

OMAN CABLES INDUSTRY (S.A.O.G.)

# Overhead Line Conductors

AAC

ACSR

AAAC

BCC

## A Vital Link in Power Transmission



## شركة صناعة الكابلات العمانية (ش.م.ع.ع)

تقف شركة صناعة الكابلات العمانية فخورة كشركه وطنية بما حققته في مسيرة عقدين من الزمن . ان النجاح والسعي الدؤوب نحو التميز توج بجوائز عديده فازت بها الشركة في مسيرتها الطويلة و كان من اهمها الفوز بجائزة صاحب الجلالة السلطان قابوس حفظه الله لأفضل الصناعة لخمس سنوات متتالية, و جائزة العام للتصدير.

ان بداية الشركة المتواضعة بعشرة موظفين في عام ١٩٨٤ وبيع ٠,٢ مليون دولار لم يتحصر محلية بل تعداه للعالمية و اليوم بـ ٦٠٠ موظف منهم ٥٢٪ من المواطنين العمانيين بلغ حجم المبيعات ٨٠٠ مليون دولار أمريكي.

تصدر شركة صناعة الكابلات العمانية منتجاتها ذات الجودة العالمية لجميع أنحاء العالم وبالاخص الي المملكة المتحدة والشرق الأقصى وآسيا والشرق الاوسط والبلدان المطلة على المحيط الهادئ.

## Oman Cables Industry (SAOG)

In a journey spanning over two decades, Oman Cables Industry (SAOG) has always strived towards excellence and quality in all its activities. The various awards won by OCI bear testimony to this, be it being the five-time winner of His Majesty's trophies for the best industry or the various Flame of Excellence and Exporter of the Year awards. OCI exports its products across the globe to Europe, UK, Far East, Asia, Middle East and the Pacific Rim. Having started with just 10 employees and sales of 0.2 million USD in 1984, today OCI is proud of the fact that it employs 52% Omani nationals amongst its 600 employees, and has a sales turnover of 800 million USD.





**Winners of His Majesty's  
"Best Industry" Trophy  
for the Years 1991, 1992, 1996, 1997 & 2005**



## OVERHEAD LINE CONDUCTORS

### Contents

	Page
<b>Message</b>	<b>1</b>
<b>AAC - All Aluminium Conductors</b>	<b>5-11</b>
• British Sizes BS 215	6
• British Sizes BS EN 50182	6
• IEC Sizes IEC 61089	7
• American Sizes ASTM B 231	8
• Canadian Sizes CSA C 49	9
• German Sizes DIN 48 201	10
• Oman Sizes OES 25D	11
<b>ACSR - Aluminium Conductor Steel Reinforced</b>	<b>13-20</b>
• British Sizes BS 215	14
• British Sizes BS EN 50182	14
• IEC Sizes IEC 61089	15
• American Sizes ASTM B 232	16-17
• Canadian Sizes CSA C 49	18-19
• German Sizes DIN 48 204	20
<b>AAAC - All Aluminium Alloy Conductors</b>	<b>21-26</b>
• British Sizes BS EN 50182	22
• IEC Sizes IEC 1089	23
• American Sizes ASTM B 399	24
• Canadian Sizes CSA C 49	26
• German Sizes DIN 48 201	26
<b>BCC - Bare Copper Conductors</b>	<b>27-28</b>
• British Sizes BS 7884	28
<b>PVC Covered Copper Conductors</b>	<b>29-30</b>
• British Sizes BS 6485	30



## AII - ALUMINIUM CONDUCTORS

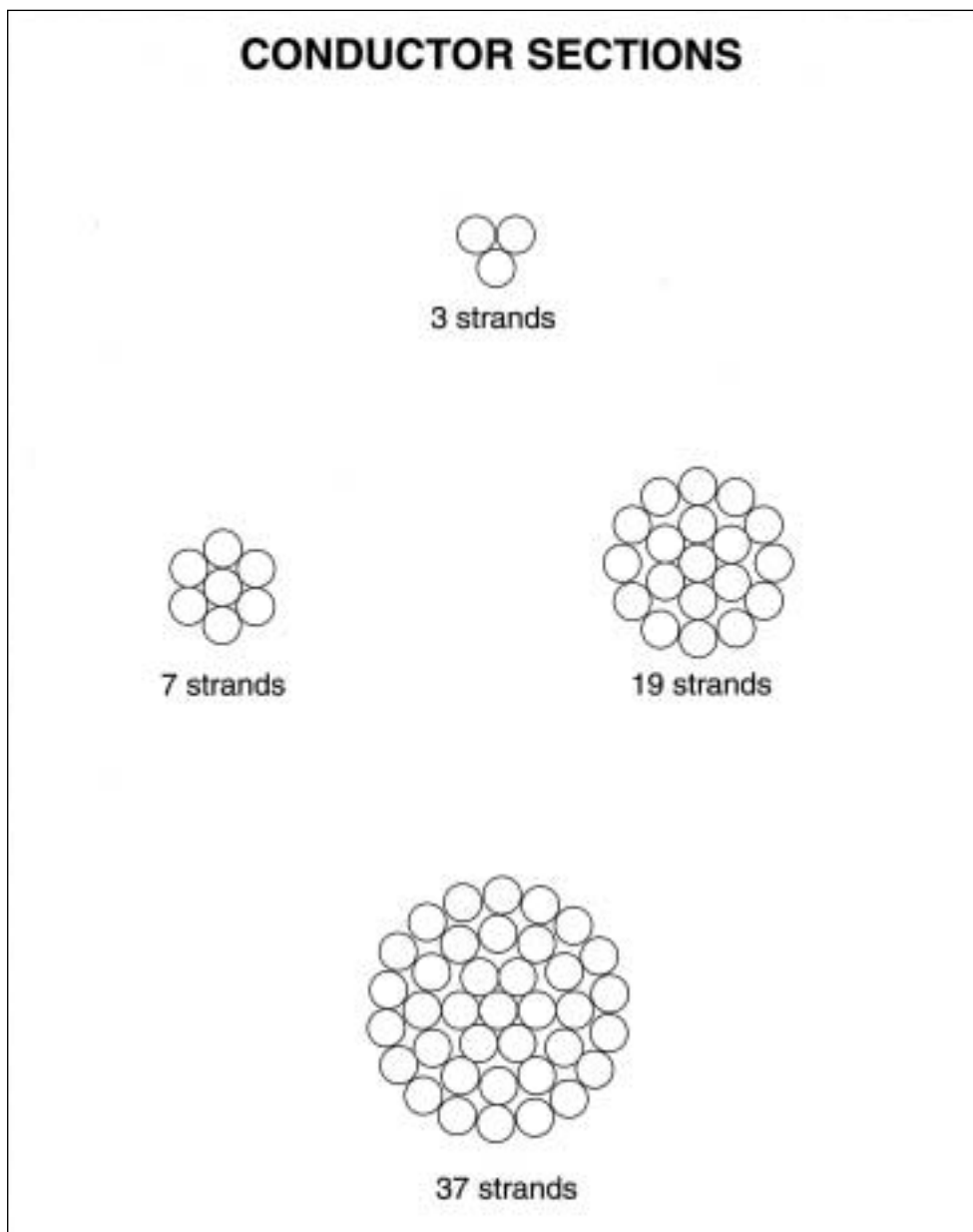
### AAC

All-aluminium conductors are the most favoured type for use in the construction of relatively short span distribution schemes in common use on lines for voltage up to 60Kv.

Another frequent application for all-aluminium conductors is in flexible busbar connections. Although aluminium-to-copper connections can be made, it is better to use aluminium conductors for service connections, as various forms of covered cables are available for this purpose.

The data sheets show the most common sizes of conductor but other sizes, to any recognized standards or customer specification can also be required.

AAC insulated with XLPE or PVC can also be supplied as per customers' requirements.



**AII-ALUMINIUM CONDUCTORS**

**AAC**

**BS 215 : Part 1 : 1970**

**TABLE 1A**

**BRITISH SIZES**

Code Name	Nominal Area	Stranding & Wire Diameter	Approximate Overall Diameter	Total Area	Approximate Weight	Breaking Load	DC Resistance at 20° C	Current Rating
	mm <sup>2</sup>							
Midge	22	7/2.06	6.18	23.33	64	3.99	1.22700	114
Ant	50	7/3.10	9.30	52.83	145	8.28	0.54190	181
Fly	60	7/3.40	10.20	63.55	174	9.90	0.45050	199
Wasp	100	7/4.39	13.17	106.00	290	16.00	0.27020	271
Hornet	150	19/3.25	16.25	157.60	434	25.70	0.18250	346
Chafer	200	19/3.78	18.90	213.20	587	32.40	0.13490	414
Cockroach	250	19/4.22	21.10	265.70	731	40.40	0.10830	470
Butterfly	300	19/4.65	23.25	322.70	888	48.75	0.08916	528
Centipede	400	37/3.78	26.46	415.20	1145	63.10	0.06944	619

**BS EN 50182 : 2001**

**TABLE 1B**

Code Name	Nominal Area	Stranding & Wire Diameter	Approximate Overall Diameter	Total Area	Approximate Weight	Breaking Load	DC Resistance at 20° C	Current Rating
	mm <sup>2</sup>							
Gnat	-	7/2.21	6.63	26.9	73	4.83	1.0643	124
Mosquito	-	7/2.59	7.77	36.9	101	6.27	0.7749	144
Ladybird	-	7/2.79	8.37	42.8	117	7.28	0.6678	159
Bluebottle	-	7/3.66	10.98	73.6	201	11.78	0.3880	219
Earwig	-	7/3.78	11.34	78.6	215	12.57	0.3638	227
Grasshopper	-	7/3.91	11.73	84.1	230	13.46	0.3400	238
Clegg	-	7/4.17	12.51	95.6	261	15.30	0.2989	256
Beetle	-	19/2.67	13.35	106.4	292	18.08	0.2701	274
Bee	-	7/4.90	14.70	132.0	361	21.12	0.2165	308
Caterpillar	-	19/3.53	17.65	185.9	511	29.75	0.1546	380
Spider	-	19/3.99	19.95	237.6	653	38.01	0.1210	439
Moth	-	19/5.00	25.00	373.1	1025	59.69	0.0770	572
Drone	-	37/3.58	25.06	372.4	1027	59.59	0.0774	572
Maybug	-	37/4.09	28.63	486.1	1340	77.78	0.0593	676
Scorpion	-	37/4.27	29.89	529.8	1461	84.77	0.0544	710
Cicada	-	37/4.65	32.55	628.3	1732	100.54	0.0459	784

## AII-ALUMINIUM CONDUCTORS

AAC

IEC : 61089 (1991-06)

TABLE 2

IEC SIZES

Code Name	Nominal Area	Stranding & Wire Diameter	Aproximate Overall Diameter	Approximate Weight	Breaking Load	DC Resistance at 20 C
	mm <sup>2</sup>					
10	10	7/1.35	4.05	27.4	1.95	2.8633
16	16	7/1.71	5.12	43.8	3.04	1.7896
25	25	7/2.13	6.40	68.4	4.50	1.1453
40	40	7/2.70	8.09	109.4	6.80	0.7158
63	63	7/3.39	10.20	172.3	10.39	0.4545
100	100	19/2.59	12.90	274.8	17.00	0.2877
125	125	19/2.89	14.50	343.6	21.25	0.2302
160	160	19/3.27	16.40	439.8	26.40	0.1798
200	200	19/3.66	18.30	549.7	32.00	0.1439
250	250	19/4.09	20.50	687.1	40.00	0.1151
315	315	37/3.29	23.00	867.9	51.97	0.0916
400	400	37/3.71	26.00	1102.0	64.00	0.0721
450	450	37/3.94	27.50	1239.8	72.00	0.0641
500	500	37/4.15	29.00	1377.6	80.00	0.0577
560	560	37/4.39	30.70	1542.9	89.60	0.0515
630	630	61/3.63	32.60	1738.3	100.80	0.0458
710	710	61/3.85	34.60	1959.1	113.60	0.0407
800	800	61/4.09	36.80	2207.4	128.00	0.0361
900	900	61/4.33	39.00	2483.3	144.00	0.0321
1000	1000	61/4.57	41.10	2759.2	160.00	0.0289
1120	1120	91/3.96	43.50	3093.5	179.20	0.0258
1250	1250	91/4.18	46.00	3452.6	200.00	0.0231
1400	1400	91/4.43	48.70	3866.9	224.00	0.0207
1500	1500	91/4.58	50.40	4143.1	240.00	0.0193



**AII-ALUMINIUM CONDUCTORS**

**AAC**

ASTM B 231-90 (Class A and Class AA)

Table 3

AMERICAN SIZES

Code Name	Total Area		Stranding and Wire Diameter	Approximate Overall Diameter	Weight	Breaking Load	DC Resisance at 20° C	Current Rating
	AWG or MCM	mm <sup>2</sup>						
Peachbell	6.0	13.30	7/1.56	4.68	36.6	2.53	2.1690	72
Rose	4.0	21.10	7/1.96	5.88	58.2	3.91	1.3620	104
Iris	2.0	33.60	7/2.47	7.41	92.6	5.99	0.8574	136
Pansy	1.0	42.40	7/2.78	8.34	116.6	7.30	0.6801	157
Poppy	1/0.0	53.50	7/3.12	9.36	147.2	8.84	0.5390	180
Aster	2/0.0	67.40	7/3.50	10.50	185.7	11.10	0.4276	207
Phlox	3/0.0	85.00	7/3.93	11.79	233.9	13.50	0.3390	237
Oxlip	4/0.0	107.20	7/4.42	13.26	295.2	17.00	0.2688	273
Valerian	250.00	126.70	19/2.91	14.55	348.6	20.70	0.2275	305
Sneezewort	250.00	126.70	7/4.80	14.40	348.8	20.10	0.2275	300
Laurel	266.80	135.20	19/3.10	15.05	372.2	22.10	0.2133	317
Daisy	266.80	135.20	7/4.96	14.88	372.3	21.40	0.2133	313
Peony	300.00	152.00	19/3.19	15.95	418.3	24.30	0.1896	340
Tulip	336.40	170.50	19/3.38	16.90	469.5	27.30	0.1695	364
Daffodil	350.00	177.30	19/3.45	17.25	487.9	28.40	0.1625	373
Canna	397.50	201.40	19/3.67	18.35	554.9	31.60	0.1432	401
Goldentuft	450.00	228.00	19/3.91	19.55	627.6	35.00	0.1264	432
Syringa	477.00	242.00	37/2.88	20.16	664.8	38.60	0.1193	449
Cosmos	477.00	242.00	19/4.02	20.10	664.8	37.00	0.1193	447
Hyacinth	500.00	253.30	37/2.95	20.65	696.8	40.50	0.1137	461
Zinnia	500.00	253.30	19/4.12	20.60	697.1	38.90	0.1137	459
Dahlia	556.50	282.00	19/4.35	21.75	775.8	43.30	0.1023	489
Mistletoe	556.50	282.00	37/3.12	21.84	775.7	44.30	0.1023	493
Meadowsweet	600.00	304.00	37/3.23	22.61	836.3	47.50	0.0948	513
Orchid	636.00	323.30	37/3.33	23.31	886.9	50.40	0.0893	531
Heuchera	650.00	329.40	37/3.37	23.59	907.4	51.70	0.0875	538
Flag	700.00	354.70	61/2.72	24.48	975.8	57.10	0.0813	563
Varbena	700.00	354.70	37/3.49	24.43	975.7	55.40	0.0813	562
Nasturtium	715.50	362.60	61/2.75	24.75	998.5	58.40	0.0795	570
Voilet	715.50	362.60	37/3.53	24.71	998.5	56.70	0.0795	570
Cattail	750.00	380.00	61/2.82	25.38	1046.0	60.30	0.0759	586
Petunia	750.00	380.00	37/3.62	25.34	1046.0	58.60	0.0759	585
Lilac	795.00	402.80	61/2.90	26.10	1110.0	63.80	0.0715	607
Arbutus	795.00	402.80	37/3.72	26.04	1109.0	61.80	0.0715	605
Snapdragon	900.00	456.00	61/3.09	27.81	1256.0	70.80	0.0632	653
Cockscomb	900.00	456.00	37/3.96	27.72	1256.0	68.40	0.0632	651
Goldenrod	954.00	483.40	61/3.18	28.62	1331.0	75.00	0.0596	675
Magnolia	954.00	483.40	37/4.08	28.56	1331.0	72.60	0.0596	674
Camelia	1000.0	506.70	61/3.25	29.25	1394.0	78.30	0.0569	693
Hawkweed	1000.00	506.70	37/4.18	29.26	1395.0	76.20	0.0596	693
Larkspur	1033.50	523.70	61/3.31	29.79	1442.0	81.30	0.0550	707
Bluebell	1033.50	523.70	37/4.25	29.75	1441.0	78.80	0.0500	706
Marigold	1113.00	564.00	61/3.43	30.87	1553.0	87.30	0.0511	738
Hawthorn	1192.50	604.20	61/3.55	31.95	1662.0	93.50	0.0477	767
Narcissus	1272.00	644.50	61/3.67	33.03	1774.0	98.10	0.0447	797
Columbine	1351.00	694.80	61/3.78	34.02	1884.0	104.00	0.0421	825
Carnation	1431.00	725.10	61/3.89	35.01	1997.0	108.00	0.0398	854
Gladiolus	1510.50	765.41	61/4.00	36.00	2108.0	114.00	0.0376	881
Coreopsis	1590.00	805.70	61/4.10	36.90	2216.0	120.00	0.0358	907
Jessamine	1750.00	886.70	61/4.30	38.70	2442.0	132.00	0.0325	959
Cowslip	2000.00	1013.00	91/3.77	41.47	2787.0	153.00	0.0284	1035
Sagebrush	2250.00	1140.00	91/3.99	43.89	3166.0	167.00	0.0255	1108
Lupine	2500.00	1267.00	91/4.21	46.31	3519.0	186.00	0.0230	1178
Bitterroot	2750.00	1393.00	91/4.42	48.62	3872.0	205.00	0.0209	1242
Trillium	3000.00	1520.00	127/3.90	50.70	4226.0	223.00	0.0191	1308
Bluebonnet	3500.00	1773.00	127/4.22	54.86	4977.0	261.00	0.0166	1425

## AII-ALUMINIUM CONDUCTORS

AAC

CSA C 49-1965

Table 4

CANADIAN SIZES

Code Name	Total Area	Stranding and Wire Diameter	Approximate Overall Diameter	Weight	Breaking Load	DC Resistance at 20° C	Current Rating
	mm <sup>2</sup>						
Rose	21.16	7/1.961	5.89	58	4.1	1.3510	104
Lily	26.65	7/2.202	6.61	73	5.0	1.0720	124
Iris	33.61	7/2.474	7.42	92	6.2	0.8497	136
Pansy	42.39	7/2.776	8.33	116	7.6	0.6739	157
Poppy	53.48	7/3.119	9.36	146	9.2	0.5341	180
Aster	67.42	7/3.503	10.51	184	11.6	0.4236	207
Phlox	85.03	7/3.932	11.80	232	14.1	0.3360	237
Oxlip	107.23	7/4.417	13.25	293	17.7	0.2664	273
Daisy	135.16	7/4.960	14.90	369	22.4	0.2113	313
Valerian	126.71	19/2.913	14.57	348	22.3	0.2274	305
Laurel	135.16	19/3.010	15.05	372	23.8	0.2129	317
Peony	152.00	19/3.193	15.97	417	26.2	0.1880	340
Tulip	170.45	19/3.381	16.91	467	29.4	0.1638	364
Daffodil	177.35	19/3.447	17.24	488	30.6	0.1624	373
Canna	201.42	19/3.673	18.36	554	34.0	0.1427	401
-	202.71	19/3.686	18.43	558	34.2	0.1421	402
Goldentuft	228.00	19/3.909	19.55	626	37.7	0.1263	432
Cosmos	241.68	19/4.023	20.12	664	40.0	0.1188	447
Zinnia	253.35	19/4.120	20.60	695	41.9	0.1132	459
Dahlia	282.00	19/4.346	21.73	774	46.7	0.1018	489
-	278.71	37/3.096	21.67	768	48.0	0.1033	485
Meadowsweet	304.00	37/3.233	22.63	838	52.4	0.0948	513
Orchid	322.26	37/3.330	23.31	888	55.6	0.0896	531
Heuchhera	329.35	37/3.366	23.56	908	56.8	0.0876	538
Varbena	354.71	37/3.493	24.45	978	61.1	0.0814	562
Voilet	362.58	37/3.533	24.74	1000	62.5	0.0797	570
Patunia	380.00	37/3.617	25.32	1048	64.2	0.0758	585
Arbutus	402.84	37/3.724	26.06	1112	68.1	0.0715	605
-	405.35	37/3.734	26.14	1118	68.5	0.0712	608
Anemone	443.10	37/3.904	27.33	1222	73.3	0.0653	641
Cockscomb	456.06	37/3.962	27.73	1257	75.4	0.0633	657
Magnolia	483.42	37/4.079	28.55	1333	80.0	0.0597	675
Hawkweed	506.71	37/4.176	29.23	1396	83.8	0.0568	693
Bluebell	523.68	37/4.244	29.72	1445	86.6	0.0551	706
-	557.35	61/3.411	30.70	1539	96.1	0.0518	733
Marigold	563.93	61/3.432	30.89	1559	97.2	0.0512	738
Hawthorn	604.26	61/3.551	31.95	1670	104.1	0.0479	767
-	608.06	61/3.564	32.08	1679	102.7	0.0476	771
Narcissus	644.51	61/3.668	33.02	1781	108.8	0.0450	797
-	658.71	61/3.708	33.37	1818	111.2	0.0440	807
Columbine	684.84	61/3.780	34.01	1893	115.6	0.0423	825
-	709.42	61/3.848	34.63	1958	117.4	0.0407	842
Carnation	725.10	61/3.891	35.03	2004	119.9	0.0400	854
-	760.06	61/3.983	35.85	2098	125.7	0.0381	877
Gladiolus	765.35	61/3.998	35.99	2116	126.5	0.0377	881
Corepsis	805.68	61/4.096	36.91	2226	133.2	0.0358	907
-	810.71	61/4.115	37.04	2238	134.1	0.0358	910
-	861.42	61/4.239	38.15	2378	142.6	0.0335	942
-	912.06	91/3.571	39.28	2521	153.9	0.0316	975



## AII-ALUMINIUM CONDUCTORS

**AAC**

DIN 48 201 Part 5 Apr 1981

**Table 5**

**GERMAN SIZES**

Area		Stranding and Wire Diameter	Overall Diameter	Weight	Breaking Load	DC Resistance at 20° C	Current Rating
Nominal	Actual						
mm <sup>2</sup>	mm <sup>2</sup>	mm	mm	kg/km	kN	ohm/km	A
16	15.89	7/1.70	5.1	43	2.84	1.80170	110
25	24.25	7/2.10	6.3	66	4.17	1.18060	145
35	34.36	7/2.50	7.5	94	5.78	0.83320	180
50	49.48	7/3.00	9.0	135	7.94	0.57860	225
50	48.35	19/1.80	9.0	133	8.45	0.59480	225
70	65.82	19/2.10	10.5	181	11.32	0.43700	270
95	93.27	19/2.50	12.5	256	15.68	0.30840	340
120	117.00	19/2.80	14.0	322	18.78	0.24590	390
150	147.10	37/2.25	15.8	406	25.30	0.19600	455
185	181.62	37/2.50	17.5	500	30.54	0.15880	520
240	242.50	61/2.25	20.3	670	39.51	0.11920	625
300	299.40	61/2.50	22.5	827	47.70	0.09651	710
400	400.10	61/2.89	26.0	1104	60.86	0.07222	855
500	499.80	61/3.23	29.1	1379	74.67	0.05782	990
625	626.20	91/2.96	32.6	1732	95.25	0.04625	1140
800	802.10	91/3.35	36.9	2218	118.39	0.03611	1340
1000	999.70	91/3.74	41.1	2767	145.76	0.02897	1540

**Note :**

Values of current rating are valid upto 60 Hz at a wind speed of 0.6m/s and the effect of the sun for an ambient initial temp. of 35°C & an ultimate temperature of conductor 80°C.



## XLPE COVERED ALL ALUMINIUM CONDUCTORS

### AAC+XLPE

OES 25D : Jan 1995

Table 6

OMAN SIZES

Nominal Area	Section Area	Stranding and Wire Diameter	Approximate Conductor Diameter	Approximate Weight	Average Insulation Thickness	Approximate Overall Diameter	UTS
mm <sup>2</sup>	mm <sup>2</sup>	mm	mm	kg/km	mm	mm	kg
35	37.16	7/2.60	7.80	101.50	1.2	10.20	576.0
70	73.65	7/3.66	10.93	202.77	1.4	13.78	1216.0
120	119.51	19/2.83	14.15	329.39	1.6	17.35	1991.8
200	213.20	19/3.78	18.90	587.00	1.8	22.50	3240.0



## ALUMINIUM CONDUCTOR STEEL REINFORCED

## ACSR

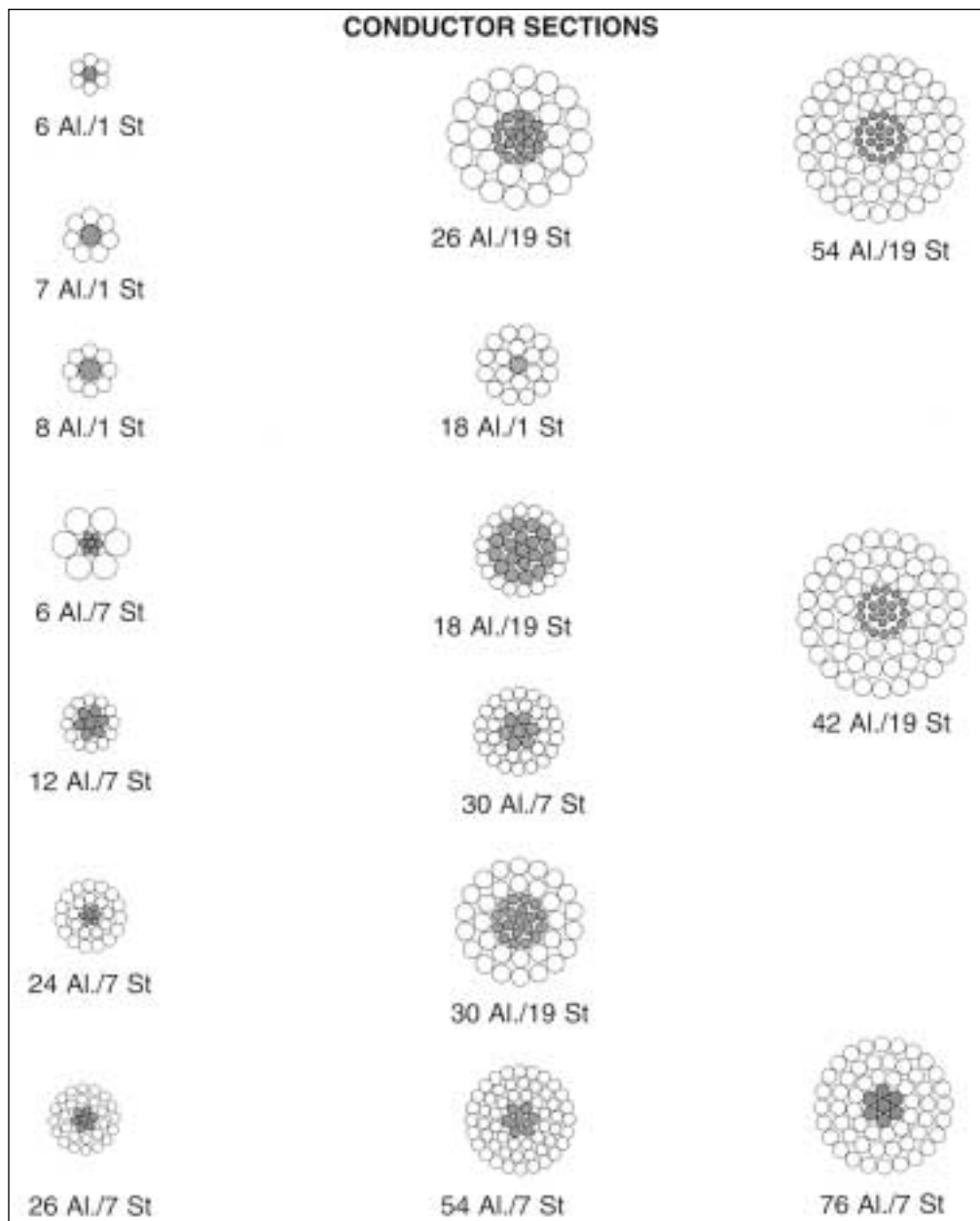
### Construction

The mixed construction of ACSR makes it a very flexible medium from the design point of view. By varying the relative proportions of aluminium and steel, the ideal conductor for any particular application can be produced. Generally, ACSR consists of a galvanized steel core of 1 wire, 7 wires or 19 wires surrounded by concentric layers of aluminium wire. When a conductor with a high current carrying capacity and comparatively low strength is required, special constructions are available with a high aluminum content.

### Protection against corrosion

A coating of non-oxidizing grease is normally applied to the steel cores of all conductors, in addition to the protection offered by the galvanizing of the steel wires. One or more layers of the aluminium wires can, if required, be supplied partially or fully greased.

OCI ensures complete freedom from contamination by other metals during the entire manufacture of ACSR conductors.



**AII-ALUMINIUM CONDUCTORS STEEL REINFORCED**

**ACSR**

**BS 215 : Part 2 : 1970**

**Table 7A**

**BRITISH SIZES**

Code Name	Nominal Area	Stranding & Wire Diameter		Approximate Overall Diameter	Sectional Area			Approximate Weight	Breaking Load	DC Resistance at 20° C	Current Rating
		Aluminium	Steel		Aluminium	Steel	Total				
	mm <sup>2</sup>	mm <sup>2</sup>	mm	mm	mm <sup>2</sup>	mm <sup>2</sup>	mm <sup>2</sup>	kg/km	kN	ohm/km	A
Gopher	25	6/2.36	1/2.36	7.08	26.24	4.38	30.62	106	9.61	1.0930	126
Weasel	30	6/2.59	1/2.59	7.77	31.61	5.27	36.88	128	11.45	0.9077	134
Ferret	40	6/3.00	1/3.00	9.00	42.41	7.07	49.48	172	15.20	0.6766	161
Rabbit	50	6/3.35	1/3.35	10.05	52.88	8.82	61.70	214	18.35	0.5426	185
Horse	70	12/2.79	7/2.79	13.95	73.37	42.83	116.20	538	61.20	0.3936	268
Dog	100	6/4.72	7/1.57	14.15	105.00	13.50	118.50	394	32.70	0.2733	278
Dingo	150	18/3.35	1/3.35	16.75	158.70	8.80	167.50	506	35.70	0.1815	349
Wolf	150	30/2.59	7/2.59	18.13	158.10	36.80	194.90	726	69.20	0.1828	355
Lynx	175	30/2.79	7/2.79	19.53	183.40	42.80	226.20	842	79.80	0.1576	386
Caracal	175	18/3.61	1/3.61	18.05	184.30	10.20	194.50	587	41.10	0.1563	383
Panther	200	30/3.00	7/3.00	21.00	212.10	49.40	261.50	974	92.25	0.1363	421
Jaguar	200	18/3.86	1/3.86	19.30	210.60	11.70	222.30	671	46.55	0.1367	415
Zebra	400	54/3.18	7/3.18	28.62	428.90	55.60	484.50	1621	131.90	0.0674	635

**Other Popular Sizes**

**BS EN 50182 : 2001**

**Table 7B**

Code Name	Nominal Area	Stranding & Wire Diameter		Approximate Overall Diameter	Sectional Area			Approximate Weight	Breaking Load	DC Resistance at 20° C	Current Rating
		Aluminium	Steel		Aluminium	Steel	Total				
	mm	mm	mm	mm	mm <sup>2</sup>	mm <sup>2</sup>	mm <sup>2</sup>	kg/km	kN	ohm/km	A
Mole		6/1.50	1/1.50	4.50	10.6	1.77	12.4	42.8	4.14	2.7027	67
Squirrel		6/2.11	1/2.11	6.33	21.0	3.50	24.5	84.7	7.87	1.3659	109
Fox		6/2.79	1/2.79	8.37	36.7	6.11	42.8	148.1	13.21	0.7812	147
Mink		6/3.66	1/3.66	11.00	63.1	10.50	73.6	254.9	21.67	0.4540	174
Skunk		12/2.59	7/2.59	13.00	63.2	36.90	100.1	4630	52.79	0.4568	246
Beaver		6/3.99	1/3.99	12.00	75.0	12.50	87.5	302.9	25.76	0.3820	193
Raccoon		6/4.10	1/4.10	12.30	78.8	13.10	92.4	318.3	27.06	0.3635	231
Otter		6/4.22	1/4.22	12.70	83.9	14.00	97.9	338.8	28.81	0.3415	240
Cat		6/4.50	1/4.50	13.50	95.4	15.90	111.3	385.3	32.76	0.3003	248
Hare		6/4.72	1/4.72	14.20	105.0	17.50	122.5	423.8	36.04	0.2730	273
Coyote		26/2.54	7/1.91	15.90	131.7	20.10	151.8	520.7	45.86	0.2192	311
Cougar		18/3.05	1/3.05	15.30	131.5	7.31	138.8	418.8	29.74	0.2188	314
Tiger		30/2.36	7/2.36	16.50	131.2	30.60	161.8	602.2	57.87	0.2202	323
Lion		30/3.18	7/3.18	22.30	238.3	55.60	293.9	1093.4	100.47	0.1213	448
Bear		30/3.35	7/3.35	23.50	264.4	61.70	326.1	1213.4	111.50	0.1093	481
Goat		30/3.71	7/3.71	26.00	324.3	75.70	400.0	1488.2	135.13	0.0891	542
Sheep		30/3.99	7/3.99	27.90	375.1	87.50	462.6	1721.3	156.30	0.0771	592
Antelope		54/2.97	7/2.97	26.70	374.1	48.50	422.6	1413.8	118.88	0.0773	588
Bison		54/3.00	7/3.00	27.00	381.7	49.50	431.2	1442.5	121.30	0.0758	595
Deer		30/4.27	7/4.27	29.90	429.6	100.20	529.8	1971.4	179.00	0.0673	639
Elk		30/4.50	7/4.50	31.50	477.1	111.30	588.4	2189.5	198.80	0.0606	679
Camel		54/3.35	7/3.35	30.20	476.0	61.70	537.7	1798.8	146.40	0.0608	677
Moose		54/3.53	7/3.53	31.80	528.5	68.50	597.0	1997.3	159.92	0.0547	763



**AII-ALUMINIUM CONDUCTORS STEEL REINFORCED**

**ACSR**

**IEC 61089 : 1991**

**Table 8**

**IEC SIZES**

Code Number	Steel Ratio	Area			Stranding & Wire Diameter		Diameter		Approximate Weight	Breaking Load	DC Resistance
		Aluminium	Steel	Total	Aluminium	Steel	Core	Conductor			
		mm <sup>2</sup>	mm <sup>2</sup>	mm <sup>2</sup>	mm	mm	mm				
16	17	16	2.67	18.7	6/1.84	1/1.84	1.84	5.53	64.6	6.08	1.7934
25	17	25	4.17	29.2	6/2.30	1/2.30	2.30	6.91	100.9	9.13	1.1478
40	17	40	6.67	46.7	6/2.91	1/2.91	2.91	8.74	161.5	14.40	0.7174
63	17	63	10.50	73.5	6/3.66	1/3.66	3.66	11.00	254.4	21.63	0.4555
100	17	100	16.70	117.0	6/4.61	1/4.61	4.61	13.80	403.8	34.33	0.2869
125	6	125	6.94	132.0	18/2.97	1/2.97	2.97	14.90	397.9	29.17	0.2304
125	16	125	20.40	145.0	26/2.47	7/1.92	5.77	15.70	503.9	45.69	0.2310
160	6	160	8.89	169.0	18/3.36	1/3.36	3.36	16.80	509.3	36.18	0.1800
160	16	160	26.10	186.0	26/2.80	7/2.18	6.53	17.70	644.9	57.69	0.1805
200	6	200	11.10	211.1	18/3.76	1/3.76	3.76	18.80	636.7	44.22	0.1440
200	16	200	32.60	233.0	26/3.13	7/2.43	7.30	19.80	806.2	70.13	0.1444
250	10	250	24.60	275.0	22/3.80	7/2.11	6.34	21.60	880.6	68.72	0.1154
250	16	250	40.70	291.0	26/3.50	7/2.72	8.16	22.20	1007.7	87.67	0.1155
315	7	315	21.80	337.0	45/2.99	7/1.99	5.97	23.90	1039.6	79.03	0.0917
315	16	315	51.30	366.0	26/3.93	7/3.05	9.16	24.90	1269.7	106.83	0.0917
400	7	400	27.70	428.0	45/3.36	7/2.24	6.73	26.90	1320.1	98.36	0.0722
400	13	400	51.90	452.0	54/3.07	7/3.07	9.21	27.60	1510.3	123.40	0.0723
450	7	450	31.10	481.0	45/3.57	7/2.38	7.14	28.50	1485.2	107.47	0.0642
450	13	450	58.30	508.0	54/3.26	7/3.26	9.77	29.30	1699.1	138.42	0.0643
500	7	500	34.60	535.0	45/3.76	7/2.51	7.52	30.10	1650.2	119.41	0.0578
500	13	500	64.80	565.0	54/3.43	7/3.43	10.30	30.90	1887.9	153.80	0.0578
560	7	560	38.70	599.0	45/3.98	7/2.65	7.96	31.80	1848.2	133.74	0.0516
560	13	560	70.90	631.0	54/3.63	19/2.18	10.90	32.70	2103.4	172.59	0.0516
630	7	630	43.60	674.0	45/4.22	7/2.81	8.44	33.80	2079.2	150.45	0.0459
630	13	630	79.80	710.0	54/3.85	19/2.31	11.60	34.70	2366.3	191.77	0.0459
710	7	710	49.10	759.0	45/4.48	7/2.99	8.96	35.90	2343.2	169.56	0.0407
710	13	710	89.90	800.0	54/4.09	19/2.45	12.30	36.80	2666.8	216.12	0.0407
800	4	800	34.60	835.0	72/3.76	7/2.51	7.52	37.60	2480.2	167.41	0.0361
800	8	800	66.70	867.0	84/3.48	7/3.48	10.40	38.30	2732.7	205.33	0.0362
800	13	800	101.00	901.0	54/4.34	19/2.61	13.00	39.10	3004.9	243.52	0.0362
900	4	900	38.90	939.0	72/3.99	7/2.66	7.98	39.90	2790.2	188.33	0.0321
900	8	900	75.00	975.0	84/3.69	7/3.69	11.10	40.60	3074.2	226.50	0.0322
1000	4	1000	43.20	1043.0	72/4.21	7/2.80	8.41	42.10	3100.3	209.26	0.0289
1120	4	1120	47.30	1167.0	72/4.45	19/1.78	8.90	44.50	3464.9	234.53	0.0258
1120	8	1120	91.20	1211.0	84/4.12	19/2.47	12.40	45.30	3811.5	283.17	0.0258
1250	8	1250	102.00	1352.0	84/4.35	19/2.61	13.10	47.90	4253.9	316.04	0.0232
1250	4	1250	52.80	1303.0	84/4.70	19/1.88	9.40	47.00	3867.1	261.75	0.0231



**AII-ALUMINIUM CONDUCTORS STEEL REINFORCED**

**ACSR**

ASTM B 232/B 232M-99

Table 9

AMERICAN SIZES

Code Name	Area			Stranding & Wire Diameter		Overall Diameter	Weight	Breaking Load	DC Resistance 20°C	Current Rating
	Aluminium	Steel	Total	Aluminium	Steel					
	mm <sup>2</sup>	mm <sup>2</sup>	mm <sup>2</sup>	mm	mm	mm	kg/km	kN	ohm/km	A
Turkey	13.29	2.21	15.50	6/1.68	1/1.68	5.04	53.6	5.2	2.15700	78
Swan	21.16	3.55	24.71	6/2.12	1/2.12	6.36	85.3	8.3	1.35600	105
Swanate	21.16	5.35	26.51	7/1.96	1/2.61	6.53	99.6	10.5	1.35600	104
Sparrow	33.61	5.61	39.22	6/2.67	1/2.67	8.01	135.7	12.7	0.85300	139
Sparate	33.61	8.52	42.13	7/2.47	1/3.30	8.24	158.7	16.1	0.85300	138
Robin	42.39	7.10	49.49	6/3.00	1/3.00	9.00	171.1	15.8	0.67650	160
Raven	53.48	8.90	62.38	6/3.37	1/3.37	10.11	216.1	19.4	0.53640	183
Quail	67.42	11.23	78.65	6/3.78	1/3.78	11.34	272.0	23.6	0.42550	210
Pigeon	85.03	14.19	99.22	6/4.25	1/4.25	12.75	343.00	29.5	0.33730	241
Penguin	107.23	17.87	125.10	6/4.77	1/4.77	14.31	432.7	37.1	0.26760	276
Waxwing	135.16	7.48	142.64	18/3.09	1/3.09	15.45	430.2	30.6	0.21330	319
Partridge	135.16	22.00	157.16	26/2.57	7/2.00	16.28	545.9	50.3	0.21420	323
Ostrich	152.00	24.77	176.77	26/2.73	7/2.12	17.28	613.4	56.5	0.19060	346
Linnet	170.45	27.74	198.19	26/2.89	7/2.25	18.31	687.5	62.7	0.16990	371
Oriole	170.45	39.81	210.26	30/2.69	7/2.69	18.83	783.3	77.0	0.17040	372
Chickadee	201.42	11.16	212.58	18/3.77	1/3.77	18.85	641.3	44.2	0.14320	403
Brant	201.42	26.13	227.55	24/3.27	7/2.18	19.61	761.0	64.9	0.14380	405
Ibis	201.42	32.77	234.19	26/3.14	7/2.44	19.88	812.4	72.5	0.14380	403
Lark	201.42	46.97	248.39	30/2.92	7/2.92	20.44	925.2	90.3	0.14420	410
Pelican	241.68	13.42	255.10	18/4.14	1/4.14	20.70	769.7	52.5	0.11930	449
Flicker	241.68	31.29	272.97	24/3.58	7/2.39	21.49	913.5	76.1	0.11990	454
Hawk	241.68	39.35	281.03	26/3.44	7/2.67	21.80	975.1	86.7	0.11990	455
Hen	241.68	56.39	298.07	30/3.20	7/3.20	22.40	1110.3	105.9	0.12020	457
Osprey	282.00	15.68	297.68	18/4.47	1/4.47	22.35	897.7	60.9	0.10220	492
Parakeet	282.00	36.58	318.58	24/3.87	7/2.58	23.22	1065.6	88.1	0.10280	492
Dove	282.00	45.94	327.94	26/3.74	7/2.89	23.55	1138.6	100.5	0.10280	499
Eagle	282.00	65.81	347.81	30/3.46	7/3.46	24.21	1295.6	123.7	0.10300	500
Peacock	306.58	39.74	346.32	24/4.03	7/2.69	24.20	1158.9	95.6	0.09449	522
Squab	306.58	49.94	356.52	26/3.87	7/3.01	24.51	1237.0	106.8	0.09449	523
Wood Duck	306.58	71.55	378.13	30/3.61	7/3.61	25.25	1408.4	128.5	0.09473	523
Teal	306.58	69.87	376.45	30/3.61	19/2.16	25.24	1396.6	133.4	0.09475	527
Kingbird	322.26	17.74	340.13	18/4.78	1/4.78	23.88	1026.6	69.4	0.08942	530
Rook	322.26	41.81	364.07	24/4.14	7/2.76	24.84	1217.6	101.0	0.08989	537
Grosbeak	322.26	52.22	374.78	26/3.97	7/3.09	25.15	1300.8	112.1	0.08989	538
Scoter	322.26	75.22	397.48	30/3.70	7/3.70	25.88	1480.7	134.8	0.09011	5.41
Egret	322.26	73.48	395.74	30/3.70	19/2.22	25.90	1469.0	140.1	0.09012	542
Flamingo	337.74	43.81	381.55	24/4.23	7/2.82	25.40	1276.6	105.4	0.08576	552
Gannet	337.74	55.03	392.84	26/4.07	7/3.16	28.30	1363.3	117.4	0.08576	618
Stilt	362.58	46.97	409.61	24/4.39	7/2.92	26.31	1370.4	113.4	0.07989	577
Starling	362.58	59.03	421.61	26/4.21	7/3.28	26.68	1463.7	126.3	0.07992	578
Redwing	362.58	82.64	445.22	30/3.92	19/2.35	27.43	1650.6	153.9	0.08009	581
Tern	402.84	27.87	430.71	45/3.38	7/2.25	27.03	1331.8	98.3	0.07192	610
Condor	402.84	52.19	455.03	54/3.08	7/3.08	27.72	1520.7	125.4	0.07192	614
Cuckoo	402.84	52.20	455.1	24/4.62	7/3.08	27.74	1522.2	124.1	0.07190	614
Drake	402.84	65.61	468.45	26/4.44	7/3.45	28.11	1626.4	140.1	0.07192	614

## AII-ALUMINIUM CONDUCTORS STEEL REINFORCED

### ACSR

#### ASTM B 232/B 232M-99

#### Table 9 (Contd)

#### AMERICAN SIZES

Code Name	Area			Stranding & Wire Diameter		Overall Diameter	Weight	Breaking Load	DC Resistance 20°C	Current Rating
	Aluminium	Steel	Total	Aluminium	Steel					
	mm <sup>2</sup>	mm <sup>2</sup>	mm <sup>2</sup>	mm	mm	mm	kg/km	kN	ohm/km	A
Mallard	402.84	91.87	494.71	30/4.14	19/2.48	28.96	1836.0	170.8	0.07208	618
Ruddy	456.06	31.54	487.35	45/3.59	7/2.40	28.73	1507.3	108.3	0.06356	656
Canary	456.06	59.10	515.16	54/3.28	7/3.28	29.52	1723.1	141.9	0.06352	660
Rail	483.42	33.42	516.84	45/3.70	7/2.47	29.61	1598.1	115.2	0.05994	679
Cardinal	483.42	62.65	546.07	54/3.38	7/3.38	30.42	1825.9	150.3	0.05994	681
Ortlan	523.68	36.19	559.87	45/3.85	7/2.57	30.81	1730.5	123.2	0.05531	712
Curlew	523.68	67.87	591.55	54/3.51	7/3.51	31.68	1977.6	162.8	0.05531	715
Bluejay	563.93	93.03	602.96	45/4.00	7/2.66	31.96	1866.0	132.6	0.05161	743
Finch	563.93	71.48	635.41	54/3.65	19/2.19	32.85	2127.8	173.9	0.05161	746
Bunting	604.26	41.55	645.81	45/4.14	7/2.76	33.12	1996.9	141.9	0.0482	772
Grackle	604.26	76.52	680.78	54/3.77	19/2.27	33.97	2278.1	185.9	0.0482	773
Bittern	644.51	44.52	689.03	45/4.27	7/2.85	34.17	2130.8	151.7	0.04518	802
Pheasant	644.51	81.68	726.19	54/3.90	19/2.34	35.10	2431.4	193.9	0.04518	807
Dipper	684.84	47.10	732.26	45/4.40	7/2.93	35.16	2263.0	161.0	0.04259	831
Martin	684.84	86.71	771.55	54/4.02	19/2.41	36.17	2581.7	205.9	0.04259	835
Bobolink	725.16	50.32	775.48	45/4.53	7/3.02	36.24	2397.2	170.8	0.04016	859
Plover	725.16	91.81	816.97	54/4.14	19/2.48	37.24	2734.9	218.0	0.04016	862
Nuthatch	765.16	52.90	818.06	45/4.65	7/3.10	37.20	2529.6	178.4	0.03802	886
Parrot	765.16	97.16	862.32	54/4.25	19/2.55	38.25	2883.7	230.4	0.03802	890
Lapwing	805.8	55.48	861.28	45/4.78	7/3.18	38.16	2663.5	187.3	0.03612	911
Falcon	805.8	102.32	908.12	54/4.36	19/2.62	39.26	3038.5	242.9	0.03612	917
Chukar	901.93	73.55	975.48	84/3.70	19/2.22	40.70	3083.1	228.2	0.03228	975

## HIGH STRENGTH STRANDINGS

Grouse	40.52	14.13	54.65	8/2.54	1/4.24	9.32	221.4	23.1	0.7113	115
Petrel	51.61	30.06	81.67	12/2.34	7/2.34	11.71	377.7	46.3	0.5617	187
Minorca	56.13	32.77	88.90	12/2.44	7/2.44	12.22	411.1	50.3	0.5161	197
Leghorn	68.19	39.81	108.00	12/2.69	7/2.69	13.46	499.2	60.5	0.4249	221
Guinea	80.58	46.97	127.55	12/2.92	7/2.92	14.63	589.7	71.2	0.3596	244
Dofferel	89.61	52.32	141.93	12/3.08	7/3.08	15.42	656.1	77.0	0.3232	260
Dorking	96.71	56.39	153.10	12/3.20	7/3.20	16.00	707.8	83.2	0.2996	272
Cochin	107.10	62.45	169.55	12/3.37	7/3.37	16.84	783.9	92.1	0.2706	288
Brahma	102.97	91.87	194.48	16/2.86	19/2.48	18.14	1003.8	126.3	0.2814	287



**AII-ALUMINIUM CONDUCTORS STEEL REINFORCED**

**ACSR**

CSA C 49 - 1965

Table 10

CANADIAN SIZES

Code Name	Total Area			Stranding & Wire Diameter		Overall Diameter	Weight			Breaking Load	DC Resistance 20° C	Current Rating
	Aluminium	Steel	Total	Aluminium	Steel		Aluminium	Steel	Total			
	mm <sup>2</sup>	mm <sup>2</sup>	mm <sup>2</sup>	mm	mm	mm	kg/km	kg/km	kg/km	Kn	ohm/km	A
Wren	8.39	1.42	9.81	6/1.33	1/1.33	3.99	23	11	34	3.3	3.4226	63
Warbler	10.59	1.34	11.93	6/1.50	1/1.50	4.5	29	14	43	4.2	2.7139	67
Turkey	13.29	2.19	15.48	6/1.68	1/1.68	5.04	37	17	54	5.2	2.1535	86
Thrush	16.77	2.77	19.54	6/1.89	1/1.89	5.67	46	22	68	6.5	1.777	93
Swan	21.16	3.55	24.71	6/2.12	1/2.12	6.36	58	27	85	8.2	1.3537	109
Swallow	26.65	4.45	31.09	6/2.38	1/2.38	7.14	73	35	108	10.0	1.0738	126
Sparrow	33.61	5.61	39.22	6/2.67	1/2.67	8.10	92	44	136	12.4	0.8504	140
Robin	42.39	7.10	49.49	6/3.00	1/3.00	9.00	116	55	171	15.5	0.6752	162
Raven	53.48	8.90	62.38	6/3.37	1/3.37	10.11	146	69	215	19.0	0.5351	186
Quail	67.42	11.23	78.65	6/3.78	1/3.78	11.34	185	88	273	10.8	0.4245	211
Pigeon	85.03	14.19	99.22	6/4.25	1/4.25	12.75	233	110	343	29.7	0.3366	241
Penguin	107.23	17.87	125.1	6/4.77	1/4.77	14.31	294	139	433	37.5	0.2671	276
Owl	135.16	17.55	152.71	6/5.36	7/1.74	16.90	371	137	508	42.5	0.2773	322
Waxwing	135.16	7.48	142.64	18/3.09	1/3.09	15.15	372	58	430	31.5	0.2126	319
Partridge	135.16	22.00	157.16	26/2.57	7/2.00	16.28	374	171	545	50.01	0.2136	321
Phoebe	152.00	8.45	160.45	18/3.28	1/3.28	16.40	418	65	483	35.5	0.1893	341
Ostrich	152.00	24.71	176.71	26/2.73	7/2.12	17.28	420	193	613	56.2	0.1900	343
Piper	152.00	35.48	187.48	30/2.54	7/2.54	17.78	420	277	697	68.6	0.1903	348
Merlin	170.45	9.48	179.93	18/3.47	1/3.47	17.35	469	74	543	39.8	0.1686	364
Linnet	170.45	27.81	198.26	26/2.89	7/2.25	18.31	470	217.0	687	62.5	0.1696	368
Oriole	170.45	39.81	210.26	30/2.69	7/2.69	18.83	472	311.0	783	75.8	0.1696	370
Chickadee	201.42	11.16	212.58	18/3.77	1/3.77	18.85	555	86.0	641	46.3	0.1430	402
Ibis	201.42	32.77	234.19	26/3.14	7/2.44	19.88	557	256.0	813	72.0	0.1434	404
Lark	201.42	46.97	248.39	30/2.92	7/2.92	20.44	557	366.0	923	88.8	0.1437	410
Pelican	241.68	13.42	255.10	18/4.14	1/4.14	20.70	665	104.0	769	54.8	0.1191	449
-	241.68	23.74	265.42	22/3.74	7/2.08	21.20	667	186.0	853	68.6	0.1194	452
Hawk	241.68	39.42	281.10	26/3.44	7/2.67	21.77	667	308.0	975	86.5	0.1194	450
Hen	241.68	56.39	298.07	30/3.20	7/3.20	22.40	668	440.0	1108	103.9	0.1198	453
Heron	253.35	59.10	312.45	30/3.28	7/3.28	22.96	701	461.0	1162	108.8	0.1142	469
-	282.00	27.68	309.68	22/4.04	7/2.24	22.88	777	216.0	993	79.10	0.1024	496
Dove	282.00	45.94	327.94	26/3.72	7/2.89	23.55	778	359.0	1137	79.10	0.1024	495
Eagle	282.00	65.81	347.81	30/3.46	7/3.46	24.22	780	513.0	1293	121.2	0.1027	497
-	306.58	30.07	336.65	22/4.21	7/2.34	23.86	845	235.0	1080	84.9	0.0942	519
Duck	306.58	39.81	346.39	54/2.69	7/2.69	24.21	848	311.0	1159	100.1	0.0945	520
-	322.26	31.61	353.87	22/4.32	7/2.40	24.48	888	247.0	1135	84.8	0.0896	532
Grosbeak	322.26	52.45	374.71	26/3.97	7/3.09	25.15	890	409.0	1299	111.2	0.0896	530
Egret	322.26	73.55	395.81	30/3.70	19/2.22	25.90	891	576.0	1467	140.6	0.0896	542
Goose	322.26	41.74	364.00	54/2.76	7/2.76	24.84	891	326.0	1217	105.2	0.0899	534
-	337.74	17.35	355.09	42/3.20	7/1.78	24.54	933	135.0	1068	78.6	0.0856	546
Gull	337.74	43.81	381.55	54/2.28	7/2.82	25.38	935	342.0	1277	109.2	0.0856	553
Starling	362.58	59.03	421.61	26/4.21	7/3.28	26.68	1002	460.0	1462	125.0	0.0797	575
Redwing	362.58	82.58	445.16	30/3.92	19/2.35	27.43	1002	646.0	1648	153.9	0.0797	581
-	362.58	18.65	381.26	42/3.31	7/1.84	25.38	1002	146.0	1148	84.3	0.0797	573
Crow	362.58	46.97	409.55	54/2.92	7/2.92	26.28	1003	366.0	1369	117.2	0.0797	577
Drake	402.84	65.61	468.45	26/4.44	7/3.45	28.11	1112	512.0	1624	139.0	0.0715	611



**AII-ALUMINIUM CONDUCTORS STEEL REINFORCED**

**ACSR**

**CSA C 49 - 1965**

**Table 10 (Contd.)**

**CANADIAN SIZES**

Code Name	Total Area			Stranding & Wire Diameter		Overall Diameter	Weight			Breaking Load	DC Resistance 20° C	Current Rating
	Aluminium	Steel	Total	Aluminium	Steel		Aluminium	Steel	Total			
	mm <sup>2</sup>	mm <sup>2</sup>	mm <sup>2</sup>	mm	mm	mm	kg/km	kg/km	kg/km	kN	ohm/km	A
Mallard	402.84	91.87	494.71	30/4.14	19/2.48	28.96	1113	719	1832	171	0.0719	618
	402.84	20.71	423.55	42/3.50	7/1.94	26.82	1112	162	1274	93.6	0.0719	610
Condor	402.84	52.19	455.03	54/3.08	7/3.08	27.72	1113	408	1521	127	0.0719	615
	443.10	22.84	465.94	42/3.67	7/2.04	28.14	1223	179	1402	101.6	0.0653	645
Crane	443.10	57.48	500.68	54/3.23	7/3.23	29.07	1226	448	1674	132.7	0.0653	649
	456.06	23.42	479.48	42/3.72	7/2.07	28.53	1259	183	1442	104.5	0.0633	655
Canary	456.06	59.10	515.16	54/3.28	7/3.28	29.52	1262	462	1724	143.7	0.0633	660
	483.42	24.84	508.26	42/3.83	7/2.13	29.87	1335	193	1528	109	0.0597	678
Cardinal	483.42	62.65	546.07	54/3.38	7/3.38	30.42	1338	488	1826	152.3	0.0597	682
	523.68	26.97	550.65	42/3.99	7/2.21	30.57	1447	210	1657	118.1	0.0511	710
Curlew	523.68	67.87	591.55	54/3.51	7/3.51	31.59	1448	530	1978	165.2	0.0511	715
	563.93	28.97	592.9	42/4.14	7/2.30	31.74	1557	226	1783	126.1	0.0512	741
Finch	563.93	71.55	636.48	54/3.65	19/2.19	32.85	1561	560	2121	178.8	0.0512	746
	604.26	31.10	635.36	42/4.28	7/2.19	32.82	1668	243	1911	135.2	0.0479	772
Grackle	604.26	76.58	680.84	54/3.77	19/2.27	33.97	1671	600	2271	191.7	0.0479	776
	644.51	33.16	677.67	42.4.42	7/2.46	33.9	1780	259	2039	144.3	0.0449	800
Pheasant	644.51	81.68	726.19	54/3.90	19/2.34	35.1	1783	638	2421	199.3	0.0449	805
	684.84	35.23	720.07	42/4.56	7/2.53	34.95	1891	275	2166	153.2	0.0423	829
Martin	684.84	86.71	771.55	54/4.02	19/2.41	36.17	1894	679	2573	211.7	0.0423	835
	725.10	37.35	762.45	42/4.69	7/2.61	35.97	2002	292	2294	162.4	0.0397	858
Plover	725.10	91.87	816.97	54/4.14	19/2.48	37.24	2006	719	2725	224.2	0.0400	862
	765.35	39.35	804.7	42/4.82	7/2.67	36.93	2113	307	2420	171.2	0.0377	885
Parrot	765.35	96.84	860.19	54/4.25	19/2.55	38.25	2118	759	2877	237.1	0.0377	890
	805.68	71.10	876.78	48/4.63	7/3.60	38.58	2225	554	2779	211.7	0.0358	929
Falcon	805.68	102.13	907.81	54/4.36	19/2.62	39.26	2229	799	3026	249.5	0.0358	917
	805.68	34.84	840.52	72/3.77	7/2.52	37.72	2226	272	2498	175.7	0.0358	910

**EXTRA HIGH STRENGTH STRANDINGS**

Bantam	6.65	8.84	15.49	3/1.68	4/1.68	5.04	18.2	69.6	87.8	11.7	4.3218	61
Magpie	10.58	14.13	24.71	3/2.12	4/2.12	6.36	29.0	110.7	139.7	18.6	2.7077	77
Shrike	16.84	22.45	39.29	3/2.67	4/2.67	8.01	46.1	176.5	222.6	28.6	1.7054	99
Snipe	26.17	35.68	62.45	3/3.37	4/3.37	10.11	73.4	280.7	354.1	43.9	1.0718	132
Loon	33.68	44.97	78.65	3/3.78	4/3.78	11.34	92.4	353.4	445.8	55.3	0.8514	149
Grouse	40.52	14.13	54.65	8/2.54	1/4.24	9.32	111.2	110.0	221.2	23.1	0.7077	157
Petrel	51.61	30.01	81.67	12/2.34	7/2.34	11.70	142.1	234.8	376.9	43.8	0.5591	193
Minorca	56.13	32.77	88.90	12/2.44	7/2.44	12.20	55.6	255.7	311.3	47.7	0.5134	192
Leghorn	68.19	39.81	108.00	12/2.69	7/2.69	13.45	187.5	311.0	498.5	57.5	0.4226	221
Guinea	80.68	46.97	127.55	12/2.92	7/2.92	14.60	221.7	366.1	587.8	67.6	0.3579	244
Dotterell	89.48	52.19	191.67	12/3.08	7/3.08	15.40	247.0	407.8	654.8	73.0	0.3215	260
Dorking	96.71	56.39	153.10	12/3.20	7/3.20	16.00	266.4	490.5	706.9	78.9	0.2982	271
Brahma	102.97	91.87	194.84	16/2.86	19/2.48	18.12	285.7	718.8	1004.9	122.5	0.2815	287
Auk	102.84	92.32	195.16	8/4.05	7/2.25	14.83	282.7	217.3	500.0	49.6	0.2789	286
Cochin	107.10	62.45	169.55	12/3.37	7/3.37	16.85	294.7	488.1	782.8	87.4	0.2694	288



**Al-ALUMINIUM CONDUCTORS STEEL REINFORCED**

**ACSR**

**DIN 48 204 - APR 1984**

**Table 11**

**GERMAN SIZES**

Area					Stranding & Wire Diameter		Overall Diameter	Weight			Breaking Load	DC Resistance at 20° C	Current Rating
Nominal		Aluminium	Steel	Total	Aluminium	Steel		Aluminium	Steel	Total			
Aluminium	Steel						mm <sup>2</sup>				mm <sup>2</sup>	mm <sup>2</sup>	mm
16	2.5	15.27	2.54	17.8	6/1.80	1/1.80	5.4	42	20	62	5.81	1.8793	105
25	4	23.86	3.98	27.8	6/2.25	1/2.25	6.8	65	32	97	9.02	1.2028	140
35	6	34.35	5.73	40.1	6/2.70	1/2.70	8.1	94	46	140	12.70	0.8353	170
44	32	43.98	31.67	75.7	14/2.00	7/2.40	11.2	122	250	373	45.46	0.6573	
50	8	48.25	8.04	56.3	6/3.20	1/3.20	9.6	132	64	196	17.18	0.5946	210
50	30	51.17	29.85	81.0	12/2.33	7/2.33	11.7	141	237	378	44.28	0.5644	
70	12	69.89	11.40	81.3	26/1.85	7/1.44	11.7	193	91	284	26.31	0.4130	290
95	15	94.39	15.33	109.7	26/2.15	7/1.67	13.6	260	123	383	35.17	0.3058	350
95	55	96.51	56.30	152.8	12/3.20	7/3.20	16.0	266	466	714	80.20	0.2992	
105	75	105.67	75.55	181.2	14/3.10	19/2.25	17.5	292	599	899	106.69	0.2736	
120	20	121.57	19.85	141.4	26/2.44	7/1.90	15.5	336	158	494	44.94	0.2374	410
120	70	122.15	71.25	193.4	12/3.60	7/3.60	18.0	337	564	904	98.16	0.2364	
125	30	127.92	29.85	157.8	30/2.33	7/2.33	16.3	353	238	590	57.86	0.2259	425
150	25	148.86	24.25	173.1	26/2.70	7/2.10	17.1	411	194	604	54.37	0.1939	470
170	40	171.77	40.08	211.9	30/2.70	7/2.70	18.9	475	319	794	77.01	0.1682	520
185	30	183.78	29.85	213.6	26/3.00	7/2.33	19.0	507	239	744	66.28	0.1571	535
210	35	209.06	34.09	243.2	26/3.20	7/2.49	20.3	577	273	848	74.94	0.1380	590
210	50	212.06	49.48	261.5	30/3.00	7/3.00	21.0	587	394	979	92.25	0.1363	610
230	30	230.91	29.85	260.8	24/3.50	7/2.33	21.0	638	239	874	73.09	0.1249	630
240	40	243.05	39.49	282.5	26/3.45	7/2.68	21.8	671	316	985	86.46	0.1188	645
265	35	263.76	34.09	297.8	24/3.74	7/2.49	22.4	728	274	998	82.94	0.1094	680
300	50	304.26	49.48	353.7	26/3.86	7/3.00	24.5	840	396	1233	105.09	0.0949	740
305	40	304.62	39.49	344.1	54/2.68	7/2.68	24.1	843	317	1155	99.30	0.0949	740
340	30	339.29	29.85	369.1	48/3.00	7/2.33	25.0	983	242	1174	92.56	0.0851	790
380	50	381.70	49.48	431.2	54/3.00	7/3.00	27.0	1056	397	1448	120.91	0.0757	840
385	35	386.04	34.09	420.1	48/3.20	7/2.49	26.7	1067	277	1336	104.31	0.0748	850
435	55	434.29	56.3	490.6	54/3.20	7/3.20	28.8	1203	450	1647	136.27	0.0666	900
450	40	448.71	39.49	488.2	48/3.45	7/2.68	28.7	1233	320	1553	120.19	0.0644	920
490	65	490.28	63.55	553.8	54/3.40	7/3.40	30.6	1356	510	1860	152.85	0.0590	960
550	70	549.65	71.25	620.9	54/3.60	7/3.60	32.4	1520	572	2085	167.42	0.0526	1020
560	50	561.70	49.48	611.2	48/3.86	7/3.00	32.2	1553	401	1943	146.28	0.0514	1040
680	85	678.58	85.95	764.5	54/4.00	19/2.40	36.0	1868	702	2564	209.99	0.0426	1150

**Current rating:**

Values are valid upto 60Hz, assuming wind velocity of 0.6 m/s, an initial ambient temp. of 35°C due to the effect of solar radiation & a conductor final temp. of 80°C

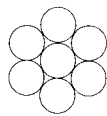
## ALL-ALUMINIUM ALLOY CONDUCTORS

### AAAC

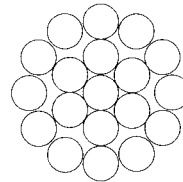
This section deals with heat-treatable magnesium silicon type aluminium alloys to BS EN 50182, the electrical and mechanical properties of which all fall within the values suggested by Publication 104 of the International Electrotechnical Commission. Conductors to all other recognized specifications 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.

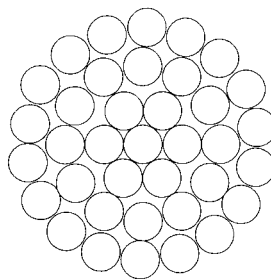
### CONDUCTOR SECTIONS



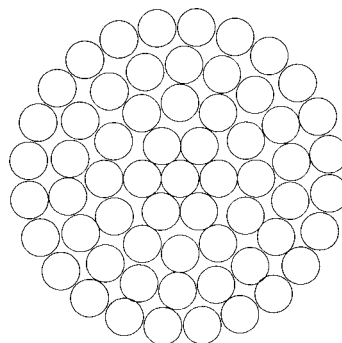
7 strands



19 strands



37 strands



61 strands



**AII-ALUMINIUM ALLOY CONDUCTORS**

**AAAC**

**BS EN 50182 : 2001**

**Table 12**

**BRITISH SIZES**

Old Code Name	Stranding & Wire Diameter	Approximate Overall Diameter	Total area	Weight	Breaking Load	DC Resistance at 20° C	Current Rating
	mm	mm	mm <sup>2</sup>	kg/km	kN	ohm/km	A
Box	7/1.85	5.55	18.8	51.4	5.55	1.7480	93
Acacia	7/2.08	6.24	23.8	64.9	7.02	1.3828	110
Almond	7/2.34	7.02	30.1	82.2	8.88	1.0926	128
Cedar	7/2.54	7.62	35.5	96.8	10.46	0.9273	132
Deodar	7/2.77	8.31	42.2	115.2	12.44	0.7797	148
Fir	7/2.95	8.85	47.8	130.6	14.11	0.6875	161
Hazel	7/3.30	9.90	59.9	163.4	17.66	0.5494	184
Pine	7/3.61	10.80	71.6	195.6	21.14	0.4591	204
Holly	7/3.91	11.70	84.1	229.5	24.79	0.3913	222
Willow	7/4.04	12.10	89.7	245.0	26.47	0.3665	233
Oak	7/4.65	13.95	118.9	324.5	35.07	0.2767	272
Mulberry	19/3.18	15.90	150.9	414.3	44.52	0.2192	319
Ash	19/3.48	17.40	180.7	496.1	53.31	0.1830	354
Elm	19/3.76	18.80	211.0	579.2	62.24	0.1568	385
Poplar	37/2.87	20.10	239.4	659.4	70.61	0.1387	414
Sycamore	37/3.23	22.60	303.2	835.2	89.40	0.1095	487
Upas	37/3.53	24.70	362.1	997.5	106.82	0.0917	527
Yew	37/4.06	28.40	479.0	1319.6	141.31	0.0693	629
Totara	37/4.14	29.42	498.1	1372.1	146.93	0.0666	640
Rubus	61/3.50	31.50	586.9	1622.0	173.13	0.0567	716
Sorbus	61/3.71	33.40	659.4	1822.5	194.53	0.0505	760
Araucaria	61/4.14	37.30	821.1	2269.5	242.24	0.0406	842
Redwood	61/4.56	41.00	996.2	2753.2	293.88	0.0334	920

## AII-ALUMINIUM ALLOY CONDUCTORS

AAAC

IEC 61089 (1991)

Table 13

IEC SIZES

Code Number	Nominal Area Diameter	Stranding & Wire Diameter	Approx Overall Diameter	Approx Weight	Breaking Load	DC Resistance 20° C
	mm <sup>2</sup>	mm	mm	kg/km	kN	ohm/km
16	18.4	7/1.83	5.49	50.4	5.43	1.7896
25	28.8	7/2.29	6.86	78.7	8.49	1.1453
40	46.0	7/2.89	8.68	125.9	13.58	0.7158
63	72.5	7/3.63	10.9	198.3	21.39	0.4545
100	115	19/2.78	13.9	316.3	33.95	0.2877
125	144	19/3.10	15.5	395.4	42.44	0.2302
160	184	19/3.51	17.6	506.1	54.32	0.1798
200	230	19/3.93	19.6	632.7	67.91	0.1439
250	288	19/4.39	22.0	790.8	84.88	0.1151
315	363	37/3.53	24.7	998.9	106.95	0.0916
400	460	37/3.98	27.9	1268.4	135.81	0.0721
450	518	37/4.22	29.6	1426.9	152.79	0.0641
500	575	37/4.45	31.2	1585.5	169.76	0.0577
560	645	61/3.67	33.0	1778.4	190.14	0.0516
630	725	61/3.89	35.0	2000.7	213.90	0.0458
710	817	61/4.13	37.2	2254.8	241.07	0.0407
800	921	61/4.38	39.5	2540.6	271.62	0.0361
900	1036	91/3.81	41.8	2861.1	305.58	0.0321
1000	1151	91/4.01	44.1	3179.0	339.53	0.0289
1120	1289	91/4.25	46.7	3560.5	380.27	0.0258
1250	1439	91/4.49	49.4	3973.7	424.41	0.0231



**AII-ALUMINIUM ALLOY CONDUCTORS**

**AAAC**

**ASTM B 399-97**

**Table 14**

**AMERICAN SIZES**

Total Area		Stranding and Wire Diameter	Overall Diameter	Weight	Breaking Load	DC Resistance at 20° C	Current Rating
AWG or MCM*	mm <sup>2</sup>						
6	13.3	7/1.55	4.65	36.44	4.22	2.51900	67
4	21.1	7/1.96	5.88	57.89	6.72	1.58400	97
2	33.6	7/2.47	7.41	92.14	10.70	0.99580	128
0	53.5	7/3.12	9.36	146.50	17.00	0.62610	169
2/0	67.4	7/3.50	10.50	184.70	20.50	0.49680	194
3/0	85.0	7/3.93	11.79	232.70	25.90	0.39390	222
4/0	107.2	7/4.42	13.26	298.70	32.70	0.31240	256
250	126.7	19/2.91	14.55	346.90	39.00	0.26430	286
300	152.0	19/3.19	15.95	416.60	46.80	0.22040	319
350	177.3	19/3.45	17.25	485.50	52.30	0.18890	349
400	202.7	19/3.69	18.45	555.10	59.80	0.16550	378
450	228.0	19/3.91	19.55	624.40	67.30	0.14690	405
500	253.4	19/4.12	20.60	693.60	74.70	0.13220	431
550	278.7	37/3.10	21.70	762.90	83.90	0.12020	457
600	304.0	37/3.23	22.61	832.00	91.50	0.11010	481
650	329.4	37/3.37	23.59	901.30	95.00	0.10170	505
700	354.7	37/3.49	24.43	970.60	102.00	0.09439	527
750	380.0	37/3.62	25.34	1041.0	110.00	0.08816	549
800	405.4	37/3.73	26.11	1109.0	117.00	0.08260	570
900	456.0	37/3.96	27.72	1249.0	132.00	0.07341	610
1000	506.7	37/4.18	29.26	1388.0	146.00	0.06609	649

\* Circular mils x 1000

## AII-ALUMINIUM ALLOY CONDUCTORS

AAAC

Table 15

CANADIAN SIZES

Electrical Equivalent † Aluminium Area		Total Area		Stranding and Wire Diameter	Overall Diameter	Weight	Breaking Load	DC Resistance at 20° C	Current Rating
AWG or MCM*	mm	MCM*	mm <sup>2</sup>	mm	mm	kg/km	kN	ohm/km	A
8	8.4	19	9.5	7/1.32	3.96	26	2.9	3.41600	55
7	10.6	24	12.0	7/1.48	4.44	33	3.6	2.71000	69
6	13.3	30	15.2	7/1.66	4.98	41	4.6	2.14800	79
5	16.8	38	19.1	7/1.86	5.58	52	5.8	1.70300	93
4	21.2	48	24.1	7/2.09	6.27	66	7.3	1.35200	108
3	26.7	60	30.4	7/2.35	7.05	83	9.2	1.07200	126
2	33.6	76	38.3	7/2.64	7.92	105	11.6	0.84940	139
1	42.4	95	48.3	7/2.96	8.88	132	14.7	0.67420	161
1/0	53.5	120	61.0	7/3.33	9.99	166	18.5	0.53440	186
2/0	67.4	152	76.8	7/3.74	11.22	210	23.3	0.42380	211
3/0	85.0	192	97.0	7/4.20	12.60	265	29.4	0.33550	242
4/0	107.2	241	122.3	7/4.72	14.15	334	37.1	0.26660	276
4/0	107.2	241	122.3	19/2.86	14.30	335	37.1	0.26780	280
266.8	135.2	304	154.1	19/3.21	16.05	423	46.7	0.21250	321
300.0	152.0	342	173.4	19/3.41	17.05	475	52.6	0.18890	343
336.0	170.5	384	194.4	19/3.61	18.05	533	58.9	0.16840	369
397.5	201.4	453	229.7	19/3.92	19.60	629	69.7	0.14230	404
477.0	241.7	544	275.7	19/4.30	21.50	756	83.6	0.11870	451
500.0	253.3	570	288.8	37/3.15	22.05	796	87.6	0.11370	464
556.5	282.0	635	321.5	37/3.33	23.31	885	97.4	0.10260	497
636.0	322.3	725	367.4	37/3.56	24.92	1012	111.4	0.08950	533
715.5	362.5	816	413.7	37/3.77	26.39	1140	125.4	0.07950	577
750.0	380.0	856	433.7	37/3.86	27.02	1195	131.4	0.07580	594
795.0	402.8	907	459.4	37/3.98	27.86	1266	139.2	0.07140	614
814.5	443.1	997	505.2	37/4.16	29.12	1391	153.2	0.06500	648

\* Circular mils x 1000

† Aluminium conductors with electrical properties complying with CSA C49-1957



**AII-ALUMINIUM ALLOY CONDUCTORS**

**AAAC**

**DIN 48 201 Part 6 1981**

**Table 16**

**GERMAN SIZES**

Total Area		Stranding and Wire Diameter	Overall Diameter	Weight	Breaking Load	DC Resistance at 20° C	Current Rating
Nominal	Actual						
mm <sup>2</sup>	mm <sup>2</sup>	mm	mm	kg/km	kN	ohm/km	A
16	15.890	7/1.70	5.1	43	4.44	2.09100	105
25	24.250	7/2.10	6.3	66	6.77	1.37200	135
35	34.360	7/2.50	7.5	94	9.60	0.96700	170
50	49.480	7/3.00	9.0	135	13.82	0.67160	210
50	48.350	19/1.80	9.0	133	13.50	0.68930	210
70	65.821	19/2.10	10.5	181	18.38	0.50790	255
95	93.270	19/2.50	12.5	256	26.05	0.35800	320
120	116.990	19/2.80	14.0	322	32.68	0.28530	365
150	147.110	37/2.25	15.8	406	41.09	0.22780	425
185	181.620	37/2.50	17.5	500	50.73	0.18420	490
240	242.540	61/2.25	20.3	670	67.74	0.13850	585
300	299.430	61/2.50	22.5	827	83.63	0.11190	670
400	400.140	61/2.89	26.0	1104	111.76	0.08407	810
500	499.830	61/3.23	29.1	1379	139.60	0.06713	930
625	626.200	91/2.69	32.6	1732	174.90	0.05375	1075
800	802.090	91/3.35	36.9	2218	224.02	0.04197	1255
1000	999.710	91/3.74	41.1	2767	279.22	0.03360	1450

Current rating values valid upto 60Hz with a wind speed of 0.6 m/s solar influence giving ambient initial temperature of 35°C and final temperature of 80°C.

## BARE COPPER CONDUCTORS

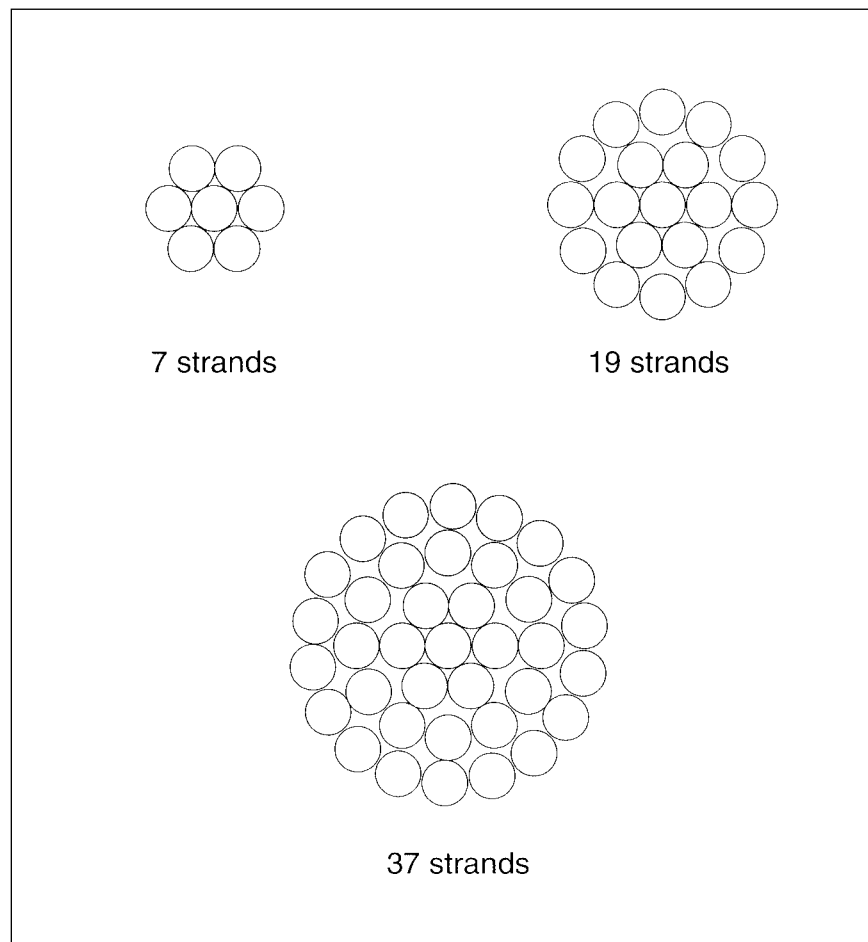
**BCC**

These are standard circular bare copper conductors mainly used for:-

- a) Overhead transmission system
- b) Overhead traction system
- c) Transformer earthing (occasionally)

While the tables give broad constructional details, BS 7884 covers all the details mentioned below:-

- a) Material composition
- b) Dimensions
- c) Mechanical properties
- d) Electrical resistance
- e) Stranding details
- f) Test details





**AII-ALUMINIUM ALLOY CONDUCTORS**

**BCC**

**BS 7884 - 1997**

**Table 17**

**BRITISH SIZES**

Nominal Area	Stranding and Wire Diameter	Approximate Overall Diameter	Nominal Mass	DC Resistance at 20° C	Minimum Breaking Load
mm <sup>2</sup>	mm	mm	kg/km	ohm/km	kN
10	7/1.35	4.05	89.82	1.82900	3.752
14	7/1.60	4.80	126.20	1.30300	5.267
16	3/2.65	5.72	148.30	1.10600	6.194
16	7/1.70	5.10	142.40	1.15400	5.946
25	7/2.10	6.30	217.30	0.75630	9.073
32	3/3.75	8.10	296.90	0.55200	12.400
32	7/2.46	7.38	298.20	0.54970	12.442
35	7/2.50	7.50	308.00	0.53370	12.860
50	7/3.00	9.00	443.50	0.37060	18.520
50	19/1.80	9.00	435.80	0.38190	17.700
70	7/3.55	10.65	621.10	0.26460	25.930
70	19/2.10	10.50	593.20	0.28060	24.090
95	19/2.50	12.50	840.70	0.19800	34.140
100	7/4.30	12.90	911.20	0.18100	36.540
120	19/2.80	14.00	1055.00	0.15780	42.830
125	19/2.90	14.50	1131.00	0.14710	45.940
150	19/3.20	16.00	1377.00	0.12080	55.940
150	37/2.25	15.75	1334.00	0.12640	53.880
185	19/3.55	17.75	1695.00	0.09815	68.860
185	37/2.50	17.50	1647.00	0.10240	66.490

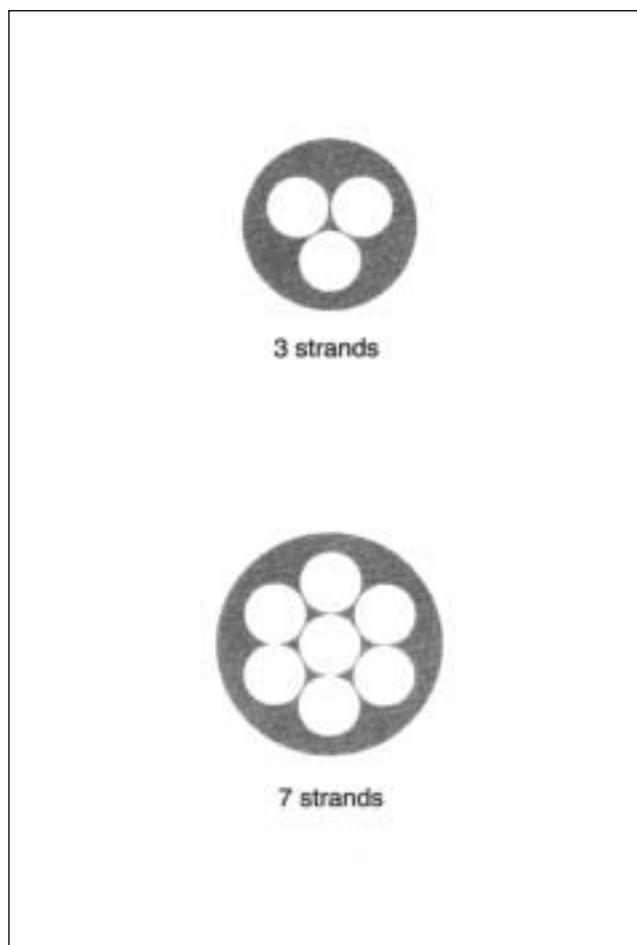
## PVC-COVERED COPPER CONDUCTORS AS PER BS 6485

**HDBC + PVC**

These conductors are meant for Overhead Power Lines. In these conductors two types of insulations are used.

- 1) Type 8 PVC insulation is used for maximum 650 V r.m.s between conductor to conductor and 250V between conductor and earth. These are used :-
  - a. To guard against contact with telecommunication lines
  - b. For Lines accessible from residential buildings
- 2) Type 16 PVC insulation is used for voltage above 650V and upto 11kV between conductors.

These are also used in proximities to telecommunication lines and crossings with them.





**PVC COVERED COPPER CONDUCTOR**

**HDBC + PVC**

**BS 6485 : 1999**

**Table 18**

**BRITISH SIZES**

Nominal Area	Stranding and Wire Diameter	Approximate Conductor Diameter	Maximum DC Resistance at 20° C	Appropriate Breaking Load	Approximate Overall Diameter		Approximate Mass of Covered Conductor	
					Type - 8 *	Type - 16 ~	Type - 8 *	Type - 16
mm <sup>2</sup>	mm	mm	ohm/km	kN	mm	mm	kg/km	kg/km
14	7/1.60	4.80	1.3030	5.744	6.8	8.4	160	190
16	3/2.65	5.70	1.1060	6.590	7.7	9.3	180	220
32	3/3.75	8.06	0.5520	12.710	10.5	12.1	350	390
35	7/2.50	7.50	0.5337	14.097	9.9	11.5	360	400
70	7/3.55	10.65	0.2646	26.880	13.5	14.7	690	750
100	7/4.30	12.90	0.1810	37.640	15.7	16.9	990	1060

\* PVC Type - 8 is intended for use only where the operating voltage of power lines does not exceed 650V r.m.s. between any two conductors or 250V r.m.s. between any conductor & earth.

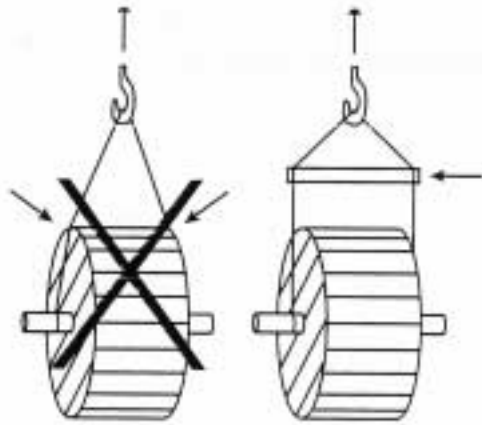
~ PVC Type - 16 is intended for use only where the operating voltage of power lines exceed 650V r.m.s. between any two conductors or 250V r.m.s. between any conductor & earth but does not exceed 11kV r.m.s. between conductors or 6.6kV r.m.s between any conductor and earth.

Thickness of insulation

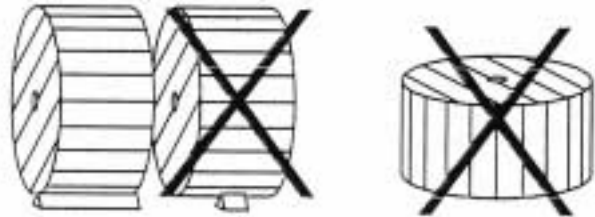
Type - 8 : 0.8mm

Type - 16: 1.6mm

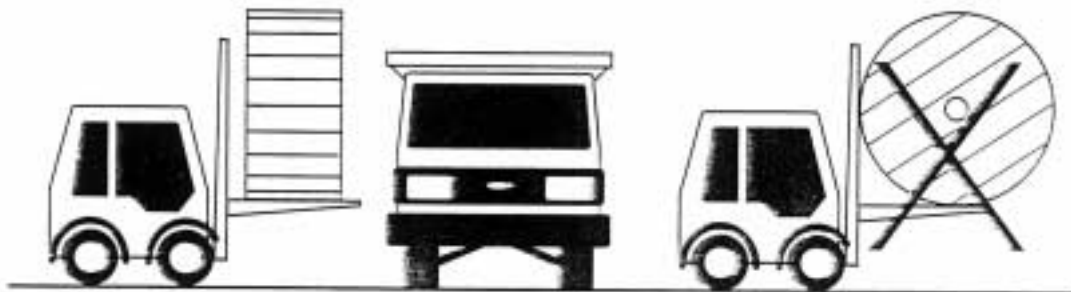
### DRUM HANDLING INSTRUCTIONS



Lifting cable drums using crane



Do not lay drums flat on their sides, use proper wedges to prevent drums rolling



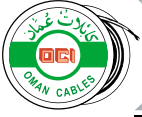
Lift drums on fork trucks correctly



Secure drums adequately before transportation



Roll in the direction shown by the arrow



**NOTES**



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