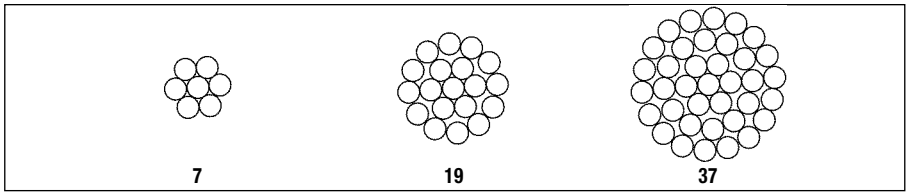
TransPowr® AAAC Bare Overhead Conductor

Aluminum Alloy Conductor Concentric-Lay-Stranded



Product Construction:

Complete Conductor:

AAAC is a high-strength aluminum alloy, concentric-lay-stranded conductor. It is similar in construction and appearance to the AAC all-aluminum conductor.

The AAAC conductor is manufactured in accordance with the requirements of the latest issue of ASTM B399. The AAAC conductor is manufactured from a heat-treated, magnesium-silicide high-strength 6201 T81 aluminum alloy.

The aluminum strands consist of a concentric-stranded cable of 7, 19, 37 or more wires. The sizes and strandings listed are common examples used in overhead lines. Metric (mm) sizes are also available.

Features and Benefits:

Aluminum alloy conductors have a number of advantages over the use of the ACSR or all-aluminum conductors.

- Lower power losses than for equivalent single- aluminum-layer ACSR conductors. (The inductive effect of the steel core in the ACSR is eliminated).
- Simpler fittings than those required for ACSR.
- Excellent corrosion resistance in environments conducive to galvanic corrosion in ACSR.
- Strength and sag approximately the same as for equivalent 6/1 and 26/7 ACSR conductors.
- Outside diameters are the same as for standard ACSR conductors, permitting interchangeability of fittings.
- Greater resistance to abrasion than that for 1350 wires in all-aluminum or ACSR conductors.

Applications:

AAAC aluminum alloy conductors are extensively used for overhead distribution and transmission lines adjacent to ocean coastlines where there can be a problem of corrosion in the steel of an ACSR construction.

The aluminum alloy conductors are used in place of single-layer ACSR conductors (i.e., #6 to #4/0 AWG) to reduce power losses in overhead distribution and transmission lines. The inductive effect of the ACSR's steel core is eliminated, hence increasing the operating efficiency of the line.

Options:

- E3X® surface coating (/E3X)
- Non-specular surface finish (/NS)

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AAAC (MECHANICAL PROPERTIES) - CONDUCTORS SIZED TO HAVE DIAMETER EQUAL TO ACSR (1)									
CODE WORD	SIZE AWG OR kcmil	EQUIVALENT ACSR SIZE (2)	EQUIVALENT AAC SIZE (3)	STRANDING NO. X DIA. INCHES	CLASS	CROSS-SECTION SQ. INCHES	O.D. IN	APPROX. WEIGHT LB/KFT	RATED STRENGTH LBS
Akron	30.6	#6 (Turkey)	#6	7x0.0661	A	0.0240	0.198	28.3	1110
Alton	48.7	#4 (Swan)	#4	7x0.0834	A	0.0382	0.250	45.1	1760
Ames	77.5	#2 (Sparrow)	#2	7x0.1052	A, AA	0.0608	0.316	71.7	2800
Azusa	123.3	1/0 (Raven)	1/0	7x0.1327	A, AA	0.0968	0.398	114.1	4280
Anaheim	155.4	2/0 (Quail)	2/0	7x0.1490	A, AA	0.1221	0.447	143.9	5390
Amherst	195.7	3/0 (Pigeon)	3/0	7x0.1672	A, AA	0.1537	0.502	181.2	6790
Alliance	246.9	4/0 (Penguin)	4/0	7x0.1878	AA	0.1939	0.563	228.6	8560
Butte	312.8	266.8 (Partridge)	266.8	19x0.1283	A	0.2456	0.642	290.9	10500
Canton	394.5	336.4 (Linnet)	336.4	19x0.1441	A, AA	0.3099	0.720	366.9	13300
Cairo	465.4	397.5 (Ibis)	397.5	19x0.1565	AA	0.3655	0.782	432.8	15600
Darien	559.5	477.0 (Hawk)	477.0	19x0.1716	AA	0.4394	0.858	520.3	18800
Elgin	652.4	556.5 (Dove)	556.5	19x0.1853	AA	0.5124	0.926	606.7	21900
Flint	740.8	636.0 (Grosbeak)	636.0	37x0.1415	AA	0.5818	0.990	691.2	24400
Greeley	927.2	795.0 (Drake)	795.0	37x0.1583	AA	0.7282	1.108	865.1	30500

(1) General Cable utilizies an aluminum alloy that meets both the requirements of 6101 T81 and 6201 T81 designation.
(2) Equivalent ACSR Size refers to an ACSR conductor size of equal diameter.
(3) Equivalent AAC Size refers to an ASTM AAC 1350 conductor of approximate equivalent electrical resistance.
Dimensions and weights not designated minimum or maximum are nominal values and subject to manufacturing tolerances. In this context, weight means mass.

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AAAC (ELECTRICAL PROPERTIES) - CONDUCTORS SIZED TO HAVE DIAMETER EQUAL TO ACSR (1)														
CODE WORD	SIZE AWG OR kcmil	EQUIVALENT ACSR SIZE (2)	EQUIVALENT AAC SIZE (3)	STRANDING NO. X DIA. INCHES	CLASS	O.D. IN	RESISTANCE (4) OHMS/KFT			AMPACITY @75°C (5)		GEOMETRIC MEAN RADIUS FT	INDUCTIVE REACTANCE OHM/KFT (6)	CAPACITIVE REACTANCE MEGAOHM/ KFT (6)
							DC @20°C	AC @25°C	AC @75°C	STANDARD	E3X®			
Akron	30.6	#6 (Turkey)	#6	7x0.0661	A	0.198	0.654	0.666	0.779	105	115	0.0060	0.118	0.7512
Alton	48.7	#4 (Swan)	#4	7x0.0834	A	0.250	0.411	0.418	0.489	145	155	0.0076	0.112	0.7148
Ames	77.5	#2 (Sparrow)	#2	7x0.1052	A, AA	0.316	0.258	0.263	0.308	190	205	0.0095	0.107	0.6785
Azusa	123.3	1/0 (Raven)	1/0	7x0.1327	A, AA	0.398	0.162	0.165	0.193	255	280	0.0120	0.102	0.6421
Anaheim	155.4	2/0 (Quail)	2/0	7x0.1490	A, AA	0.447	0.129	0.131	0.153	295	325	0.0135	0.0989	0.6239
Amherst	195.7	3/0 (Pigeon)	3/0	7x0.1672	A, AA	0.502	0.102	0.104	0.122	345	380	0.0152	0.0962	0.6059
Alliance	246.9	4/0 (Penguin)	4/0	7x0.1878	AA	0.563	0.0810	0.0825	0.0966	395	440	0.0170	0.0936	0.5877
Butte	312.8	266.8 (Partridge)	266.8	19x0.1283	A	0.642	0.0642	0.0655	0.0766	460	515	0.0203	0.0896	0.5673
Canton	394.5	336.4 (Linnet)	336.4	19x0.1441	A, AA	0.720	0.0509	0.0520	0.0608	535	595	0.0227	0.0870	0.5492
Cairo	465.4	397.5 (Ibis)	397.5	19x0.1565	AA	0.782	0.0432	0.0441	0.0516	590	665	0.0247	0.0851	0.5362
Darien	559.5	477.0 (Hawk)	477.0	19x0.1716	AA	0.858	0.0359	0.0368	0.0430	665	750	0.0271	0.0829	0.5218
Elgin	652.4	556.5 (Dove)	556.5	19x0.1853	AA	0.926	0.0308	0.0316	0.0369	730	830	0.0292	0.0812	0.5098
Flint	740.8	636.0 (Grosbeak)	636.0	37x0.1415	AA	0.990	0.0272	0.0280	0.0327	790	900	0.0317	0.0793	0.4993
Greeley	927.2	795.0 (Drake)	795.0	37x0.1583	AA	1.108	0.0217	0.0226	0.0263	905	1040	0.0354	0.0768	0.4817

(1) General Cable utilizies an aluminum alloy that meets both the requirements of 6101 T81 and 6201 T81 designation.
(2) Equivalent ACSR Size refers to an ACSR conductor size of equal diameter.
(3) Equivalent AAC Size refers to an ASTM AAC 1350 conductor of approximate equivalent electrical resistance.
(4) Based on a conductivity of 52.5% (minimum lot average) IACS at 20°C. To convert to ohms/mile, multiply by 5.28. To convert of ohms/km, multiply by 3.281.
(5) Based on a conductor temperature of 75°C at 60 Hz and the following conditions: 25°C ambient temperature, 2 ft/sec crosswind (90° to conductor), 0.5 coefficient of emissivity for a standard conductor and 0.9 for a E3X coated conductor, 0.5 coefficient of absorptivity for a standard conductor and 0.2 for a E3X coated conductor, 30° northern latitude, sea level elevation, 90° azimuth of line (East-West), clear atmosphere, and a date and time of noon on July 1 (resulting in 96.0 W/ft^2 of solar and radiated heat). Actual ampacity will differ based on local conditions. For specific ampacities, please contact your General Cable sales representative.
(6) Values for inductive reactance and capacitive reactance are expressed in terms of a 1 ft radius.