

# BareNRG™ ACSR Aluminum Conductor

CME Wire and Cable offers BareNRG ACSR overhead conductors with a variety of conductor designs and steel core coatings to address your application requirements for transmission and distribution projects.

## Construction

ACSR, a non-homogenous conductor, is a concentric-lay-stranded conductor made from round aluminum 1350-H19 (extra hard) wires and round, coated steel core wire(s). Several combinations of aluminum and steel strands and layers are available when designing ACSR conductors for overhead lines. Commonly used sizes are included here. Class A zinc coating (ACSR/GA2) is usually adequate for ordinary environments to protect the steel core wires from corrosion.

## Specifications

ACSR conductors are manufactured in accordance with the ASTM specification B232. Other ASTM referenced specifications include B230, B498, B500, B606, B802, B803, B957 and B958.

## Features

The favorable strength/weight ratio, achieved by the lightweight, strong conductivity of aluminum coupled with the high tensile strength of steel, makes ACSR conductors a preferred choice

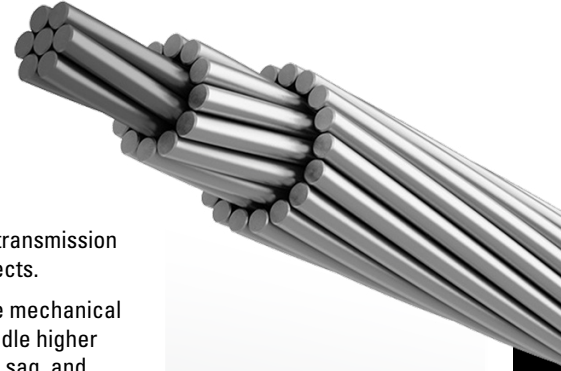
for overhead power transmission and distribution projects.

Steel strands provide mechanical reinforcement to handle higher line tensions, reduce sag, and achieve longer span lengths. ACSR conductors are also recognized for their dependable performance under adverse weather conditions.

## Options

ACSR/GA2 is standard.

*Other possibilities shown below.*



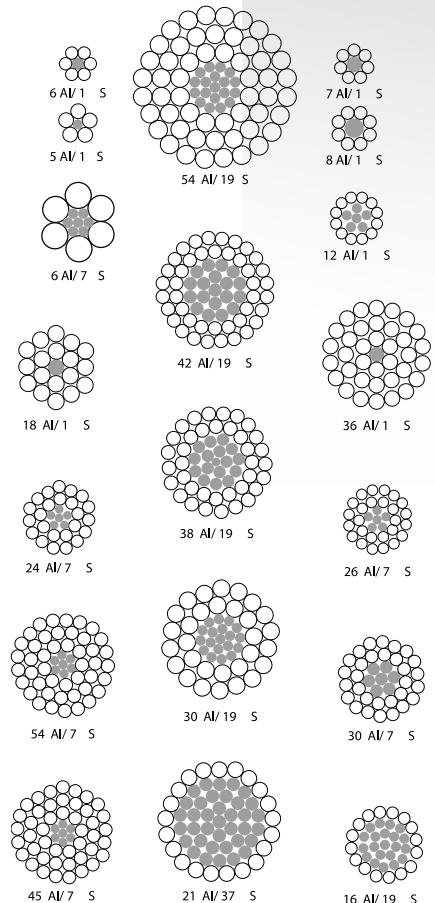
ALUMINUM  
CONDUCTOR

## Technical Data

### BareNRG™ Options

Steel Coating	Steel Strength			
	Standard	High	Extra High	Ultra High
Zinc	/GA2 /GC2	/GA3	/GA4	/GA5
Zinc – 5% Aluminum Mischmetal Alloy Coating	/MA2 /MC2	/MA3	/MA4	/MA5

- /NS: Non-Specular finish available for all ACSR components.
- /HC: High-Conductivity aluminum (62.0% IACS) for all ACSR products.
- /TW: Trapezoidal-shaped aluminum wires – see ACSR/TW catalog sheet.
- /AW: Aluminum-clad steel core for all ACSR components.



Technical Data *continued*

# BareNRG™

Code Word	Size AWG or kcmil	Stranding		Nominal Overall Diameter		Cross Section		Mass			Rated Strength			Resistance		Reactance		Ampacity A
		Al No. Wires x Size	Steel No. Wires x Size	Al	Steel Core	Al	Total	Al	Steel	Total	GA2	GA3	GA5	DC	AC	Capacitive	Inductive	
														20 °C	75 °C			
		in		in <sup>2</sup>		lb/kft	lb/kft	lb/kft	lb	lb	lb	Ω/kft	Ω/kft	MΩ/kft	Ω/kft			
Turkey	6	6x0.0661	1x0.0661	0.198	0.0661	0.0206	0.0240	24.4	11.6	36.0	1190	1260	1320	0.6419	0.8159	0.7513	0.1439	105
Swan	4	6x0.0834	1x0.0834	0.250	0.0834	0.0328	0.0382	39.0	18.4	57.4	1860	1970	2070	0.4032	0.5218	0.7149	0.1369	140
Swanate	4	7x0.0772	1x0.1029	0.257	0.1029	0.0328	0.0411	39.0	28.0	67.0	2360	2520	2680	0.3989	0.5165	0.7102	0.1303	139
Sparrow	2	6x0.1052	1x0.1052	0.316	0.1052	0.0522	0.0608	61.9	29.3	91.2	2850	3010	3180	0.2534	0.3360	0.6785	0.1277	185
Sparate	2	7x0.0974	1x0.1299	0.325	0.1299	0.0522	0.0654	61.9	44.7	106.6	3640	3900	4150	0.2506	0.3297	0.6737	0.1206	184
Robin	1	6x0.1181	1x0.1181	0.354	0.1181	0.0657	0.0767	78.1	36.9	115.0	3550	3760	3980	0.2011	0.2703	0.6600	0.1224	210
Raven	1/0	6x0.1327	1x0.1327	0.398	0.1327	0.0830	0.0968	98.6	46.6	145.2	4380	4650	4910	0.1593	0.2161	0.6421	0.1163	240
Quail	2/0	6x0.1489	1x0.1489	0.447	0.1489	0.1045	0.1219	124.1	58.7	182.8	5300	5720	6050	0.1265	0.1760	0.6241	0.1135	275
Pigeon	3/0	6x0.1672	1x0.1672	0.502	0.1672	0.1317	0.1537	156.4	74.1	230.5	6620	7150	7570	0.1003	0.1445	0.6056	0.1095	315
Penguin	4/0	6x0.1878	1x0.1878	0.563	0.1878	0.1662	0.1939	197.4	93.4	290.8	8350	9010	9550	0.0795	0.1157	0.5966	0.1053	360
Waxwing	266.8	18x0.1217	1x0.1217	0.609	0.1217	0.2094	0.2210	249.9	39.2	289.1	6880	7100	7320	0.0644	0.0788	0.576	0.0934	450
Partridge	266.8	26x0.1013	7x0.0788	0.642	0.2364	0.2095	0.2437	251.3	115.6	366.9	11300	11900	12600	0.0637	0.0778	0.565	0.0881	455
Merlin	336.4	18x0.1367	1x0.1367	0.684	0.1367	0.2642	0.2789	315.3	49.5	364.8	8680	8960	9240	0.0510	0.0625	0.560	0.0877	520
Linnet	336.4	26x0.1137	7x0.0884	0.720	0.2652	0.2640	0.3070	316.5	145.5	462.0	14100	14900	15700	0.0506	0.0619	0.549	0.0854	530
Oriole	336.4	30x0.1059	7x0.1059	0.741	0.3177	0.2642	0.3259	317.7	208.7	526.4	17300	18500	19700	0.0502	0.0614	0.544	0.0843	535
Chickadee	397.5	18x0.1486	1x0.1486	0.743	0.1486	0.3122	0.3295	372.5	58.5	431.0	9940	10400	10700	0.0432	0.0528	0.544	0.0856	577
Ibis	397.5	26x0.1236	7x0.0961	0.783	0.2883	0.3120	0.3627	374.1	171.9	546.0	16300	17200	18200	0.0428	0.0525	0.539	0.0835	585
Lark	397.5	30x0.1151	7x0.1151	0.806	0.3453	0.3121	0.3850	375.2	246.6	621.8	20300	21700	23100	0.0425	0.0519	0.533	0.0824	595
Pelican	477	18x0.1628	1x0.1628	0.814	0.1628	0.3747	0.3955	447.1	70.2	517.3	11800	12300	12700	0.0360	0.0441	0.528	0.0835	645
Flicker	477	24x0.141	7x0.094	0.846	0.2820	0.3747	0.4233	449.4	164.5	613.9	17200	18100	19000	0.0358	0.0439	0.524	0.0818	655
Hawk	477	26x0.1354	7x0.1053	0.858	0.3159	0.3744	0.4353	448.9	206.4	655.3	19500	20700	21900	0.0357	0.0438	0.522	0.0814	660
Hen	477	30x0.1261	7x0.1261	0.883	0.3783	0.3747	0.4621	450.4	296.0	746.4	23800	25500	27200	0.0354	0.0434	0.517	0.0803	665
Osprey	556.5	18x0.1758	1x0.1758	0.879	0.1758	0.4369	0.4612	521.4	81.9	603.3	13700	14300	14800	0.0309	0.0379	0.518	0.0818	710
Parakeet	556.5	24x0.1523	7x0.1015	0.914	0.3045	0.4372	0.4939	524.3	191.8	716.1	19800	20900	22000	0.0307	0.0377	0.512	0.0801	720
Dove	556.5	26x0.1463	7x0.1138	0.927	0.3414	0.4371	0.5083	524.2	241.0	765.2	22600	24000	25300	0.0305	0.0375	0.510	0.0795	725
Eagle	556.5	30x0.1362	7x0.1362	0.953	0.4086	0.4371	0.5391	525.4	345.3	870.7	27800	29700	31700	0.0300	0.0371	0.505	0.0786	735
Peacock	605	24x0.1588	7x0.1059	0.953	0.3177	0.4745	0.5370	570.1	208.7	778.8	21600	22700	23900	0.0282	0.0347	0.505	0.0792	760
Swift	636	36x0.1329	1x0.1329	0.930	0.1329	0.4994	0.5133	596.0	46.8	642.8	13800	14000	14300	0.0267	0.0334	0.509	0.0806	770
Kingbird	636	18x0.188	1x0.188	0.940	0.1880	0.4997	0.5274	596.3	93.6	689.9	15700	16300	16900	0.0269	0.0332	0.507	0.0805	774
Rook	636	24x0.1628	7x0.1085	0.977	0.3255	0.4996	0.5643	599.1	219.1	818.2	22600	23900	25100	0.0268	0.0330	0.502	0.0786	785
Grosbeak	636	26x0.1564	7x0.1216	0.990	0.3648	0.4995	0.5808	599.0	275.2	874.2	25200	26800	28300	0.0267	0.0328	0.500	0.0780	790
Egret	636	30x0.1456	19x0.0874	1.019	0.4370	0.4995	0.6135	600.5	386.7	987.2	31500	33600	35800	0.0266	0.0326	0.495	0.0769	795
Flamingo	666.6	24x0.1667	7x0.1111	1.000	0.3333	0.5238	0.5917	628.2	229.7	857.9	23700	25000	26300	0.0256	0.0314	0.498	0.0780	810

- Code words shown are for standard ACSR/GA2 conductor. See the options for other applicable code word modifiers.
  - Rated strengths shown are applicable for ACSR/GA2 and ACSR/MA2 cores.
  - Direct current resistance is based on 61.2% IACS for 1350 wires (ASTM B230) and 8% IACS for the steel core (ASTM B498) at 20 °C using stranding increment as per ASTM B232.
  - Consult IEEE 738: Standard for Calculating the Current-Temperature of Bare Overhead Conductors or contact CME Wire and Cable for assistance.
  - Based on a conductor temperature of 75°C, ambient temperature 25°C, wind 2 ft/sec, exposed to sun and wind.
  - The data are an estimate based on given criteria and subject to normal manufacturing tolerances.
  - Reactance is based on 1 ft equivalent spacing.
- \* Contact CME to review availability.

Technical Data *continued*

BareNRG™

Code Word	Size AWG or kcmil	Stranding		Nominal Overall Diameter		Cross Section		Mass			Rated Strength			Resistance		Reactance		Ampacity A
		Al	Steel	Al	Steel Core	Al	Total	Al	Steel	Total	GA2	GA3	GA5	DC	AC	Capacitive	Inductive	
		No. Wires x Size	No. Wires x Size											20 °C	75 °C			
				in	in <sup>2</sup>	lb/kft	lb/kft	lb/kft	lb	lb	lb	Ω/kft	Ω/kft	MΩ/kft	Ω/kft			
Starling	715.5	26x0.1659	7x0.129	1.051	0.3870	0.5620	0.6535	674.0	309.7	983.7	28400	30100	31900	0.0238	0.0292	0.490	0.0767	850
Redwing	715.5	30x0.1544	19x0.0926	1.081	0.4630	0.5617	0.6897	675.3	434.0	1109.3	34600	36900	39300	0.0236	0.0290	0.486	0.0756	860
Coot	795	36x0.1486	1x0.1486	1.040	0.1486	0.6244	0.6417	745.1	58.5	803.6	16800	17200	17500	0.0217	0.0268	0.492	0.0780	884
Tern	795	45x0.1329	7x0.0886	1.063	0.2658	0.6242	0.6674	749	146	895	22100	22900	23700	0.0216	0.0267	0.488	0.0764	885
Cuckoo	795	24x0.182	7x0.1213	1.092	0.3639	0.6244	0.7053	749	274.0	1023	27900	29500	31000	0.0215	0.0266	0.484	0.0763	902
Condor	795	54x0.1213	7x0.1213	1.092	0.3639	0.6240	0.7049	748	274.0	1022	28200	29700	31300	0.0215	0.0265	0.484	0.0759	895
Drake	795	26x0.1749	7x0.136	1.108	0.4080	0.6247	0.7263	749	344	1093	31500	33500	35400	0.0214	0.0263	0.482	0.0756	905
Mallard	795	30x0.1628	19x0.0977	1.140	0.4885	0.6245	0.7669	750.7	483.2	1233.9	38400	41000	43700	0.0213	0.0261	0.477	0.0744	915
Ruddy	900	45x0.1414	7x0.0943	1.131	0.2829	0.7066	0.7555	848	165	1013	24400	25400	26300	0.0191	0.0237	0.479	0.0755	959
Canary	900	54x0.1291	7x0.1291	1.162	0.3873	0.7069	0.7985	848	310	1158	31900	33700	35400	0.0190	0.0235	0.474	0.0744	965
Corncrake	954	20x0.2184	7x0.0971	1.165	0.2913	0.7492	0.8011	899	175	1074	25600	26000	27600	0.0180	0.0224	0.474	0.0751	997
Redbird	954	24x0.1994	7x0.1329	1.196	0.3987	0.7495	0.8466	899	329	1228	33500	35400	37200	0.0179	0.0221	0.470	0.0742	1010
Rail	954	45x0.1456	7x0.0971	1.165	0.2913	0.7492	0.8011	899	176	1075	25900	26900	27900	0.0180	0.0223	0.474	0.0748	990
Cardinal	954	54x0.1329	7x0.1329	1.196	0.3987	0.7491	0.8462	898.4	328.7	1227.1	33800	35700	37600	0.0179	0.0222	0.470	0.0757	1005
Ortolan	1033.5	45x0.1515	7x0.101	1.212	0.3030	0.8112	0.8673	973	190	1163	27700	26800	28200	0.0167	0.0208	0.468	0.0739	1040
Curlew	1033.5	54x0.1383	7x0.1383	1.245	0.4149	0.8112	0.9164	973	356	1329	36600	28800	29800	0.0165	0.0201	0.464	0.0729	1055
Bluejay	1113.0	45x0.1573	7x0.1049	1.259	0.3147	0.8745	0.9350	1049	205	1254	29800	38600	40700	0.0155	0.0193	0.462	0.0731	1090
Finch	1113.0	54x0.1436	19x0.0862	1.293	0.4310	0.8746	0.9854	1054	376	1430	39100	31000	32200	0.0154	0.0191	0.458	0.0702	1100
Bunting	1192.5	45x0.1628	7x0.1085	1.302	0.3255	0.9367	1.0014	1123	219	1342	32000	41200	43200	0.0144	0.0181	0.456	0.0723	1135
Grackle	1192.5	54x0.1486	19x0.0892	1.338	0.4460	0.9365	1.0553	1128	403	1531	41900	33200	34400	0.0144	0.0179	0.452	0.0710	1150
Bittern	1272.0	45x0.1681	7x0.1121	1.345	0.3363	0.9987	1.0678	1198	234	1432	34100	44100	46300	0.0135	0.0170	0.451	0.072	1180
Pheasant	1272.0	54x0.1535	19x0.0921	1.382	0.4605	0.9993	1.1259	1205	429	1634	43600	35400	36700	0.0135	0.0169	0.447	0.070	1195
Dipper	1351.5	45x0.1733	7x0.1155	1.386	0.3465	1.0614	1.1348	1273	248	1521	36200	46000	48300	0.0127	0.0161	0.447	0.071	1225
Martin	1351.5	54x0.1582	19x0.0949	1.424	0.4745	1.0614	1.1958	1279	456	1735	46300	37600	39000	0.0127	0.0159	0.442	0.070	1240
Bobolink	1431.0	45x0.1783	7x0.1189	1.427	0.3567	1.1236	1.2013	1348	263	1611	38300	48800	51330	0.0120	0.0152	0.442	0.070	1270
Plover	1431.0	54x0.1628	19x0.0977	1.465	0.4885	1.1241	1.2665	1355	483	1838	49100	39800	41300	0.0120	0.0151	0.438	0.069	1285
Lapwing	1590.0	45x0.188	7x0.1253	1.504	0.3759	1.2492	1.3355	1498	292	1790	42200	32000	57300	0.0108	0.0138	0.434	0.069	1350
Falcon	1590.0	54x0.1716	19x0.103	1.545	0.5150	1.2489	1.4072	1505	537	2042	54500	41900	45500	0.0108	0.0137	0.430	0.068	1370
Chukar*	1780.0	84x0.1456	19x0.0874	1.602	0.4370	1.3986	1.5126	1685	387	2072	51000	34100	60400	0.0097	0.0125	0.424	0.067	1455
Bluebird*	2156.0	84x0.1602	19x0.0961	1.762	0.4805	1.6931	1.8310	2040	468	2508	60300	43600	55200	0.0080	0.0105	0.409	0.065	1625
Kiwi*	2167.0	72x0.1735	7x0.1157	1.735	0.3471	1.7022	1.7758	2052	249	2301	49800	36200	65400	0.0080	0.0106	0.411	0.068	1608
Thrasher*	2312.0	76x0.1744	19x0.0814	1.802	0.4070	1.8155	1.9144	2188	335	2523	56700	46300	52700	0.0075	0.0100	0.405	0.065	1674
Joree*	2515.0	76x0.1819	19x0.085	1.880	0.4250	1.9750	2.0826	2383	366	2749	61700	63700	65700	0.0069	0.0093	0.399	0.064	1750

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