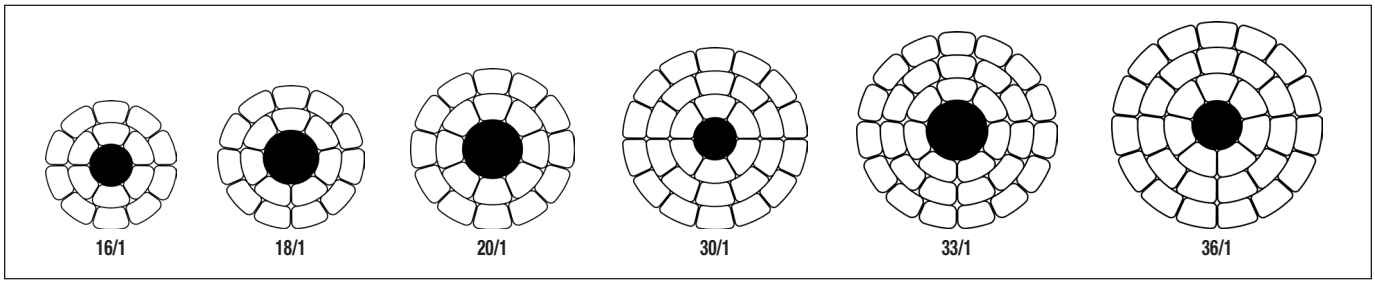
TransPowr® ACCC®/TW Bare Overhead Conductor

Trapezoidal Aluminum Conductor, Composite Core - Concentric-Lay-Stranded



Product Construction:

Complete Conductor:

TransPowr® ACCC®/TW is an aluminum conductor composite core trapezoidal concentric-lay-stranded conductor. The aluminum strands are trapezoidal in shape and enable a more compact placement of the aluminum strand wires. ACCC/TW conductors are designed to maintain the same overall diameter as a conventional round wire ACSR. The compact trapezoidal conductors, coupled with a smaller composite core, result in a TW conductor that has approximately 28% more aluminum cross-sectional area than ACSR.

The design features follow the applicable requirements of ASTM B857 (Shaped Wire Compact Concentric-Lay-Stranded Aluminum Conductors, Coated-Steel Supported (ACSS/TW)). The annealed aluminum strand wires are in accordance to ASTM B609. The composite core strength member is a proprietary high-strength carbon and glass fiber composite core in accordance to ASTM B987, around which are stranded two, three or four layers of the annealed 1350 aluminum wires.

Features and Benefits:

- Doubles the current carrying capacity over conventional ACSR. This can allow a utility to re-conductor existing pathways without structural modifications.
- Can be operated to 180°C versus the existing ACSR with its conventional 75°C limit.
- The composite core has a very low thermal expansion coefficient and as such virtually eliminates high-temperature sag problems.
- The conductor is not affected by long-term creep of the aluminum. The high temperature sag limits are controlled by the composite core.
- The overall mass (weight) of the ACCC/TW conductor, even with the increased aluminum content, can be lighter than the original ACSR conductor it is replacing.
- Uses conventional installation methods and tools familiar to transmission line construction crews.
- May reduce construction costs by allowing the use of fewer support structures. The conductor's higher strength allows longer spans.
- The composite core resists environmental degradation. It will not rust, corrode or cause electrolysis with aluminum conductors or other components.
- With the higher aluminum content, it can offer higher operating efficiencies to help decrease power generation and transmission costs.

Applications:

TransPowr ACCC/TW conductors have been specifically designed for overhead power distribution and transmission lines and are especially useful in re-conductoring applications requiring minimal thermal sag without structure modifications.

Options:

- E3X® surface coating (/E3X)
- Non-Specular surface finish (/NS)
- ULS - Extra High Strength composite carbon fiber core enabling greater strength and lower sag due to ice for use in locations where heavy or extreme ice loading conditions exist (ULS ACCC).

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TRAPEZOIDAL ALUMINUM CONDUCTOR, COMPOSITE CORE, CONCENTRIC-LAY-STRANDED (MECHANICAL PROPERTIES)

CODE WORD (FORMER CODE WORD) (1)	SIZE kcmil	EQUIVALENT ACSR SIZE KCMIL	NO. AL WIRES	COMPOSITE CORE O.D. INCHES	CROSS SECTION SQ. INCHES		O.D. INCHES	APPROX. WEIGHT LBS/1000 FT (2)			RATED STRENGTH LBS	
					TOTAL	AL		TOTAL	AL	CORE	STANDARD	ULS
Oceanside/ACCC/TW (Ostrich/ACCC/TW)	383	300	18	0.235	0.3443	0.3009	0.68	395	360	35	16000	–
Linnet/ACCC/TW	430	336.4	16	0.235	0.3816	0.3382	0.72	439	404	35	16300	–
Oriole/ACCC/TW	439	336.4	18	0.280	0.4062	0.3447	0.74	462	412	50	22100	–
Waco/ACCC/TW	454	–	18	0.305	0.4296	0.3565	0.77	485	427	59	25800	–
Laredo/ACCC/TW	530	–	16	0.280	0.4778	0.4162	0.81	547	498	50	22700	–
Irving/ACCC/TW	609	–	18	0.345	0.5721	0.4786	0.88	648	573	75	33200	39000
Hawk/ACCC/TW	611	477	16	0.280	0.5414	0.4798	0.86	623	573	50	23200	–
Dove/ACCC/TW	714	556.5	18	0.305	0.6334	0.5603	0.93	729	670	59	27400	–
Grosbeak/ACCC/TW	821	636	18	0.320	0.7254	0.6450	0.99	836	771	65	30400	–
Lubbock/ACCC/TW	904	–	18	0.345	0.8035	0.7100	1.04	924	849	75	35100	40800
Galveston/ACCC/TW	1011	–	18	0.345	0.8876	0.7941	1.09	1024	949	75	35700	41500
Drake/ACCC/TW	1026	795	18	0.375	0.9159	0.8055	1.11	1052	963	89	41100	48000
Curlew/ACCC/TW	1053	1033.5	20	0.415	0.9626	0.8273	1.14	1099	990	109	49100	57500
Plano/ACCC/TW	1059	–	33	0.345	0.9258	0.8323	1.13	1074	999	75	36100	41800
Corpus Christi/ACCC/TW	1103	–	33	0.345	0.9596	0.8661	1.15	1115	1040	75	36300	42100
Arlington/ACCC/TW	1151	–	33	0.375	1.0144	0.9040	1.18	1173	1084	89	41900	48800
Cardinal/ACCC/TW	1222	954	33	0.345	1.0529	0.9594	1.20	1224	1149	75	37100	42900
Fort Worth/ACCC/TW	1300	–	33	0.375	1.1317	1.0212	1.24	1312	1223	89	42900	49800
El Paso/ACCC/TW	1350	–	33	0.345	1.1536	1.0601	1.25	1344	1269	75	37900	43700
Beaumont/ACCC/TW	1429	–	33	0.375	1.2328	1.1224	1.30	1436	1347	89	43700	50600
San Antonio/ACCC/TW	1475	–	33	0.385	1.2747	1.1583	1.32	1484	1390	94	45900	53100
Bittern/ACCC/TW	1582	1272	33	0.345	1.3365	1.2431	1.34	1567	1491	75	39400	45200
Dallas/ACCC/TW	1795	–	33	0.385	1.5259	1.4095	1.43	1785	1691	94	47900	55200
Houston/ACCC/TW	1927	–	33	0.415	1.6406	1.5054	1.50	1915	1806	109	54700	63100
Lapwing/ACCC/TW	1949	1590	33	0.385	1.6469	1.5304	1.49	1930	1836	94	48900	56100
Falcon/ACCC/TW	2045	1590	36	0.415	1.7409	1.6056	1.53	2037	1928	109	55400	63800
Chukar/ACCC/TW	2242	1780	33	0.395	1.8841	1.7615	1.59	2212	2113	99	52700	60300
Chukar II/ACCC/TW	2606	1780	30	0.395	2.1689	2.0463	1.70	2555	2456	99	55000	62600
Bluebird/ACCC/TW	2741	2156	33	0.415	2.2880	2.1527	1.75	2691	2582	109	59900	68300

(1) Code words shown denote ACCC/TW with standard composite core. See the Options section to find the appropriate code word modifier designation for alternative design options (e.g., /E3X or /NS). Use the "ULS" prefix (e.g., ULS Drake/ACCC) to denote ULS ACCC designs.
(2) Due to rounding, total values may not exactly equal the sum of the component values.
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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TRAPEZOIDAL ALUMINUM CONDUCTOR, COMPOSITE CORE, CONCENTRIC-LAY-STRANDED (ELECTRICAL PROPERTIES)

CODE WORD (FORMER CODE WORD) (1)	SIZE kcmil	O.D. INCHES	RESISTANCE (3) OHMS/1000 FT			AMPACITY @ 75°C (4)		AMPACITY @ 180°C (4)		GEOMETRIC MEAN RADIUS FT	INDUCTIVE REACTANCE OHMS/1000 FT (5)	CAPACITIVE REACTANCE MEGAOHMS/1000 FT (5)
			DC @ 20°C	AC @ 25°C	AC @ 75°C	STANDARD	E3X®	STANDARD	E3X®			
Oceanside/ACCC/TW (Ostrich/ACCC/TW)	383	0.680	0.0439	0.0449	0.0541	555	620	935	1035	0.0231	0.0866	0.5582
Linnet/ACCC/TW	430	0.720	0.0390	0.0400	0.0481	600	670	1005	1120	0.0243	0.0854	0.5492
Oriole/ACCC/TW	439	0.741	0.0383	0.0393	0.0472	610	685	1025	1140	0.0254	0.0844	0.5448
Waco/ACCC/TW	454	0.770	0.0371	0.0380	0.0457	625	705	1055	1175	0.0265	0.0834	0.5388
Laredo/ACCC/TW	530	0.808	0.0317	0.0326	0.0392	685	770	1155	1290	0.0274	0.0827	0.5313
Irving/ACCC/TW	609	0.882	0.0276	0.0284	0.0341	750	850	1275	1425	0.0303	0.0804	0.5174
Hawk/ACCC/TW	611	0.857	0.0275	0.0283	0.0340	745	845	1265	1410	0.0290	0.0814	0.5219
Dove/ACCC/TW	714	0.927	0.0236	0.0243	0.0292	820	935	1400	1565	0.0313	0.0796	0.5097
Grosbeak/ACCC/TW	821	0.990	0.0205	0.0212	0.0254	895	1020	1530	1720	0.0333	0.0782	0.4995
Lubbock/ACCC/TW	904	1.04	0.0186	0.0193	0.0231	950	1085	1630	1835	0.0351	0.0770	0.4917
Galveston/ACCC/TW	1011	1.09	0.0166	0.0174	0.0208	1015	1165	1750	1970	0.0367	0.0760	0.4841
Drake/ACCC/TW	1026	1.11	0.0164	0.0171	0.0205	1030	1180	1770	1995	0.0375	0.0755	0.4818
Curlew/ACCC/TW	1053	1.14	0.0160	0.0167	0.0199	1050	1205	1810	2040	0.0387	0.0747	0.4778
Plano/ACCC/TW	1059	1.13	0.0159	0.0167	0.0199	1045	1200	1805	2035	0.0380	0.0752	0.4790
Corpus Christi/ACCC/TW	1103	1.15	0.0153	0.0161	0.0192	1070	1230	1850	2090	0.0386	0.0748	0.4763
Arlington/ACCC/TW	1151	1.18	0.0147	0.0154	0.0184	1100	1270	1905	2155	0.0398	0.0741	0.4723
Cardinal/ACCC/TW	1222	1.20	0.0138	0.0146	0.0174	1140	1310	1975	2235	0.0402	0.0739	0.4695
Fort Worth/ACCC/TW	1300	1.24	0.0130	0.0137	0.0164	1185	1365	2055	2330	0.0417	0.0730	0.4641
El Paso/ACCC/TW	1350	1.25	0.0125	0.0133	0.0158	1210	1395	2100	2380	0.0418	0.0730	0.4626
Beaumont/ACCC/TW	1429	1.30	0.0118	0.0126	0.0150	1250	1445	2180	2475	0.0434	0.0721	0.4575
San Antonio/ACCC/TW	1475	1.32	0.0115	0.0123	0.0146	1275	1475	2225	2525	0.0441	0.0717	0.4549
Bittern/ACCC/TW	1582	1.34	0.0107	0.0116	0.0137	1325	1535	2315	2635	0.0448	0.0714	0.4513
Dallas/ACCC/TW	1795	1.43	0.00941	0.0104	0.0122	1426	1660	2510	2860	0.0479	0.0698	0.4413
Houston/ACCC/TW	1927	1.50	0.00881	0.00978	0.0115	1485	1735	2625	3000	0.0502	0.0688	0.4342
Lapwing/ACCC/TW	1949	1.49	0.00866	0.00967	0.0113	1495	1740	2640	3015	0.0496	0.0690	0.4355
Falcon/ACCC/TW	2045	1.53	0.00826	0.00928	0.0109	1535	1795	2725	3115	0.0511	0.0683	0.4310
Chukar/ACCC/TW	2242	1.59	0.00753	0.00864	0.0101	1615	1890	2875	3290	0.0528	0.0676	0.4252
Chukar II/ACCC/TW	2606	1.70	0.00648	0.00773	0.00892	1745	2055	3140	3605	0.0564	0.0661	0.4146
Bluebird/ACCC/TW	2741	1.75	0.00616	0.00743	0.00856	1795	2115	3240	3725	0.0579	0.0655	0.4103

(1) Code words shown denote ACCC/TW with standard composite core. See the Options section to find the appropriate code word modifier designation for alternative design options (e.g., /E3X or /NS). Use the "ULS" prefix (e.g., ULS Drake/ACCC) to denote ULS ACCC designs.
(3) Based on a conductivity of 63.0% IACS at 20°C for aluminum and ignores the effects of the composite core. To convert to ohms/mile, multiply by 5.28. To convert to ohms/km, multiply by 3.281.
(4) Based on the following conditions, 60 Hz, 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/ft² of solar and sky radiated heat). Actual ampacity will differ based on local conditions. For specific ampacities, please contact your General Cable sales representative.
(5) Values for inductive reactance and capacitive reactance are expressed in terms of a 1 ft radius.
Dimensions and weights not designated minimum or maximum are nominal values and subject to manufacturing tolerances. In this context, weight means mass.