCED AS PER IS:398 (PT - I) 1996									
No of wire in Conductor	Construction	LAY RATIO FOR EACH LAYER							
		6 WIRE (ST)	6 WIRE (AL)	8 WIRE (AL)	12 WIRE (AL)	14 WIRE (AL)	18 WIRE (AL)	20 WIRE (AL)	24 WIRE (AL)
7	1+6	-	10 to 14	-	-	-	-	-	-
13	1+6+12	13 to 28	10 to 14	-	-	-	-	-	-
37	1+6+12+18	13 to 28	-	-	10 to 16	-	10 to 14	-	-
49	1+6+12+14+20	13 to 28	-	10 to 17	-	10 to 16	-	10 to 14	-
61	1+6+12+18+24	13 to 28	-	-	10 to 17	-	10 to 16	-	10 to 14



BASIC DATA FOR ALL ALUMINIUM CONDUCTORS STEEL REINFORCED AS PER IS 398 (PART -II): 1996													
CODE WORD	Aluminium Area Sq mm		Total Sectional Area (Sq. mm.)	Stranding and Wire Diameter Conductor (AL)		Wire Diameter Conductor (ST)		Overall Dia. (mm) approx	WEIGHT MASS			Resistance at 20 degC Ohms/Km (MAX)	Ultimate Breaking Load (KN)
	Nominal	Sectional		NO.	DIA (mm)	NO	DIA (mm)		Total Kg/Km	AL. Kg/Km	ST. Kg/Km		
MOLE	10	10.60	12.37	6	1.50	-	1.50	4.50	43	29	14	2.780	3.97
ROSE	18	18.10	21.12	6	1.96	1	1.96	5.88	73	49.5	23.5	1.618	6.74
SQUIRREL	20	20.98	24.48	6	2.11	1	2.11	6.33	85	58	27	1.394	7.61
WEASEL	30	31.61	36.88	6	2.59	1	2.59	7.77	128	87	41	0.9289	11.12
RABBIT	50	52.88	61.70	6	3.35	1	3.53	10.05	214	145	69	0.5524	18.25
RACCOON	80	78.83	91.97	6	4.09	1	4.09	12.27	318	215	103	0.3712	26.91
DOG	100	105.0	118.5	6	4.72	7	1.57	14.15	394	288.3	105.7	0.2792	32.41
WOLF	150	158.1	194.9	30	2.59	7	2.59	18.13	727	438	289	0.1871	67.34
PANTHER	200	212.1	261.5	30	3.00	7	3.00	21.00	976	588.5	387.5	0.1390	89.67
KUNDAH	400	404.1	425.2	42	3.50	7	1.96	26.88	1282	1119	163	0.07311	88.79
ZEBRA	420	428.9	484.5	54	3.18	7	3.18	28.62	1621	1182	439	0.06868	130.32
MOOSE	520	528.5	597.0	54	3.53	7	3.53	31.77	1998	1463	535	0.05595	159.60
MORCULLA	560	562.7	591.7	42	4.13	7	2.30	31.68	1781	1553	228	0.05231	120.16

BASIC DATA FOR ALL ALUMINIUM CONDUCTORS STEEL REINFORCED AS PER IS 398 (PART -II): 1976													
CODE WORD	Nominal Equivalent Copper Area	Sectional Aluminium Area	Conductor Area	Stranding and Wire Diameter				Conductor Diameter	WEIGHT MASS			Resistance at 20 degC (Ohms/Km) (MAX)	Ultimate Breaking Load (KG)
				Conductor (AL)		Conductor (ST)			Total Kg/Km	AL. Kg/Km	ST. Kg/Km		
				NO.	DIA (mm)	NO	DIA (mm)						
GOPHER	16	25.90	30.62	6	2.36	1	2.36	7.08	106	72	34	1.0980	952
FERRET	25	41.87	49.98	6	3.00	1	3.00	9.00	171	116	55	0.6795	1503
MINK	40	63.32	73.65	6	3.66	1	3.66	10.98	255	173	82	0.4565	2207
HORSE	42	71.58	116.20	12	2.75	7	2.79	13.95	542	204	338	0.3977	6108
BEAVER	45	74.07	87.53	6	3.99	1	3.99	11.97	303	205	98	0.3841	2613
OTTER	50	82.85	97.91	6	4.22	1	4.22	12.66	339	230	109	0.3434	2923
CAT	55	94.21	111.30	6	4.50	7	4.50	13.50	385	261	124	0.3020	3324
LEOPARD	80	129.70	148.40	6	5.28	7	1.76	15.48	493	360	133	0.2193	4137
COYOTE	80	128.50	151.60	26	2.54	7	1.90	15.86	521	365	156	0.2214	4638
TIGER	80	128.10	161.80	30	2.36	7	2.36	16.52	604	363	241	0.2221	5758
LYNX	110	179.00	226.20	30	2.79	7	2.79	19.53	844	506	338	0.1589	7950
LION	140	232.50	293.90	30	3.18	7	3.18	22.26	1097	659	438	0.1223	10210
BEAR	160	258.10	326.10	30	3.35	7	3.35	23.45	1219	734	485	0.1102	11310
GOAT	185	316.50	400.00	30	3.71	7	3.71	25.97	1492	896	596	0.0898	13780
SHEEP	225	366.10	462.60	30	3.99	7	3.99	27.93	1726	1036	690	0.0777	15910
DEER	260	419.30	529.80	30	4.27	7	4.27	29.89	1977	1188	789	0.0678	18230
FLK	300	465.70	588.40	30	4.50	7	4.50	31.50	2196	1320	876	0.0611	20240
CAMEL	300	464.50	537.70	54	3.35	7	3.35	30.15	1804	1318	486	0.0612	14750
SPARROW	20	33.16	39.22	6	2.67	7	2.67	8.01	135	92	43	0.8578	1208
FOX	22	36.21	42.92	6	2.79	7	2.79	8.37	149	101	48	0.7857	1313
GUINEA	49	78.56	127.20	12	2.92	7	2.92	14.60	590	224	366	0.3620	6664
LARK	125	196.10	247.80	30	2.92	7	2.92	20.44	922	556	366	0.1451	8559

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