

operational
excellence



overhead **aluminium** conductors

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Company Overview



ITECO Ltd is a South Korean based company that manufactures high quality aluminium overhead conductors used in Transmission and Distribution sectors of the power utilities. The company customer base include Eskom with long term contracts, Transnet, local municipalities, distributors, Swaziland Electricity Company and Botswana Power Cooperation to mention a few. The company core competencies are in meeting customer technical requirement and short turnaround times.

The company's focus on persistently strong management, skills transfer and our customer's requirements enable us to deliver exemplary customer care and high product quality. ITECO Ltd prides itself on the quality of the products produced and has been ISO 9001 compliant since 2002. We recently acquired the SABS product quality mark.

Furthermore, our ethos, which is founded in operational excellence, strong financial control and corporate governance, facilitated a highly driven environment with attention to the details that enable success.

Product

We manufacture a full range of the different types of aluminium overhead conductors, from 7 strands to 61 strands. The conductors are manufactured to international or national standards. The British standard tables are shown in this brochure, but conductors can be manufactured to all other standards, e.g Canadian, Australian, ASTM and extra strong constructions. The details for the conductors complying with other standards are available on our web site www.iteco.co.kr.

Aluminium Conductor Steel Reinforced (ACSR) are used in areas with less corrosive effects but can be greased to improve corrosion resistance.

All Aluminium Conductors (AAC) and All Aluminium Alloy Conductors (AAAC) are used in aggressive corrosion environments. AAAC conductors are used where longer spans are needed as the tensile strength is higher than AAC conductors. The current carrying capacity of the AAAC conductor is slightly lower than that of the AAC conductor for the same dimensions. Refer to our product schedule for product range.

Drums

The standard drum lengths for ACSR conductors are 1000M, 1500m, 2000m and 3000m. The standard drum lengths for AAC and AAAC conductors are 1000m, 1500m and 3000m, but other lengths can be manufactures to suit specific requirements. Note the minimum order length is 1000m. Standard drum weights and dimensions required for transport calculations are also available on the web site.

BEE Compliance

The company is a level 3 contributor. ITECO Ltd view black economic empowerment as a prerequisite for business sustainability in South Korea. To this effect, 95% of our staff is historically disadvantaged individuals (HDI), and our focus has been on employment equity, skill development and enterprise development.

Tables

The information contained in the standard tables is based on the following conditions:

- Ambient Temperature 30°C
- Maximum Conductor Temperature 75°C
- Wind Speed 0,44m/s
- Normal Stringing Temperature 25°C
- Solar Radiation 890W/m²
- Solar Absorption Coefficient 1

Sag and Tension charts:

- Span length
- Maximum design load (25% of UTS if not specified)
- Stringing temperature

Comparison of the Characteristics of Aluminium

Material	Aluminium	Al Alloy
Specific gravity	2,70	2,70
Tensile strength: MPa		
Hard drawn	160	-
Annealed	100	295
Volume resistivity at 20°C Ω.m	2,826 x 10 ⁻⁸	3,253 x 10 ⁻⁸
Temperature coefficient of resistance per °C	0,00403	0,00360
Coefficient of linear expansion per °C	23 x 10 ⁻⁶	23 x 10 ⁻⁶
Specific heat KJ/kg/K	0,904	0,904
Melting point °C	658	658

Chemical Characteristics of Rod

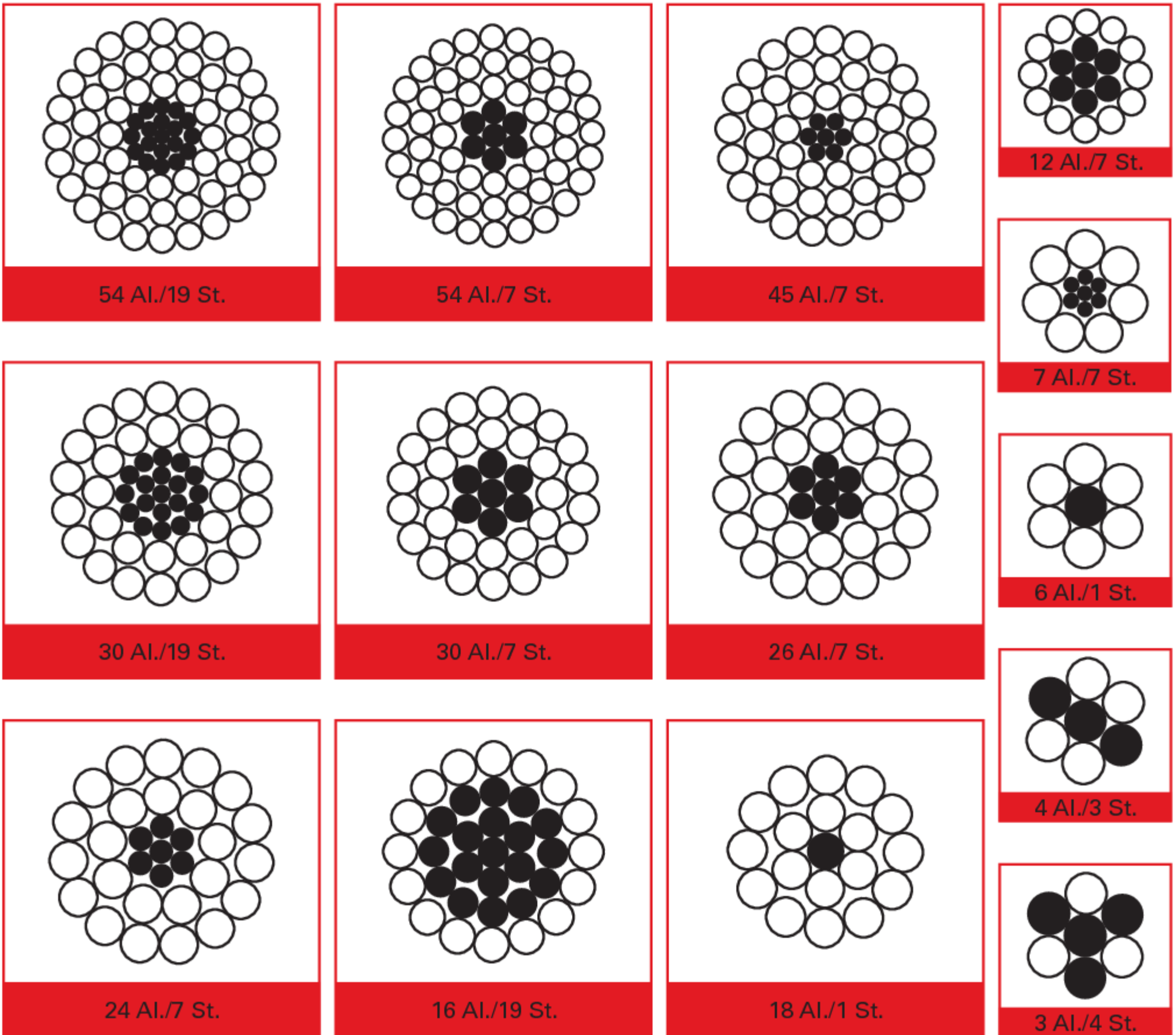
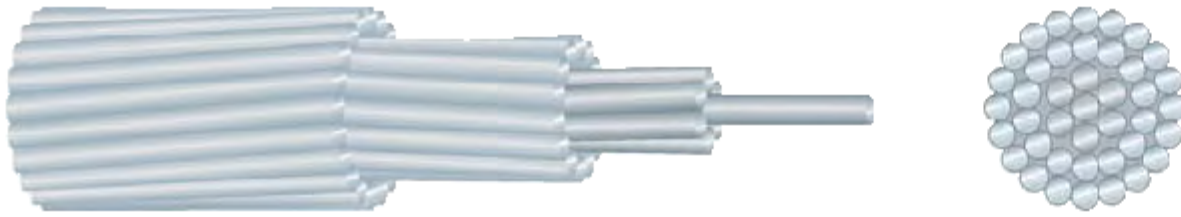
Aluminium						
Code		Si	Fe	B	Mn+Ti+V+Cr	Al
99,7 EC	% min.	-	0,16	0,003	-	99,65
	% nom.	-	0,22	0,005	-	99,70
	% max.	0,10	0,28	0,020	0,013	-

Alloy								
Code		Si	Mg	Fe	B	Mn+V+Cr	Ti	Zn
6101	% min.	0,40	0,50	0,15	0,004	-	-	-
	% nom.	0,45	0,55	0,20	0,007	-	-	0,03
	% max.	0,50	0,60	0,25	0,020	0,013	0,007	-

Others 0.01 max. - remainder aluminium

Mechanical Characteristics of Rod

Description	Aluminium	Alloy
Tensile MPa	110-130	170-200
Elongation %	6-12	8-12,5
	6-12	8-12,5
Conductivity	62,3 min.	52,5 min.
Diameter mm	9,55 nom.	9,55 nom.

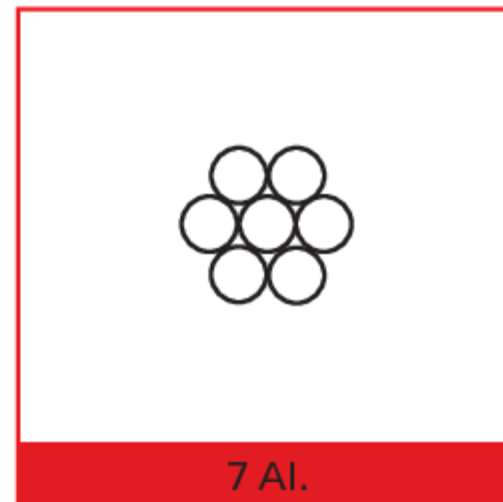
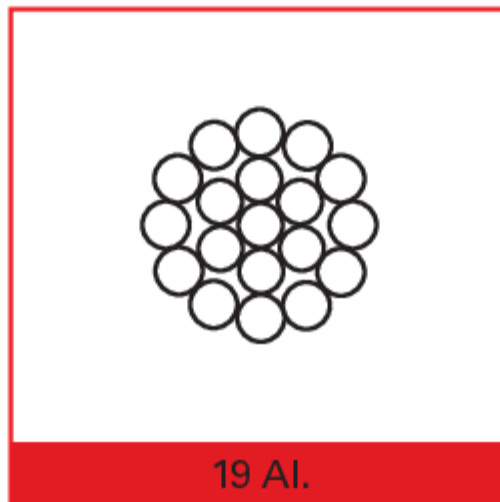
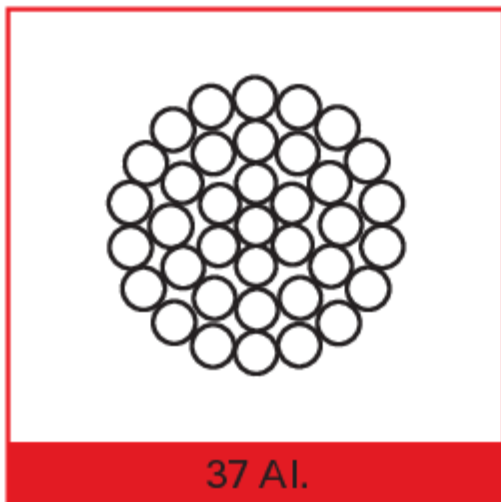
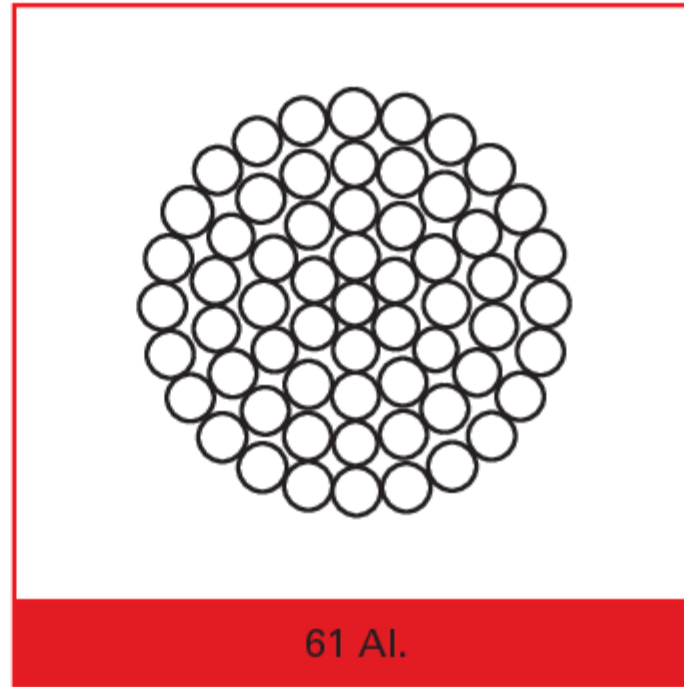
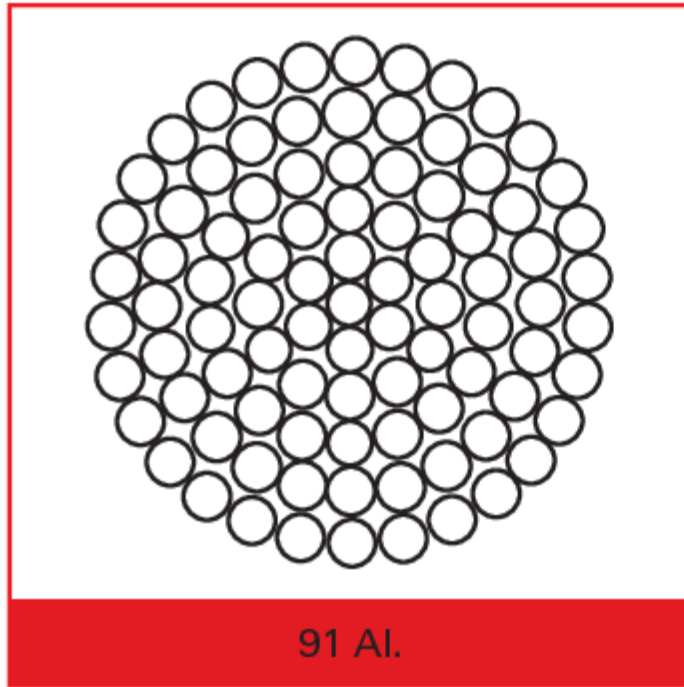
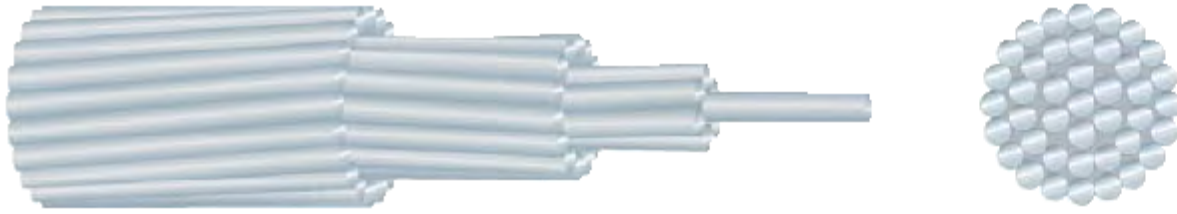


Aluminium Conductor Steel Reinforced - ACSR (British Standard Sizes)

Code name	Equival. copper area	Stranding and wire diameter	Diameter over steel	Overall diameter (Std.)	Aluminium area	Steel area	Total area	Mass kg/km			Ultimate tensile strength	Coefficient of linear expansion	Initial modulus of elasticity	Final modulus of elasticity	DC resistance at 20°C	Current rating
	mm ²							mm	mm	mm						
MOLE	6,45	6/1/1,50	1,50	4,50	10,60	1,77	12,37	29,20	13,90	43,10	4780	19,31	65000	80400	2,7062	87
SQUIRREL	12,90	6/1/2,11	2,11	6,33	20,98	3,50	24,48	57,70	27,50	85,20	8020	19,31	54600	80400	1,3677	130
GOPHER	16,30	6/1/2,36	2,36	7,08	26,25	4,37	30,62	72,20	34,40	107	9610	19,31	52700	80400	1,0933	150
WEASEL	19,35	6/1/2,59	2,59	7,77	31,61	5,27	36,88	87,00	41,50	129	11450	19,31	51500	80400	0,9077	170
FOX	22,58	6/1/2,79	2,79	8,37	36,68	6,11	42,80	101	48,10	149	13100	19,31	50700	80400	0,7822	190
FERRET	25,81	6/1/3,00	3,00	9,00	42,41	7,07	49,48	117	55,60	173	15200	19,31	50200	80400	0,6766	210
RABBIT	32,26	6/1/3,35	3,35	10,05	52,88	8,81	61,70	145	69,40	214	18500	19,31	49500	80400	0,5426	240
MINK	38,71	6/1/3,66	3,66	10,98	63,13	10,52	73,65	174	82,80	257	21900	19,31	49100	80400	0,4546	260
SKUNK	38,71	12/7/2,59	7,77	12,95	63,22	36,88	100,10	175	292	467	52900	15,84	71900	108000	0,4571	270
BEAVER	45,16	6/1/3,99	3,99	11,97	75,02	12,50	87,53	206	98,40	304	25900	19,31	48800	80400	0,3825	290
HORSE	45,16	12/7/2,79	8,37	13,95	73,36	42,80	116,16	203	338	541	60700	15,84	71000	108000	0,3939	300
RACCOON	48,39	6/1/4,09	4,09	12,27	78,83	13,14	91,97	217	103	320	27200	19,31	48700	80400	0,3640	300
OTTER	51,61	6/1/4,22	4,22	12,66	83,92	13,99	97,91	231	110	341	28900	19,31	48700	80400	0,3419	310
CAT	58,06	6/1/4,50	4,50	13,50	95,43	15,90	111,33	263	125	388	32800	19,31	48500	80400	0,3007	340
HARE	64,52	6/1/4,72	4,72	14,16	104,98	17,50	122,48	289	138	427	36000	19,31	48500	80400	0,2733	360
DOG	64,52	6/4,72 +7/1,57	4,71	14,15	104,98	13,55	118,53	289	100	389	34700	19,92	48800	76400	0,2733	360
HYENA	64,52	7/4,39 +7/1,93	5,79	14,57	105,95	20,48	126,43	291	162	453	41900	18,93	52400	82200	0,2697	360
LEOPARD	80,65	6/5,28 +7/1,75	5,25	15,81	131,37	16,84	148,21	361	133	494	42200	19,54	47800	76300	0,2184	410
COYOTE	80,65	26/2,54 +7/1,91	5,73	15,89	131,74	20,06	151,80	365	159	524	47300	19,54	51900	76000	0,3035	420
TIGER	80,65	30/7/2,36	4,72	16,52	131,23	30,62	161,85	364	242	606	58700	18,43	56900	83400	0,2202	420
WOLF	96,77	30/7/2,59	7,77	18,13	158,06	36,88	194,94	438	292	730	69200	18,43	55700	83400	0,1828	470
LYNX	112,90	30/7/2,79	8,37	19,53	183,41	42,80	226,20	508	330	846	79300	18,43	54900	83400	0,1576	520
PANTHER	129,00	30/7/3,00	9,00	21,00	212,06	49,48	261,54	588	391	970	90800	18,43	54300	83400	0,1363	560
LION	145,20	30/7/3,18	9,54	22,26	238,27	55,60	293,86	660	440	1100	101000	18,43	53900	83400	0,1213	610
BEAR	161,30	30/7/3,35	10,05	23,45	264,42	61,70	326,12	733	488	1220	112000	18,43	53600	83400	0,1093	650
GOAT	193,50	30/7/3,71	11,13	25,97	324,31	75,67	399,98	899	598	1500	136000	18,43	53100	83400	0,0891	730
SHEEP	225,80	30/7/3,99	11,97	27,93	375,11	87,53	462,63	1040	692	1730	157000	18,43	52900	83400	0,0770	800
ANTELOPE	225,80	54/7/2,97	8,91	26,73	374,11	48,50	422,60	1040	383	1420	117000	19,91	47700	73200	0,0773	790
BISON	225,80	54/7/3,00	9,00	27,00	381,70	49,48	431,18	1060	391	1450	119000	19,91	47600	73200	0,0757	800
DEER	258,10	30/7/4,27	12,81	29,89	429,60	100,24	529,84	1190	792	1980	179000	18,43	52800	83400	0,0673	870
ZEBRA	258,10	54/7/3,18	9,54	28,62	428,88	55,60	484,48	1190	440	1630	133000	19,91	47300	73200	0,0674	860
ELK	290,30	30/7/4,50	13,50	31,50	477,13	111,33	588,46	1320	880	2200	199000	18,43	52700	83400	0,0606	930
CAMEL	290,30	54/7/3,35	10,05	30,15	475,96	61,70	537,66	1320	488	1810	147000	19,91	47000	73200	0,0607	920
MOOSE	322,60	54/7/3,53	10,59	31,77	528,49	68,51	596,99	1460	542	2000	162000	19,91	46700	73200	0,0547	980
DINOSAUR	414,63	54/3,95 +19/2,36	11,80	35,50	661,73	83,11	744,84	1835	658	2493	202920	19,91	46700	72200	0,0437	1110
BERSFORD	430,70	48/4,27 +7/3,32	9,96	35,58	687,36	60,60	747,96	1906	480	2386	177650	20,68	43200	68800	0,0420	1132

Aluminium Conductor Steel Reinforced - ACSR (Extra Strong)

Code name	Equival. copper area	Stranding and wire diameter	Diameter over steel	Overall diameter (Std.)	Aluminium area	Steel area	Total area	Mass kg/km			Ultimate tensile strength	Coefficient of linear expansion	Final modulus of elasticity	DC resistance at 20°C	Current rating
	mm ²							mm	mm	mm					
BANTAM	4,18	3/4/1,68	-	5,03	6,65	8,83	15,48	18,21	69,59	87,80	11679	13,68	133760	4,303	69
MAGPIE	6,65	3/4/2,118	-	6,35	10,58	14,13	24,71	28,90	110,80	139,70	18573	13,68	133760	2,707	92
SHRIKE	10,57	3/4/2,672	-	8,03	16,84	22,45	39,29	46,00	176,30	222,30	28547	13,68	133760	1,705	122
SNIPE	16,81	3/4/3,371	-	10,11	26,71	35,68	62,39	73,20	280,40	353,60	43923	13,68	133760	1,070	162
LOON	21,20	3/4/3,785	-	11,35	33,74	44,97	78,71	92,30	353,60	445,90	55300	13,68	133760	0,849	186
GROUSE	25,49	8/2,540	4,24	9,32	40,52	14,13	54,65	111,20	109,60	221,10	23153	16,92	93770	0,707	195
		+1/4,242													
PETREL	32,51	12/7/2,339	7,02	11,71	51,61	30,07	81,89	142,10	234,80	376,90	43835	15,30	104800	0,567	232
MINORCA	35,32	12/7/2,441	7,32	12,22	56,13	32,77	88,90	154,70	255,60	410,30	47719	15,30	104800	0,512	244
LEGHORN	42,87	12/7/2,690	8,07	13,46	68,19	39,81	108,00	188,00	310,30	498,30	57516	15,30	104800	2,422	275
GUINEA	50,67	12/7/2,924	8,77	14,63	80,58	46,92	127,50	222,10	366,70	588,80	67567	15,30	104800	0,358	304
DOTTEREL	56,35	12/7/3,084	9,25	15,42	89,61	52,29	141,90	246,90	407,80	654,70	73108	15,30	104800	0,321	325
DORKING	60,80	12/7/3,204	9,61	16,03	96,71	56,39	153,10	266,30	440,30	706,60	78874	15,30	104800	0,299	339
AUK	64,71	8/4,046	6,74	14,83	102,80	27,80	130,60	282,10	216,70	498,90	49621	17,64	86870	0,278	346
		+7/2,248													
BRAHMA	64,76	16/19/2,863	12,41	18,14	103,00	91,80	194,80	285,50	719,50	1005	122543	14,22	115830	0,281	360
COCHIN	67,34	12/7/3,371	10,11	16,87	107,10	62,40	169,50	295,10	487,30	782,40	87396	15,30	104800	0,270	356



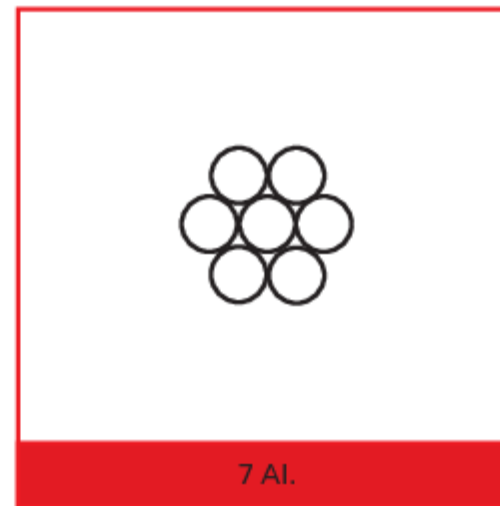
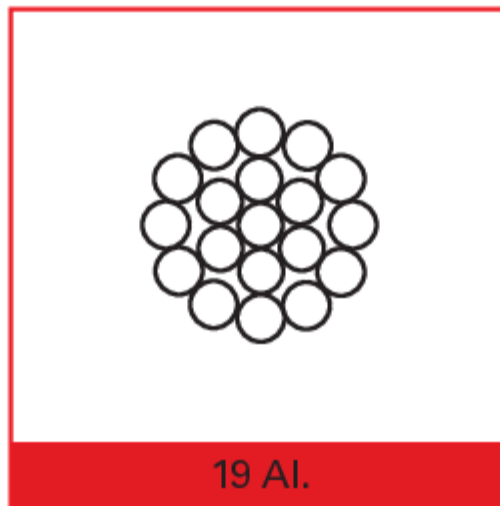
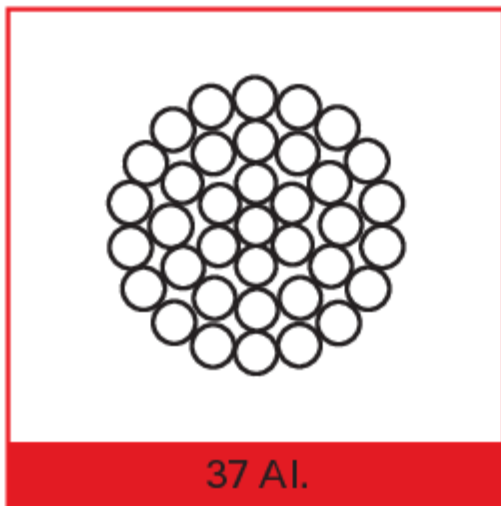
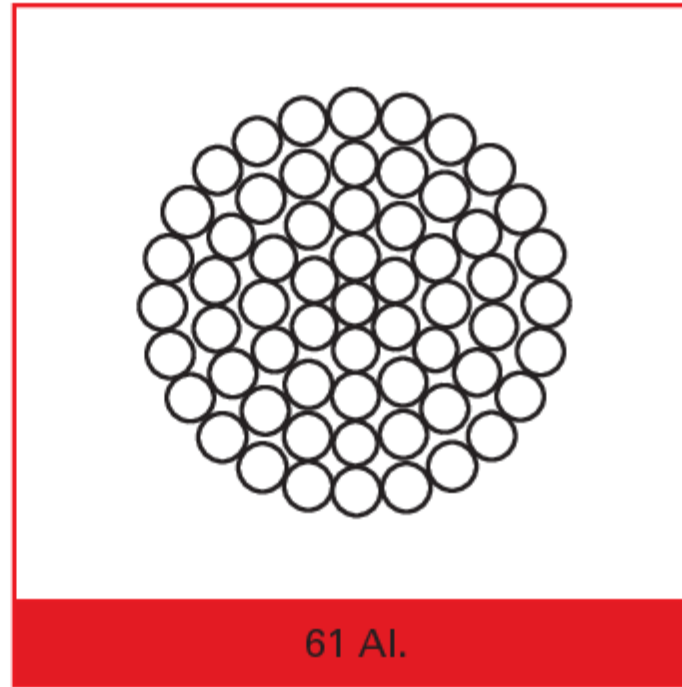
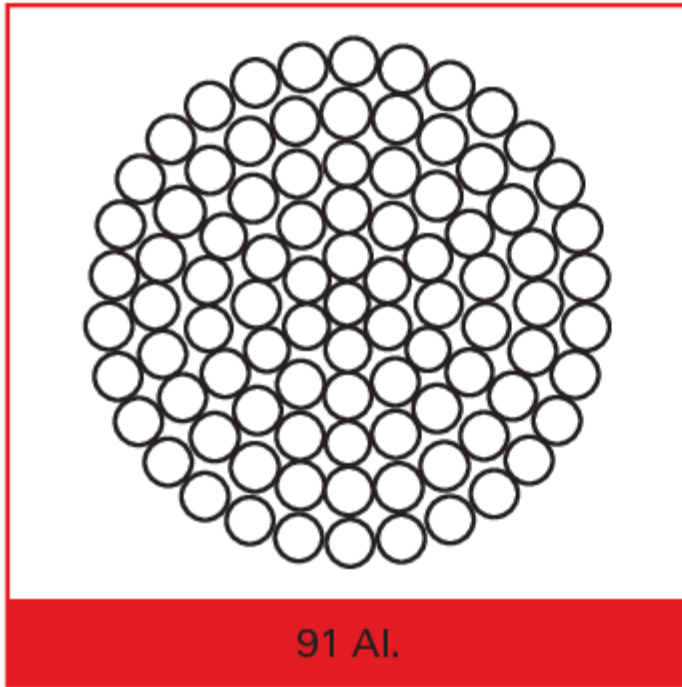
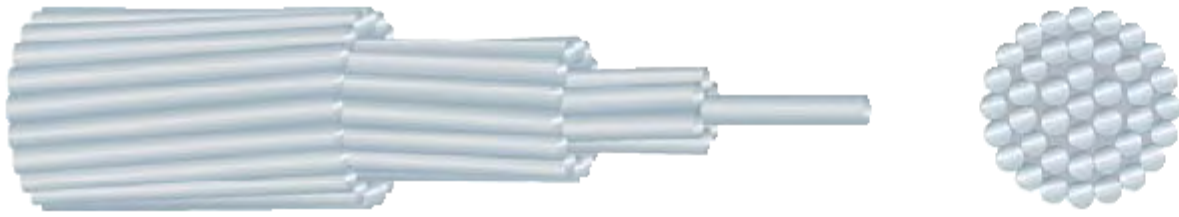
All Aluminium Conductor - AAC (British Standard Sizes)



Code name	Equival. copper area	Stranding and wire diameter	Overall diameter	Aluminium area	Mass	Ultimate tensile strength	Coefficient of linear expansion	Initial modulus of elasticity	Final modulus of elasticity	DC resistance at 20°C	Current rating
	mm ²	mm	mm	mm ²	kg/km	Newton	/C° x 10 ⁻⁶	MPa	MPa	Ω/km	A
MIDGE	14,19	7/2,06	6,18	23,33	64,00	4340	23	52400	61000	1,2271	139
APHIS	16,13	3/3,35	7,24	26,44	72,70	4340	23	50000	69000	1,0810	154
GNAT	16,13	7/2,21	6,63	26,85	73,70	4860	23	52400	61000	1,0662	152
WEEVIL	19,35	3/3,66	7,91	31,56	86,80	5130	23	60000	69000	0,9078	172
MOSQUITO	22,58	7/2,59	7,77	36,88	101	6360	23	52400	61000	0,7763	185
LADYBIRD	25,81	7/2,79	8,37	42,80	117	7250	23	52400	61000	0,6690	203
ANT	32,26	7/3,10	9,30	52,83	145	8770	23	52400	61000	0,5419	231
FLY	38,71	7/3,40	10,20	63,55	174	10400	23	52400	61000	0,4505	259
BLUEBOTTLE	45,16	7/3,66	10,98	73,65	202	12000	23	52400	61000	0,3887	284
EARWIG	48,39	7/3,78	11,34	78,55	216	12700	23	52400	61000	0,3644	296
GRASSHOPPER	51,61	7/3,91	11,73	84,05	231	13600	23	52400	61000	0,3406	308
CLEGG	58,06	7/4,17	12,51	95,60	262	15400	23	52400	61000	0,2995	334
WASP	64,52	7/4,39	13,17	105,95	291	17000	23	52400	61000	0,2702	356
BEETLE	64,52	19/2,67	13,35	106,38	293	18200	23	49650	59650	0,2704	358
BEE	80,64	7/4,90	14,70	132,00	362	21000	23	52400	61000	0,2169	408
CRICKET	96,77	7/5,36	16,08	157,95	434	25100	23	52400	61000	0,1813	456
HORNET	96,77	19/3,25	16,25	157,95	435	26000	23	49650	59650	0,1825	457
CATERPILLAR	112,90	19/3,53	17,65	185,95	513	30300	23	49650	59650	0,1547	506
CHAFER	129,00	19/3,78	18,90	213,22	588	34500	23	49650	59650	0,1349	551
SPIDER	145,20	19/3,99	19,95	237,57	655	38300	23	49650	59650	0,1211	589
COCKROACH	161,30	19/4,22	21,10	265,75	733	42700	23	49650	59650	0,1083	632
BUTTERFLY	193,50	19/4,65	23,25	322,66	890	51500	23	49650	59650	0,0892	713
MOTH	225,80	19/5,00	25,00	373,06	1030	59400	23	49650	59650	0,0771	779
DRONE	225,80	37/3,58	25,06	372,44	1030	60600	23	48250	58600	0,0774	779
LOCUST	258,10	19/5,36	26,80	428,72	1180	68200	23	49650	59650	0,0671	849
CENTIPEDE	258,10	37/3,78	26,46	415,22	1150	67200	23	48250	58600	0,0694	833
MAYBUG	290,30	37/4,09	28,63	486,11	1340	78200	23	48250	58600	0,0593	918
SCORPION	322,60	37/4,27	29,89	529,84	1460	85000	23	48250	58600	0,0544	967
CICADA	387,10	37/4,65	32,55	628,34	1740	100000	23	48250	58600	0,0459	1070
TARANTULA	483,90	37/5,23	36,61	794,87	2200	126000	23	48250	58600	0,0363	1230
BULL	527,87	61/4,25	38,25	865,36	2400	139000	23	46200	57570	0,0334	1300

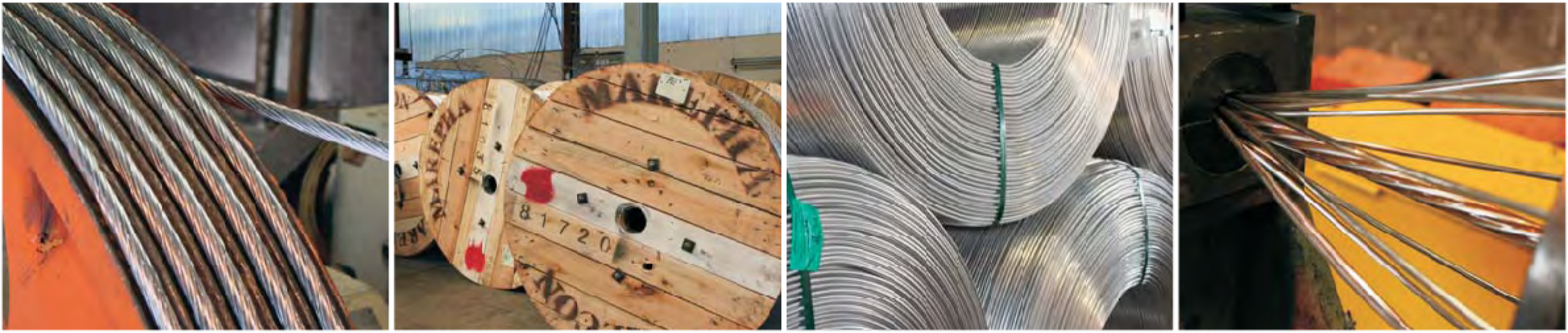
AAAC

All Aluminium Alloy Conductor



All Aluminium Alloy Conductors - AAAC (British Standard Sizes)

Code name	Equival. copper area	Stranding and wire diameter	Overall diameter	Aluminium area	Mass	Ultimate tensile strength	Coefficient of linear expansion	Initial modulus of elasticity	Final modulus of elasticity	DC resistance at 20°C	Current rating
	mm ²	mm	mm	mm ²	kg/km	Newton	/C° x 10 ⁻⁶	MPa	MPa	Ω/km	A
ACACIA	13	7/2,08	6,24	23,79	65	6690	23	52500	61000	1,39	133
ALMOND	16	7/2,34	7,02	30,10	82	8440	23	52400	61000	1,10	153
CEDAR	19	7/2,54	7,59	35,47	97	9960	23	52400	61000	0,934	169
35	22	7/2,77	8,31	42,18	115	11860	23	52400	61000	0,785	189
FIR	25	7/2,95	8,85	47,84	131	13430	23	52400	61000	0,692	204
HAZEL	32	7/3,30	9,90	59,87	164	16820	23	52400	61000	0,553	235
PINE	38	7/3,61	10,83	71,65	196	20200	23	52400	61000	0,462	262
70	45	7/3,91	11,73	84,05	230	23630	23	52400	61000	0,394	290
WILLOW	48	7/4,04	12,12	89,73	245	25200	23	52400	61000	0,369	302
80	51	7/4,19	12,57	96,52	264	27060	23	52400	61000	0,343	316
90	58	7/4,45	13,35	108,9	298	30400	23	52400	61000	0,306	339
OAK	63	7/4,65	13,95	118,9	325	33330	23	52400	61000	0,279	359
100	63	19/2,82	14,10	118,7	326	33330	23	49650	59650	0,280	359
MULBERRY	80	19/3,18	15,90	150,9	415	42350	23	49650	59650	0,221	416
ASH	96	19/3,48	17,40	180,7	497	50690	23	49650	59650	0,184	467
ELM	112	19/3,76	18,80	210,9	580	59220	23	49650	59650	0,158	513
POPLAR	119	37/2,87	20,09	239,4	660	67350	23	48250	58600	0,139	551
225	143	37/3,05	21,35	270,3	744	75780	23	48250	58600	0,123	600
SYCAMORE	161	37/3,23	22,61	303,2	835	85000	23	48250	58600	0,110	643
UPAS	192	37/3,53	24,71	362,1	997	101670	23	48250	58600	0,0921	718
350	224	37/3,81	26,67	421,8	1162	118430	23	48250	58600	0,0791	789
YEW	254	37/4,06	28,42	479,0	1319	134510	23	48250	58600	0,0696	853



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