

Aluminum Conductor Steel Reinforced

IEC 61089, Characteristics of Aluminum Conductors, Steel Reinforced (ACSR)

Physical and Electrical Properties

Code number	Steel ratio	Areas			No. of wires		Wire diam.		Diameter		Linear mass	Rated strength	D.C resistance at 20°C
		Alum.	Steel	Total	Al	St.	Alum.	Steel	Core	Cond.			
	%	mm ²	mm ²	mm ²			mm	mm	mm	mm	kg/km	kN	Ohm/km
A1/S1A													
16	17	162	2.67	18.7	6	1	1.84	1.843	1.844	5.53	64.6	6.08	1.7934
25	17	25	4.17	29.2	6	1	2.3	2.3	2.3	6.91	100.9	9.13	1.1478
40	17	40	6.67	46.7	6	1	2.91	2.91	2.91	8.74	161.5	14.4	0.7174
63	17	63	10.5	73.5	6	1	3.66	3.66	3.66	11	254.4	21.63	0.4555
100	17	100	16.7	117	6	1	4.61	4.61	4.61	13.8	403.8	34.33	0.2869
125	6	125	6.94	132	18	1	2.97	2.97	2.97	14.9	397.9	29.17	0.2304
125	16	125	20.4	145	26	7	2.47	1.92	5.77	15.7	503.9	45.69	0.231
160	6	160	8.89	169	18	1	3.36	3.36	3.36	16.8	509.3	36.18	0.18
160	16	160	26.1	186	26	7	2.8	2.18	6.53	17.7	644.9	57.69	0.1805
200	6	200	11.1	211	18	1	3.76	3.76	3.76	18.8	636.7	44.22	0.144
200	16	200	32.6	233	26	7	3.13	2.43	7.3	19.8	806.2	70.13	0.1444
250	10	250	24.6	275	22	7	3.8	2.11	6.34	21.6	880.6	68.72	0.1154
250	16	250	40.7	291	26	7	3.5	2.72	8.16	22.2	1007.7	87.67	0.1155
315	7	315	21.8	337	45	7	2.99	1.99	5.97	23.9	1039.6	79.03	0.0917
315	16	315	51.3	366	26	7	3.93	3.05	9.16	24.9	1269.7	106.83	0.0917
400	7	400	27.7	428	45	7	3.36	2.24	6.73	26.9	1320.1	98.36	0.0722
400	13	400	51.9	452	54	7	3.07	3.07	9.21	27.6	1510.3	123.04	0.0723
450	7	450	31.1	481	45	7	3.57	2.38	7.14	28.5	1485.2	107.47	0.0642
450	13	450	58.3	508	54	7	3.26	3.26	9.77	29.3	1699.1	138.42	0.0643
500	7	500	34.6	535	45	7	3.76	2.51	7.52	30.1	1650.2	119.41	0.0578
500	13	500	64.8	565	54	7	3.43	3.43	10.3	30.9	1887.9	153.8	0.0578
560	7	560	38.7	599	45	7	3.98	2.65	7.96	31.8	1848.2	133.74	0.0516
560	13	560	70.9	631	54	19	3.63	2.18	10.9	32.7	2103.4	172.59	0.0516
630	7	630	43.6	674	45	7	4.22	2.81	8.44	33.8	2079.2	150.45	0.0459
630	13	630	79.8	710	54	19	3.85	2.31	11.6	34.7	2366.3	191.77	0.0459
710	7	710	49.1	759	45	7	4.48	2.99	8.96	35.9	2343.2	169.56	0.0407
710	13	710	89.9	800	54	19	4.09	2.45	12.3	36.8	2666.8	216.12	0.0407
800	4	800	34.6	835	72	7	3.76	2.51	7.52	37.6	2480.2	167.41	0.0361
800	8	800	66.7	867	84	7	3.48	3.48	10.4	38.3	2732.7	205.33	0.0362
800	13	800	101	901	54	19	4.44	2.61	13	39.1	3004.9	243.52	0.0362

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Physical and Electrical Properties

Code number	Steel ratio	Areas			No. of wires		Wire diam.		Diameter		Linear mass	Rated strength	D.C resistance at 20°C
		Alum.	Steel	Total	Al	St.	Alum.	Steel	Core	Cond.			
	%	mm ²	mm ²	mm ²			mm	mm	mm	mm	kg/km	kN	Ohm/km
900	4	900	38.9	939	72	7	3.99	2.66	7.98	39.9	2790.2	188.33	0.0321
900	8	900	75	975	84	7	3.69	3.69	11.1	40.6	3074.2	226.5	0.0322
1000	4	1000	43.2	1043	72	7	4.21	2.8	8.41	42.1	3100.3	209.26	0.0289
1120	4	1120	47.3	1167	72	19	4.45	1.78	8.9	44.5	3464.9	234.53	0.0258
1120	8	1120	91.2	1211	84	19	4.12	2.47	12.4	45.3	3811.5	283.17	0.0258
1250	8	1250	102	1352	84	19	4.35	2.61	13.1	47.9	4253.9	316.04	0.0232
1250	4	1250	52.8	1303	72	19	4.7	1.88	9.4	47	3867.1	261.75	0.0231

A1/S1B

16	17	162	2.67	18.7	6	1	1.84	1.843	1.844	5.53	64.6	5.89	1.7934
25	17	25	4.17	29.2	6	1	2.3	2.3	2.3	6.91	100.9	8.83	1.1478
40	17	40	6.67	46.7	6	1	2.91	2.91	2.91	8.74	161.5	13.93	0.7174
63	17	63	10.5	73.5	6	1	3.66	3.66	3.66	11	254.4	20.58	0.4555
100	17	100	16.7	117	6	1	4.61	4.61	4.61	13.8	403.8	32.67	0.2869
125	6	125	6.94	132	18	1	2.97	2.97	2.97	14.9	397.9	28.68	0.2304
125	16	125	20.4	145	26	7	2.47	1.92	5.77	15.7	503.9	44.27	0.231
160	6	160	8.89	169	18	1	3.36	3.36	3.36	16.8	509.3	35.29	0.18
160	16	160	26.1	186	26	7	2.8	2.18	6.53	17.7	644.9	55.86	0.1805
200	6	200	11.1	211	18	1	3.76	3.76	3.76	18.8	636.7	43.11	0.144
200	16	200	32.6	233	26	7	3.13	2.43	7.3	19.8	806.2	67.85	0.1444
250	10	250	24.6	275	22	7	3.8	2.11	6.34	21.6	880.6	67.01	0.1154
250	16	250	40.7	291	26	7	3.5	2.72	8.16	22.2	1007.7	84.82	0.1155
315	7	315	21.8	337	45	7	2.99	1.99	5.97	23.9	1039.6	77.51	0.0917
315	16	315	51.3	366	26	7	3.93	3.05	9.16	24.9	1269.7	101.7	0.0917
400	7	400	27.7	428	45	7	3.36	2.24	6.73	26.9	1320.1	96.42	0.0722
400	13	400	51.9	452	54	7	3.07	3.07	9.21	27.6	1510.3	117.85	0.0723
450	7	450	31.1	481	45	7	3.57	2.38	7.14	28.5	1485.2	105.29	0.0642
450	13	450	58.3	508	54	7	3.26	3.26	9.77	29.3	1699.1	132.58	0.0643
500	7	500	34.6	535	45	7	3.76	2.51	7.52	30.1	1650.2	116.99	0.0578
500	13	500	64.8	565	54	7	3.43	3.43	10.3	30.9	1887.9	147.31	0.0578
560	7	560	38.7	599	45	7	3.98	2.65	7.96	31.8	1848.2	131.03	0.0516
560	13	560	70.9	631	54	19	3.63	2.18	10.9	32.7	2103.4	167.63	0.0516

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Physical and Electrical Properties

Code number	Steel ratio	Areas			No. of wires		Wire diam.		Diameter		Linear mass	Rated strength	D.C resistance at 20°C
		Alum.	Steel	Total	Al	St.	Alum.	Steel	Core	Cond.			
	%	mm ²	mm ²	mm ²			mm	mm	mm	mm	kg/km	kN	Ohm/km
630	7	630	43.6	674	45	7	4.22	2.81	8.44	33.8	2079.2	147.4	0.0459
630	13	630	79.8	710	54	19	3.85	2.31	11.6	34.7	2366.3	186.19	0.0459
710	7	710	49.1	759	45	7	4.48	2.99	8.96	35.9	2343.2	166.12	0.0407
710	13	710	89.9	800	54	19	4.09	2.45	12.3	36.8	2666.8	209.83	0.0407
800	4	800	34.6	835	72	7	3.76	2.51	7.52	37.6	2480.2	164.99	0.0361
800	8	800	66.7	867	84	7	3.48	3.48	10.4	38.3	2732.7	198.67	0.0362
800	13	800	101	901	54	19	4.44	2.61	13	39.1	3004.9	236.43	0.0362
900	4	900	38.9	939	72	7	3.99	2.66	7.98	39.9	2790.2	185.61	0.0321
900	8	900	75	975	84	7	3.69	3.69	11.1	40.6	3074.2	219	0.0322
1000	4	1000	43.2	1043	72	7	4.21	2.8	8.41	42.1	3100.3	206.23	0.0289
1120	4	1120	47.3	1167	72	19	4.45	1.78	8.9	44.5	3464.9	231.22	0.0258
1120	8	1120	91.2	1211	84	19	4.12	2.47	12.4	45.3	3811.5	276.78	0.0258
1250	8	1250	52.8	1303	72	19	4.35	2.61	13.1	47.9	4253.9	258.06	0.0231
1250	4	1250	102	1352	84	19	4.7	1.88	9.4	47	3867.1	308.91	0.0232

A1/S2A

16	17	16	2.67	18.7	6	1	1.84	1.84	1.84	5.53	64.6	6.45	1.7934
25	17	25	4.17	29.2	6	1	2.3	2.3	2.3	6.91	100.9	9.71	1.1478
40	17	40	6.67	46.7	6	1	2.91	2.91	2.91	8.74	161.5	15.33	0.7174
63	17	63	10.5	73.5	6	1	3.66	3.66	3.66	11	254.4	22.37	0.4555
100	17	100	16.7	117	6	1	4.61	4.61	4.61	13.8	403.8	35.5	0.2869
125	6	125	6.94	132	18	1	2.97	2.97	2.97	14.9	397.9	30.14	0.2304
125	16	125	20.4	145	26	7	2.47	1.92	5.77	15.7	503.9	48.54	0.231
160	6	160	8.89	169	18	1	3.36	3.36	3.36	16.8	509.3	37.42	0.18
160	16	160	26.1	186	26	7	2.8	2.18	6.53	17.7	644.9	61.34	0.1805
200	6	200	11.1	211	18	1	3.76	3.76	3.76	18.8	636.7	45	0.144
200	16	200	32.6	233	26	7	3.13	2.43	7.3	19.8	806.2	74.69	0.1444
250	10	250	24.6	275	22	7	3.8	2.11	6.34	21.6	880.6	72.16	0.1154
250	16	250	40.7	291	26	7	3.5	2.72	8.16	22.2	1007.7	93.37	0.1155
315	7	315	21.8	337	45	7	2.99	1.99	5.97	23.9	1039.6	82.08	0.0917
315	16	315	51.3	366	26	7	3.93	3.05	9.16	24.9	1269.7	114.02	0.0917
400	7	400	27.7	428	45	7	3.36	2.24	6.73	26.9	1320.1	102.23	0.0722

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Physical and Electrical Properties

Code number	Steel ratio	Areas			No. of wires		Wire diam.		Diameter		Linear mass	Rated strength	D.C resistance at 20°C
		Alum.	Steel	Total	Al	St.	Alum.	Steel	Core	Cond.			
	%	mm ²	mm ²	mm ²			mm	mm	mm	mm	kg/km	kN	Ohm/km
400	13	400	51.9	452	54	7	3.07	3.07	9.21	27.6	1510.3	130.3	0.0723
450	7	450	31.1	481	45	7	3.57	2.38	7.14	28.5	1485.2	111.82	0.0642
450	13	450	58.3	508	54	7	3.26	3.26	9.77	29.3	1699.1	146.58	0.0643
500	7	500	34.6	535	45	7	3.76	2.51	7.52	30.1	1650.2	124.25	0.0578
500	13	500	64.8	565	54	7	3.43	3.43	10.3	30.9	1887.9	162.87	0.0578
560	7	560	38.7	599	45	7	3.98	2.65	7.96	31.8	1848.2	139.16	0.0516
560	13	560	70.9	631	54	19	3.63	2.18	10.9	32.7	2103.4	182.52	0.0516
630	7	630	43.6	674	45	7	4.22	2.81	8.44	33.8	2079.2	156.55	0.0459
630	13	630	79.8	710	54	19	3.85	2.31	11.6	34.7	2366.3	202.94	0.0459
710	7	710	49.1	759	45	7	4.48	2.99	8.96	35.9	2343.2	176.43	0.0407
710	13	710	89.9	800	54	19	4.09	2.45	12.3	36.8	2666.8	228.71	0.0407
800	4	800	34.6	835	72	7	3.76	2.51	7.52	37.6	2480.2	172.25	0.0361
800	8	800	66.7	867	84	7	3.48	3.48	10.4	38.3	2732.7	214.67	0.0362
800	13	800	101	901	54	19	4.44	2.61	13	39.1	3004.9	257.71	0.0362
900	4	900	38.9	939	72	7	3.99	2.66	7.98	39.9	2790.2	193.78	0.0321
900	8	900	75	975	84	7	3.69	3.69	11.1	40.6	3074.2	231.75	0.0322
1000	4	1000	43.2	1043	72	7	4.21	2.8	8.41	42.1	3100.3	215.31	0.0289
1120	4	1120	47.3	1167	72	19	4.45	1.78	8.9	44.5	3464.9	241.15	0.0258
1120	8	1120	91.2	1211	84	19	4.12	2.47	12.4	45.3	3811.5	295.94	0.0258
1250	4	1250	52.8	1303	72	19	4.7	1.88	9.4	47	3867.1	269.14	0.0231
1250	8	1250	102	1352	84	19	4.35	2.61	13.1	47.9	4253.9	330.29	0.0232

A1/S2B

16	17	16	2.67	18.7	6	1	1.84	1.84	1.84	5.53	64.6	6.27	1.7934
25	17	25	4.17	29.2	6	1	2.3	2.3	2.3	6.91	100.9	9.42	1.1478
40	17	40	6.67	46.7	6	1	2.91	2.91	2.91	8.74	161.5	14.87	0.7174
63	17	63	10.5	73.5	6	1	3.66	3.66	3.66	11	254.4	21.63	0.4555
100	17	100	16.7	117	6	1	4.61	4.61	4.61	13.8	403.8	34.33	0.2869
125	6	125	6.94	132	18	1	2.97	2.97	2.97	14.9	397.9	29.65	0.2304
125	16	125	20.4	145	26	7	2.47	1.92	5.77	15.7	503.9	47.12	0.231
160	6	160	8.89	169	18	1	3.36	3.36	3.36	16.8	509.3	36.8	0.18
160	16	160	26.1	186	26	7	2.8	2.18	6.53	17.7	644.9	59.51	0.1805

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Physical and Electrical Properties

Code number	Steel ratio	Areas			No. of wires		Wire diam.		Diameter		Linear mass	Rated strength	D.C resistance at 20°C
		Alum.	Steel	Total	Al	St.	Alum.	Steel	Core	Cond.			
	%	mm ²	mm ²	mm ²			mm	mm	mm	mm	kg/km	kN	Ohm/km
200	6	200	11.1	211	18	1	3.76	3.76	3.76	18.8	636.7	44.22	0.144
200	16	200	32.6	233	26	7	3.13	2.43	7.3	19.8	806.2	72.41	0.1444
250	10	250	24.6	275	22	7	3.8	2.11	6.34	21.6	880.6	70.44	0.1154
250	16	250	40.7	291	26	7	3.5	2.72	8.16	22.2	1007.7	90.52	0.1155
315	7	315	21.8	337	45	7	2.99	1.99	5.97	23.9	1039.6	80.55	0.0917
315	16	315	51.3	366	26	7	3.93	3.05	9.16	24.9	1269.7	110.43	0.0917
400	7	400	27.7	428	45	7	3.36	2.24	6.73	26.9	1320.1	100.29	0.0722
400	13	400	51.9	452	54	7	3.07	3.07	9.21	27.6	1510.3	126.67	0.0723
450	7	450	31.1	481	45	7	3.57	2.38	7.14	28.5	1485.2	109.64	0.0642
450	13	450	58.3	508	54	7	3.26	3.26	9.77	29.3	1699.1	142.5	0.0643
500	7	500	34.6	535	45	7	3.76	2.51	7.52	30.1	1650.2	121.83	0.0578
500	13	500	64.8	565	54	7	3.43	3.43	10.3	30.9	1887.9	158.33	0.0578
560	7	560	38.7	599	45	7	3.98	2.65	7.96	31.8	1848.2	136.45	0.0516
560	13	560	70.9	631	54	19	3.63	2.18	10.9	32.7	2103.4	177.56	0.0516
630	7	630	43.6	674	45	7	4.22	2.81	8.44	33.8	2079.2	153.5	0.0459
630	13	630	79.8	710	54	19	3.85	2.31	11.6	34.7	2366.3	197.36	0.0459
710	7	710	49.1	759	45	7	4.48	2.99	8.96	35.9	2343.2	172.99	0.0407
710	13	710	89.9	800	54	19	4.09	2.45	12.3	36.8	2666.8	222.42	0.0407
800	4	800	34.6	835	72	7	3.76	2.51	7.52	37.6	2480.2	169.83	0.0361
800	8	800	66.7	867	84	7	3.48	3.48	10.4	38.3	2732.7	210	0.0362
800	13	800	101	901	54	19	4.44	2.61	13	39.1	3004.9	250.61	0.0362
900	4	900	38.9	939	72	7	3.99	2.66	7.98	39.9	2790.2	191.06	0.0321
900	8	900	75	975	84	7	3.69	3.69	11.1	40.6	3074.2	226.5	0.0322
1000	4	1000	43.2	1043	72	7	4.21	2.8	8.41	42.1	3100.3	212.28	0.0289
1120	4	1120	47.3	1167	72	19	4.45	1.78	8.9	44.5	3464.9	237.84	0.0258
1120	8	1120	91.2	1211	84	19	4.12	2.47	12.4	45.3	3811.5	289.55	0.0258
1250	8	1250	52.8	1303	72	19	4.7	1.88	9.4	47	3867.1	265.44	0.0231
1250	4	1250	102	1352	84	19	4.35	2.61	13.1	47.9	4253.9	323.16	0.0232

A1/S3A

16	17	16	2.67	18.7	6	1	1.84	1.84	1.84	5.53	64.6	6.83	1.7934
25	17	25	4.17	29.2	6	1	2.3	2.3	2.3	6.91	100.9	10.25	1.1478

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Code number	Steel ratio	Areas			No. of wires		Wire diam.		Diameter		Linear mass	Rated strength	D.C resistance at 20°C
		Alum.	Steel	Total	Al	St.	Alum.	Steel	Core	Cond.			
	%	mm ²	mm ²	mm ²			mm	mm	mm	mm	kg/km	kN	Ohm/km
40	17	40	6.67	46.7	6	1	2.91	2.91	2.91	8.74	161.5	16.2	0.7174
63	17	63	10.5	73.5	6	1	3.66	3.66	3.66	11	254.4	24.15	0.4555
100	17	100	16.7	117	6	1	4.61	4.61	4.61	13.8	403.8	38.33	0.2869
125	6	125	6.94	132	18	1	2.97	2.97	2.97	14.9	397.9	31.04	0.2304
125	16	125	20.4	145	26	7	2.47	1.92	5.77	15.7	503.9	51.39	0.231
160	6	160	8.89	169	18	1	3.36	3.36	3.36	16.8	509.3	38.67	0.18
160	16	160	26.1	186	26	7	2.8	2.18	6.53	17.7	644.9	64.99	0.1805
200	6	200	11.1	211	18	1	3.76	3.76	3.76	18.8	636.7	46.89	0.144
200	16	200	32.6	233	26	7	3.13	2.43	7.3	19.8	806.2	78.93	0.1444
250	10	250	24.6	275	22	7	3.8	2.11	6.34	21.6	880.6	75.6	0.1154
250	16	250	40.7	291	26	7	3.5	2.72	8.16	22.2	1007.7	98.66	0.1155
315	7	315	21.8	337	45	7	2.99	1.99	5.97	23.9	1039.6	85.13	0.0917
315	16	315	51.3	366	26	7	3.93	3.05	9.16	24.9	1269.7	121.2	0.0917
400	7	400	27.7	428	45	7	3.36	2.24	6.73	26.9	1320.1	106.1	0.0722
400	13	400	51.9	452	54	7	3.07	3.07	9.21	27.6	1510.3	137.56	0.0723
450	7	450	31.1	481	45	7	3.57	2.38	7.14	28.5	1485.2	115.87	0.0642
450	13	450	58.3	508	54	7	3.26	3.26	9.77	29.3	1699.1	154.75	0.0643
500	7	500	34.6	535	45	7	3.76	2.51	7.52	30.1	1650.2	128.74	0.0578
500	13	500	64.8	565	54	7	3.43	3.43	10.3	30.9	1887.9	171.94	0.0578
560	7	560	38.7	599	45	7	3.98	2.65	7.96	31.8	1848.2	144.19	0.0516
560	13	560	70.9	631	54	19	3.63	2.18	10.9	32.7	2103.4	192.45	0.0516
630	7	630	43.6	674	45	7	4.22	2.81	8.44	33.8	2079.2	162.21	0.0459
630	13	630	79.8	710	54	19	3.85	2.31	11.6	34.7	2366.3	213.32	0.0459
710	7	710	49.1	759	45	7	4.48	2.99	8.96	35.9	2343.2	182.81	0.0407
710	13	710	89.9	800	54	19	4.09	2.45	12.3	36.8	2666.8	240.41	0.0407
800	4	800	34.6	835	72	7	3.76	2.51	7.52	37.6	2480.2	176.74	0.0361
800	8	800	66.7	867	84	7	3.48	3.48	10.4	38.3	2732.7	224	0.0362
800	13	800	101	901	54	19	4.44	2.61	13	39.1	3004.9	270.88	0.0362
900	4	900	38.9	939	72	7	3.99	2.66	7.98	39.9	2790.2	198.83	0.0321
900	8	900	75	975	84	7	3.69	3.69	11.1	40.6	3074.2	244.5	0.0322
1000	4	1000	43.2	1043	72	7	4.21	2.8	8.41	42.1	3100.3	220.93	0.0289

Aluminum Conductor Steel Reinforced

IEC 61089, Characteristics of Aluminum Conductors, Steel Reinforced (ACSR)

Physical and Electrical Properties

Code number	Steel ratio	Areas			No. of wires		Wire diam.		Diameter		Linear mass	Rated strength	D.C resistance at 20°C
		Alum.	Steel	Total	Al	St.	Alum.	Steel	Core	Cond.			
	%	mm ²	mm ²	mm ²			mm	mm	mm	mm	kg/km	kN	Ohm/km
1120	4	1120	47.3	1167	72	19	4.45	1.78	8.9	44.5	3464.9	247.77	0.0258
1120	8	1120	91.2	1211	84	19	4.12	2.47	12.4	45.3	3811.5	307.79	0.0258
1250	8	1250	52.8	1303	72	19	4.7	1.88	9.4	47	3867.1	276.53	0.0231
1250	4	1250	102	1352	84	19	4.35	2.61	13.1	47.9	4253.9	343.52	0.0232