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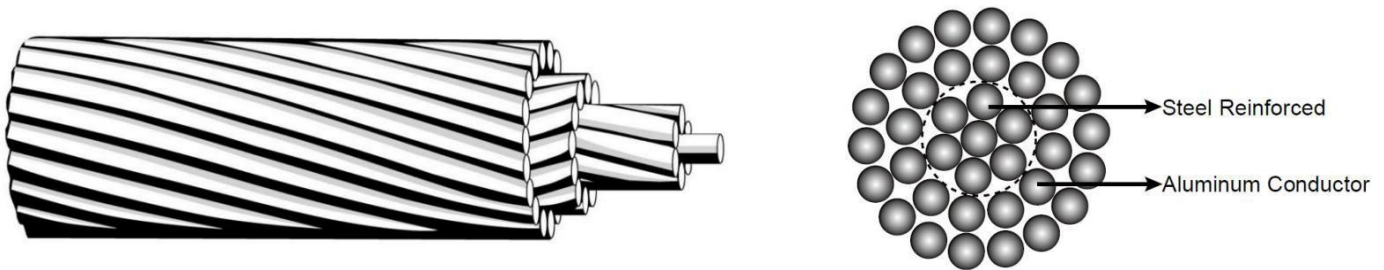
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America ASTM B232 Standard Aluminum Conductor Steel reinforced (ACSR)

Application

ACSR conductors are widely used for electrical power transmission over long distances, since they are ideal for long overhead lines spans. They are also used as a messenger for supporting overhead electrical cables.

Construction



ACSR conductors are formed by several wires of aluminium and galvanized steel, stranded in concentric layers. The wire or wires which form the core, are made of galvanized steel and the external layer or layers, are of aluminium. Galvanized steel core consist normally of 1, 7 or 19 wires. The diameters of steel and aluminium wires can be the same, or different.

By varying the relative proportions of aluminium and steel, the required characteristics for any particular application can be reached. A higher U. T. S. Can be obtained, by increasing steel content, and a higher current carrying capacity by increasing aluminium content.

Electrical Properties

Density: 20°C

Aluminium: 2.703 kg/dm

Galvanised Steel: 7.80 kg/dm

Temperature Coefficient: 20°C

Aluminium: 0.00403 (°C)

Resistivity: 20°C

Aluminium: Should not exceed 0.028264

Linear Expansivity

Aluminium: 23 x10 (°C)



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Galvanised Steel: 11.5 x10 (1/°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

ASTM B 232/B 232M

Code	Stranding		Stranding			Overall Diameter	Weight	Breakign Load	Electrical Resistance @20o	Current Rating *
	AL	Steel	AL	Steel	Total					
	mm ²	mm ²	No.×m m	No.×m m	mm ²	mm	Kg/K m	KN	Ω/Km	A
Turkey	13.3	2.22	6/1.68	1/1.68	5.04	15.52	53.6	4.98	2.1499	76
Swan	21.18	3.53	6/2.12	1/2.12	6.36	24.71	85.3	7.83	1.3501	101
Swanate	21.12	5.35	7/1.96	1/2.61	6.53	26.47	99.6	9.79	1.3539	102
Sparrow	33.59	5.6	6/2.67	1/2.67	8.01	39.19	135.7	11.92	0.8512	135
Sparate	33.54	8.55	7/2.47	1/3.30	8.24	42.09	158.7	15.08	0.8525	135
Robin	42.41	7.07	6/3.00	1/3.00	9	49.48	171.1	14.86	0.6742	156
Raven	53.52	8.92	6/3.37	1/3.37	10.1 1	62.44	216.1	18.33	0.5343	180
Quail	67.33	11.22	6/3.78	1/3.78	11.3 4	78.55	272	22.46	0.4247	207
Pigeon	85.12	14.19	6/4.25	1/4.25	12.7	99.31	343	28.02	0.3359	239



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Penguin	107.22	17.87	6/4.77	1/4.77	14.3	1	125.09	432.7	35.36	0.2667	275	
Waxwing	134.98	7.5	18/3.0	1/3.09	15.4	5	142.48	430.2	29.8	0.2129	313	
Partridge	134.87	21.99	26/2.5	7/2.00	16.2	8	156.86	545.9	47.15	0.2141	316	
Ostrich	152.19	24.71	26/2.7	7/2.12	17.2	8	176.9	613.4	53.38	0.1897	341	
Merlin	170.22	9.46	18/3.4	1/3.47	17.3	5	179.68	542.8	37.36	0.1688	361	
Linnet	170.55	27.83	26/2.8	7/2.25	18.3	1	198.38	687.5	59.16	0.1693	365	
Oriole	170.5	39.78	30/2.6	7/2.69	18.8	3	210.28	783.3	72.06	0.1698	367	
Chickadee	200.93	11.16	18/3.7	1/3.77	18.8	5	212.09	641.3	43.15	0.143	400	
Brant	201.56	26.13	24/3.2	7/2.18	19.6	2	227.69	761	61.83	0.1433	403	
Ibis	201.34	32.73	26/3.1	7/2.44	19.8	8	234.07	812.4	68.05	0.1434	404	
Lark	200.9	46.88	30/2.9	7/2.92	20.4	4	247.78	925.2	84.07	0.1441	406	
Pelican	242.31	13.46	18/4.1	1/4.14	20.7		255.77	769.7	51.15	0.1186	448	
Flicker	241.58	31.4	24/3.5	7/2.39	21.4	9	272.98	913.5	72.06	0.1195	450	
Hawk	241.65	39.19	26/3.4	7/2.67	21.7	7	280.84	975.1	81.84	0.1195	451	
Hen	241.27	56.3	30/3.2	7/3.20	22.7							6
Osprey	282.47	15.69	18/4.4	1/4.47	22.3		298.16	897.7	59.6	0.1017	492	



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Parakeet	282.31	36.6	7/2.58		2	318.91	6	83.18	0.1023	495
Dove	282.59	45.92	26/3.7 2	7/2.89	23.5 5	328.51	1138. 6	94.3	0.1022	497
Eagle	282.07	65.82	30/3.4 6	7/3.46	24.2 2	347.89	1295. 6	114.76	0.1026	499
Peacock	306.13	39.78	24/4.0 3	7/2.69	24.1 9	345.91	1158. 9	90.74	0.0943	520
Squab	305.83	49.81	26/3.8 7	7/3.01	24.5 1	355.64	1237	101.41	0.0944	521
Wood Duck	307.06	71.65	30/3.6 1	7/3.61	25.2 7	378.71	1408. 4	121.43	0.0943	525
Teal*	307.06	69.62	30/3.6 1	19/2.1 6	25.2 4	376.68	1396. 6	124.54	0.0943	525
Kingbird	323.01	17.95	18/4.7 8	1/4.78	23.9	340.96	1026. 6	68.05	0.089	533
Swift	323.02	8.97	36/3.3 8	1 /3.38	23.6 6	331.99	956.5	60.05	0.089	532
Rook	323.07	41.88	24/4.1 4	7/2.76	24.8 4	364.95	1217. 5	95.19	0.0894	537
Grosbeak	321.84	52.49	26/3.9 7	7/3.09	25.1 5	374.33	1300. 8	104.97	0.0897	537
Scoter	322.56	75.26	30/3.7 0	7/3.70	25.9	397.82	1480. 7	127.66	0.0897	541
Egret*	322.56	73.54	30/3.7 0	19/2.2 2	25.9	396.1	1469	130.77	0.0897	541
Flamingo	337.27	43.72	24/4.2 3	7/2.82	25.3 8	380.99	1276. 6	99.64	0.0856	551
Gannet	338.26	54.9	26/4.0 7	7/3.16	25.7 6	393.16	1363. 3	110.31	0.0854	553
Stilt	363.27	46.88	24/4.3	7/2.92	26.3	410.15	1370.	107.2	0.0795	576



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Starling	361.93	59.15	9 26/4.2 1	7/3.28	2 26.6 8	421.08	4 1463. 7	118.32	0.0798	577
Redwing*	362.06	82.41	30/3.9 2	19/2.3 5	27.4 3	444.47	1650. 6	143.23	0.0799	580
Coot	401.86	11.16	36/3.7 7	1/3.77	26.3 9	413.02	1195. 8	73.39	0.0715	607
Tern	403.77	27.83	45/3.3 8	7/2.25	27.0 3	431.6	1331. 8	94.3	0.0715	610
Condor	402.33	52.15	54/3.0 8	7/3.08	27.7 2	454.48	1520. 7	118.32	0.0718	612
Cuckoo	402.33	52.15	24/4.6 2	7/3.08	27.7 2	454.48	1522. 2	117.43	0.0718	612
Drake	402.56	65.44	26/4.4 4	7/3.45	28.1 1	468	1626. 4	131.66	0.0717	615
Mallard*	403.84	91.78	26/4.4 4	7/3.45	28.9 6	495.62	1836	159.24	0.0717	619
Ruddy	455.5	31.67	45/3.5 9	7/2.40	28.7 4	487.17	1507. 3	104.53	0.0634	656
Canary	456.28	59.15	54/3.2 8	7/3.28	29.5 2	515.43	1723. 1	134.33	0.0633	660
Catbird	484.61	13.46	36/4.1 4	1/4.14	28.9 8	498.07	1434. 4	86.74	0.0593	679
Rail	483.84	33.54	45/3.7 0	7/2.47	29.6 1	517.38	1598. 1	110.76	0.0597	680
Cardinal	484.53	62.81	54/3.3 8	7/3.38	30.4 2	547.34	1825. 9	142.34	0.0596	685
Cardinal	484.53	62.81	54/3.3 8	7/3.38	30.4 2	547.34	1825. 9	142.34	0.0596	685
Tanager	522.79	14.52	36/4.3 0	1/4.30	30.1	537.31	1553. 5	93.85	0.055	710
Orotlan	523.87	36.31	45/3.87	7/2.57	30.8	560.18	1730.	118.32	0.0551	713



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Curlew	522.51	67.73	54/3.5	19/2.5	31.5	590.24	1977.6	153.9	0.0553	716
Bluejay	565.49	38.9	45/4.0	7/2.66	31.9	604.39	1866	127.66	0.0511	745
Finch*	565.03	71.57	54/3.6	19/2.1	32.8	636.6	2127.8	164.58	0.0514	748
Bunting	605.76	41.88	45/4.1	7/2.76	33.1	647.64	1996.9	136.55	0.0477	776
Grackle*	602.79	76.89	54/3.7	19/2.2	33.9	679.68	2278.1	176.59	0.0481	777
Skylark	646.02	17.95	36/4.7	1/4.78	33.4	663.97	1913.6	115.65	0.0445	804
Bittern	644.4	44.66	45/4.2	7/2.85	34.1	689.06	2130.8	145.89	0.0448	805
Pheasant*	645.08	81.71	54/3.9	19/2.3	35.1	726.79	2431.4	183.26	0.045	808
Dipper	684.24	47.2	45/4.4	7/2.93	35.1	731.44	2263.2	154.79	0.0422	834
Martin*	685.39	86.67	54/4.0	19/2.4	36.1	772.06	2581.7	194.82	0.0423	838
Bobolink	725.27	50.14	45/4.5	7/3.02	36.2	775.41	2397.2	164.13	0.0398	862
Plover*	726.92	91.78	54/4.1	19/2.4	37.2	818.7	2734.9	206.39	0.0399	866
Nuthatch	764.2	52.83	45/4.6	7/3.10	37.2	817.03	2529.6	171.25	0.0378	888
Parrot*	766.06	97.03	54/4.2	19/2.5	38.2	863.09	2883.7	217.51	0.0379	892
Lapwing	807.53	55.6	45/4.7	7/3.18	38.2	863.13	2663.5	180.14	0.0358	916
Falcon*	806.23	102.43	54/4.3	19/2.6	39.2	908.66	3038.2	229.52	0.036	919



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			6	2	6		5			
Chukar*	903.18	73.54	84/3.7 0	19/2.2 2	40.7	976.72	3083. 1	217.51	0.0321	976
Bluebird*	1092.8 4	88.84	84/4.0 7	19/2.4 4	44.7 6	1181.6 8	3731. 9	256.65	0.0266	1083
Kiwi*	1099.7 6	47.52	72/4.4 1	7/2.94	44.1	1147.2 8	3423. 9	215.28	0.0264	1083
Thrasher*	1171.4 2	63.01	76/4.4 3	19/2.0 7	45.7 9	1235.3 6	3754. 2	243.75	0.0248	1122
Grouse**	40.54	14.12	8/2.54	1/4.24	9.32	54.66	221.4	21.75	0.7089	153
			12/2.3	7/2.34	11.7	81.71	377.7	42.08	0.5595	181
Minorca**	56.11	32.73	12/2.4 4	7/2.44	12.2	88.84	411.1	45.81	0.5146	191
			12/2.6	7/2.69	13.4	107.98	499.2	55.16	0.4234	215
Guinea**	80.36	46.88	12/2.9 2	7/2.92	14.6	127.24	589.7	64.94	0.3593	238
			12/3.0	7/3.08	15.4	141.56	656.1	70.28	0.323	254
Dorking**	96.51	56.3	12/3.2 0	7/3.20	16	152.81	707.8	75.62	0.2992	267
Cochin**	107.04	62.44	12/3.3 7	7/3.37	16.8 5	169.48	783.9	84.07	0.2698	284
**	102.79	91.78	12/3.3 7	7/3.37	18.1 2	194.57	1003. 8	114.76	0.2809	283

* The items, marked with "*" are not in our current product range and the details are for information only.

The items, marked with "" are ACSR Cables with high strength stranding.

(*) 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.



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Technical Data

Numbers of Wires		Final Modules of Elasticity		Coefficient of linear Expansion	
AL	Steel	Kg/mm ²	lb/in ²	1/Co	1/Fo
6	1	81	11.5 x10 ⁶	19.1 x10 ⁻⁶	10.6 x10 ⁻⁶
6	7	77	11.0 x10 ⁶	19.8 x10 ⁻⁶	11.0 x10 ⁻⁶
12	7	107	15.2 x10 ⁶	15.3 x10 ⁻⁶	8.5 x10 ⁻⁶
18	1	67	9.5 x10 ⁶	21.2 x10 ⁻⁶	11.8 x10 ⁻⁶
24	7	74	10.5 x10 ⁶	19.6 x10 ⁻⁶	10.9 x10 ⁻⁶
26	7	77	10.9 x10 ⁶	18.9 x10 ⁻⁶	10.5 x10 ⁻⁶
28	7	79	11.2 x10 ⁶	18.4 x10 ⁻⁶	10.2 x10 ⁻⁶
30	7	82	11.6 x10 ⁶	17.8 x10 ⁻⁶	9.9 x10 ⁻⁶
30	19	80	11.4 x10 ⁶	18.0 x10 ⁻⁶	10.0 x10 ⁻⁶
32	19	82	11.7 x10 ⁶	17.5 x10 ⁻⁶	9.7 x10 ⁻⁶
54	7	70	9.9 x10 ⁶	19.3 x10 ⁻⁶	10.7 x10 ⁻⁶
54	19	68	9.7 x10 ⁶	19.4 x10 ⁻⁶	10.8 x10 ⁻⁶