

ACAR Aluminum Conductor Aluminum Reinforced



A Viakable Company

CME Wire and Cable offers ACAR concentric-lay-stranded conductors in single and multi-layer conductor designs to optimize the strength and the current carrying capacity for transmission and distribution projects for which AAC conductors do not provide the required strength and AAAC or ACSR conductors are either not required or suitable.

Construction

ACAR is a concentric-lay-stranded conductor made from round aluminum 1350-H19 (extra hard) wires and round aluminum 6201-T81 wires. ACAR conductors are available in single and multi-layer constructions. These choices provide the necessary strength and the current carrying capacity for given applications. For equal weight, ACAR conductors offer higher strength and ampacity than ACSR conductors.

Typically, 1350-H19 wires are stranded around a core of 6201-T81 wires. However, in some designs 1350-H19 and 6201-T81 wires are stranded in the same layer.

Specifications

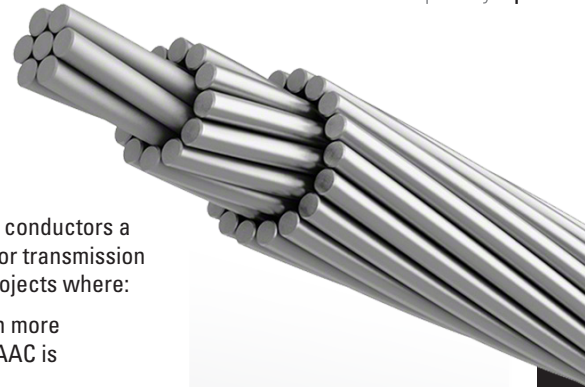
ACAR conductors are manufactured in accordance with the ASTM specifications B230, B398 and B524.

Features

The high strength to weight ratio provided by the 6201-T81

alloy makes ACAR conductors a preferred choice for transmission and distribution projects where:

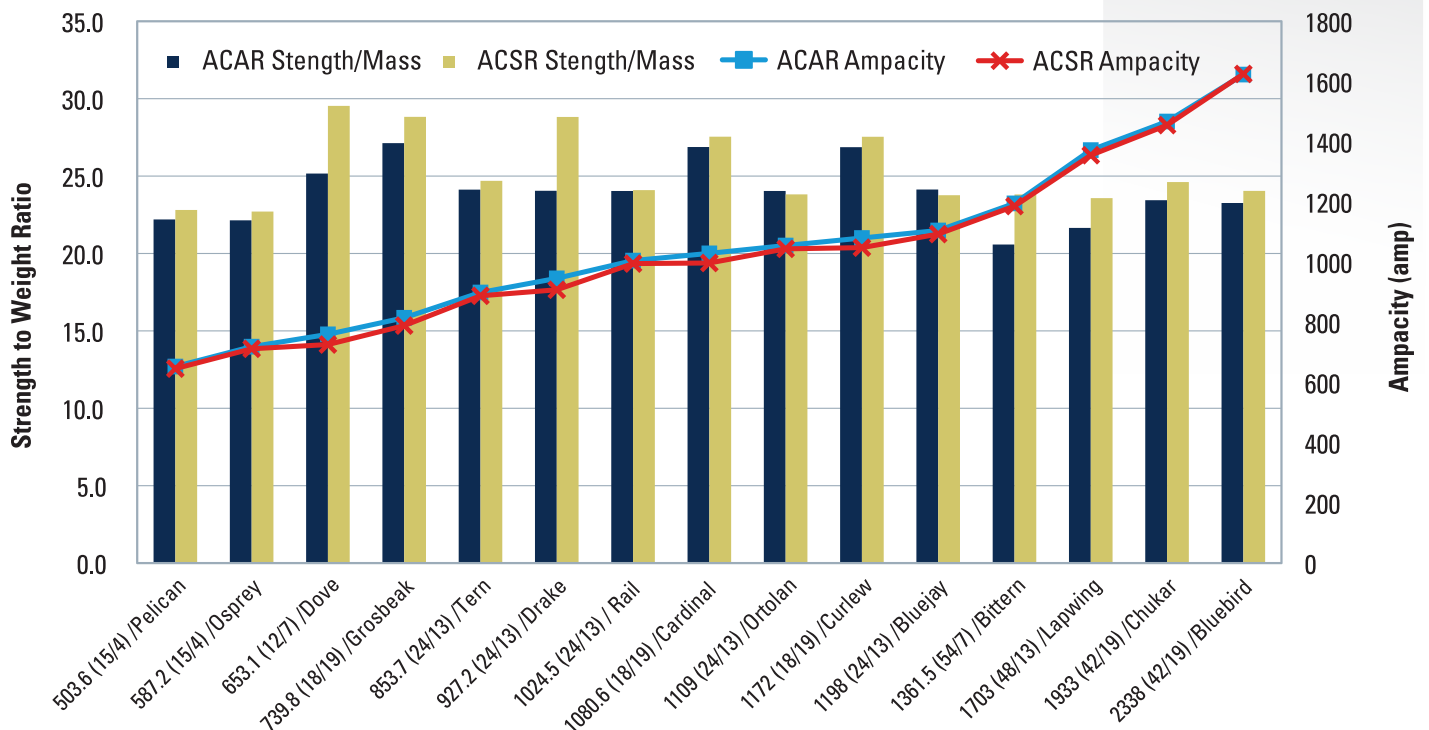
- conductor with more strength than AAC is required;
- conductor with high current capability is preferred over ACSR or AAAC;
- conductor with lower weight than ACSR is desired; and
- conductor with higher corrosion resistance than ACSR is essential.



ALUMINUM CONDUCTOR

Technical Data

ACAR vs Similar Diameter ACSR: Comparison of Strength to Weight Ratios and Ampacities



Technical Data *continued*

ACAR

Code Word	ACAR Size kcmil	Stranding				Cross Sectional Area			Physical Properties			Electrical Properties					
		1350-H19		6201-T81		1350-H19	6201-T81	Total	Nominal Conductor Diameter	Rated Strength	Nominal Mass	Resistance			Reactance		
		No.	Diameter	No.	Diameter							dc 20 °C	ac 25 °C	ac 75 °C	Capacitive	Inductive	GMR
			in		in	in ²			in	kip	lb/kft	Ω/kft	Ω/kft	Ω/kft	MΩ/kft	Ω/kft	ft
Pelican	503.6	15	0.1628	4	0.1628	0.3122	0.0833	0.3955	0.814	10.5	473	0.0354	0.0364	0.0433	0.531	0.0841	0.0257
Osprey	587.2	15	0.1758	4	0.1758	0.3641	0.0971	0.4612	0.879	12.2	551	0.0303	0.0312	0.0371	0.518	0.0824	0.0277
Dove	649.5	18	0.1325	19	0.1325	0.2482	0.2620	0.5102	0.927	16.6	608	0.0287	0.0295	0.0349	0.509	0.0812	0.0292
Dove	653.1	12	0.1854	7	0.1854	0.3240	0.1890	0.5130	0.927	15.4	612	0.0279	0.0288	0.0341	0.509	0.0811	0.0293
Grosbeak	739.8	18	0.1414	19	0.1414	0.2827	0.2983	0.5810	0.990	18.8	693	0.0252	0.0259	0.0307	0.499	0.0793	0.0317
Tern	853.7	30	0.1519	7	0.1519	0.5437	0.1268	0.6705	1.063	17.5	801	0.0208	0.0216	0.0257	0.488	0.0777	0.0340
Tern	853.7	24	0.1519	13	0.1519	0.4349	0.2356	0.6705	1.063	19.3	800	0.0213	0.0222	0.0262	0.488	0.0777	0.0340
Drake	927.2	24	0.1583	13	0.1583	0.4723	0.2559	0.7282	1.108	20.9	869	0.0208	0.0216	0.0252	0.482	0.0767	0.0355
Rail	1024.5	30	0.1664	7	0.1664	0.6524	0.1522	0.8046	1.165	20.9	961	0.0173	0.0182	0.0215	0.474	0.0756	0.0373
Rail	1024.5	24	0.1664	13	0.1664	0.5219	0.2827	0.8046	1.165	23.1	961	0.0178	0.0186	0.0219	0.474	0.0756	0.0373
Cardinal	1080.6	24	0.1709	13	0.1709	0.5505	0.2982	0.8487	1.196	24.4	1013	0.0168	0.0176	0.0208	0.470	0.0750	0.0383
Cardinal	1080.6	18	0.1709	19	0.1709	0.4129	0.4358	0.8487	1.196	27.2	1012	0.0172	0.0181	0.0213	0.470	0.0750	0.0383
Ortolan	1109.0	30	0.1731	7	0.1731	0.7060	0.1647	0.8707	1.212	22.7	1041	0.0160	0.0169	0.0199	0.468	0.0747	0.0388
Ortolan	1109.0	24	0.1731	13	0.1731	0.5648	0.3059	0.8707	1.212	25.0	1040	0.0164	0.0172	0.0203	0.468	0.0747	0.0388
Curlew	1172.0	30	0.1780	7	0.1780	0.7465	0.1742	0.9207	1.246	24.0	1100	0.0152	0.0160	0.0189	0.463	0.0740	0.0399
Curlew	1172.0	18	0.1780	19	0.1780	0.4479	0.4728	0.9207	1.246	29.5	1098	0.0159	0.0166	0.0195	0.463	0.0740	0.0399
Bluejay	1198.0	30	0.1799	7	0.1799	0.7626	0.1779	0.9405	1.259	24.5	1124	0.0148	0.0155	0.0184	0.462	0.0738	0.0403
Bluejay	1198.0	24	0.1799	13	0.1799	0.6101	0.3304	0.9405	1.259	27.1	1123	0.0152	0.0159	0.0188	0.462	0.0738	0.0403
Bunting	1277.0	54	0.1447	7	0.1447	0.8880	0.1151	1.0031	1.302	24.6	1199	0.0138	0.0149	0.0174	0.456	0.0729	0.0419
Bunting	1277.0	42	0.1447	19	0.1447	0.6907	0.3124	1.0031	1.302	28.4	1198	0.0142	0.0152	0.0178	0.456	0.0729	0.0419
Bittern	1361.5	54	0.1494	7	0.1494	0.9466	0.1227	1.0693	1.345	26.3	1278	0.0129	0.0138	0.0163	0.451	0.0721	0.0433
Bobolink	1534.4	42	0.1586	19	0.1586	0.8297	0.3754	1.2051	1.427	33.8	1439	0.0118	0.0127	0.0152	0.442	0.0708	0.0459
Lapwing	1703.0	48	0.1671	13	0.1671	1.0527	0.2851	1.3378	1.504	34.6	1598	0.0105	0.0115	0.0135	0.434	0.0696	0.0484
Falcon	1798.0	42	0.1717	19	0.1717	0.9725	0.4399	1.4124	1.545	39.6	1686	0.0101	0.0110	0.0128	0.430	0.0690	0.0497
Chukar	1933.0	42	0.1780	19	0.1780	1.0452	0.4728	1.5180	1.602	42.5	1813	0.0094	0.0102	0.0122	0.424	0.0682	0.0515
Bluebird*	2338.0	42	0.1958	19	0.1958	1.2646	0.5721	1.8367	1.762	51.5	2214	0.0078	0.0089	0.0103	0.409	0.0660	0.0567
Bluebird*	2338.0	48	0.1958	13	0.1958	1.4453	0.3914	1.8367	1.762	47.5	2215	0.0077	0.0088	0.0102	0.409	0.0660	0.0567
Kingfisher*	2493.0	54	0.1655	37	0.1655	1.1617	0.7959	1.9576	1.821	57.6	2358	0.0074	0.0087	0.0100	0.404	0.0652	0.0587
Kingfisher*	2493.0	72	0.1655	19	0.1655	1.5489	0.4087	1.9576	1.821	50.4	2362	0.0072	0.0085	0.0098	0.404	0.0652	0.0587

The above data are approximate and subject to normal manufacturing tolerances. Other sizes available upon request.
 Direct current resistance is based on electrical resistivity of 16.946 Ω·cmil/ft at 20 °C (61.2% IACS) for 1350-H19 wires and 19.755 Ω·cmil/ft. at 20 °C (52.5% IACS) for 6201 wires.

* Contact CME to review availability.