Southwire®

C7® OVERHEAD CONDUCTOR BROCHURE

SOUTHWIRE.COM

INNOVATION STARTS AT THE CORE

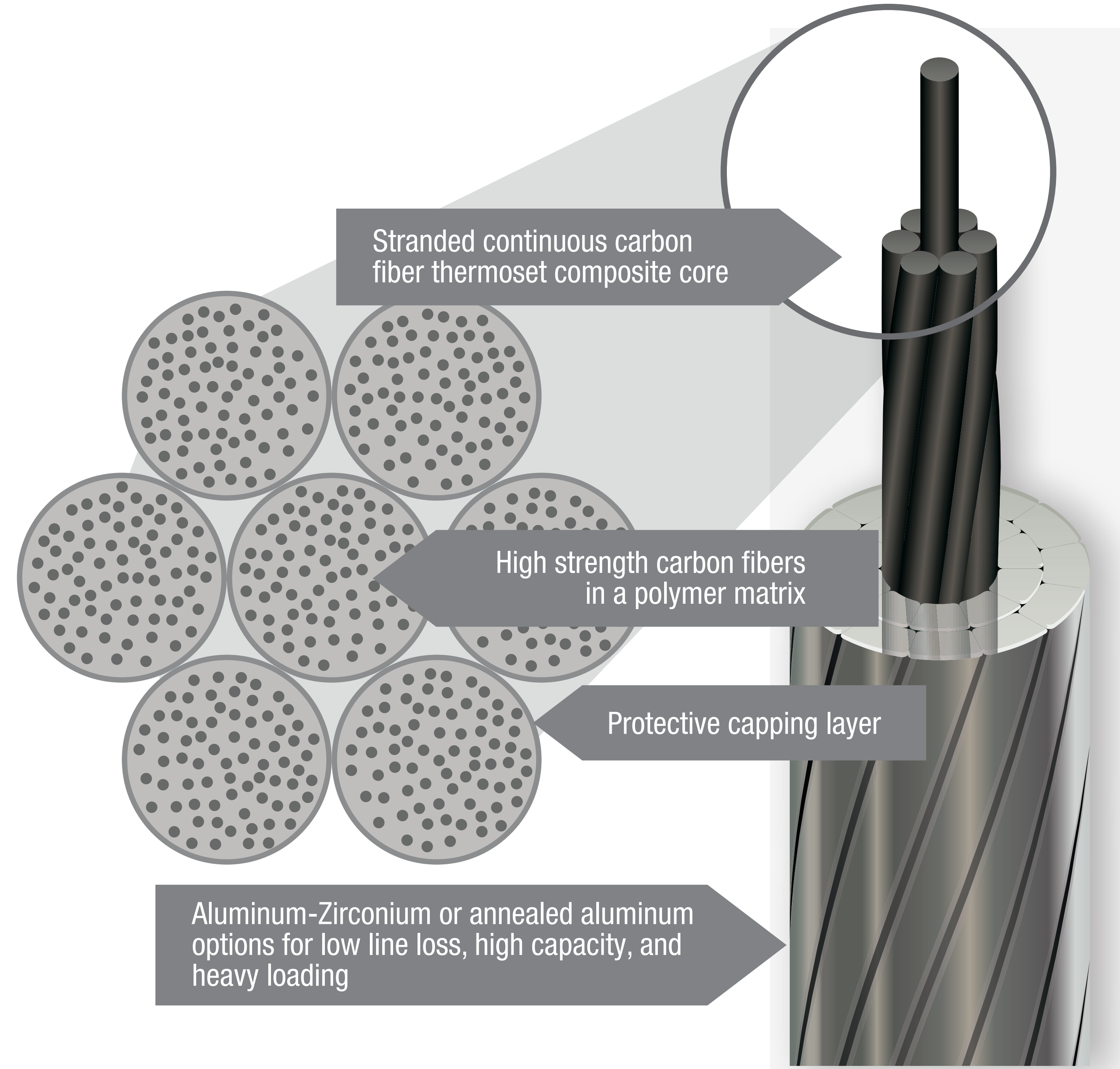
Lighter, Stronger, Tougher.
Southwire is revolutionizing the industry with its innovative $C^{7®}$ Overhead Conductor. With its unique stranded construction, Southwire's $C^{7®}$ Overhead Conductor is the most durable, rugged, and reliable composite core conductor on the market - and the only composite core conductor developed by a conductor manufacturer with full knowledge of utility needs and practices.

INTRODUCING C7®
OVERHEAD CONDUCTOR

- **Minimal Thermal Expansion** – minimal sag increase at high power transfer
- **Stranded Core** – no single point of failure
- **Flexible** – robust, installs like traditional conductor
- **Less Sag** – for lines with clearance or structure limitations
- **Easy Installation** – uses traditional methods and familiar hardware
- **Designs For All Loading Conditions** – light loading to heavy ice loading
- **Trapezoidal Wire (TW) or Round Wire Available**
- **Aluminum-Zirconium (Al-Zr) or Annealed Aluminum (1350-O Temper)**

New Lines:
Reduce new line costs by saving on structures and foundations. Cross challenging terrain or reduce the visual profile in sensitive areas. Build for the future with high capacity, low sag lines.

Reconductoring:
Double the capacity of existing ACSR lines. Light conductor weight and low sag allow use of existing structures and ROW, even for lines previously designed with all-aluminum or aluminum alloy (AAC, AAAC, ACAR) conductors.



PERFORMANCE ADVANTAGES

Proven Robust Materials

- Matrix materials have been used in demanding environments for over 50 years
- Resists harsh chemicals, high temperatures, and corrosion
- Resistant to abrasion and high-tension fatigue

Low Sag

- Minimal sag increase at high temperature
- For lines with clearance or structure limitations
- Reduce land requirements, structure size and height, and foundation costs
- Overcome objections to high-visual-profile lines
- Capacity for future system rating increases without sag increase consideration

Stranded Core

- Multi-strand, NO single-point of failure like single-rod designs
- More flexible than single-rod core designs
- Increased tolerance for bending

Suitable for Extreme Weather Loading

- Al-Zr option bolsters carbon fiber to carry heavy ice and wind loads with low sag

Increase Capacity

- Double the capacity of same-diameter ACSR round-wire conductor
- 180°C continuous, 200°C emergency ratings are material property based
- No losses due to core magnetization

Conventional Installation & Inspection

- Uses standard work practices and traditional hardware
- Same stringing blocks and installation equipment as ACSS

CASE STUDY: RECONDUCTORING

C7® Overhead Conductor Solves Erosion Issue:
A utility in the U.S. was planning to reconductor an existing 138 kV transmission line in a residential area to address encroaching erosion at a nearby river. To prevent issues related to river bank erosion near a structure, the utility was planning to move the structure further inland. The move would increase the river crossing span by approximately 550 feet, to 1,840 feet. The existing conductor was 795.0 kcmil 26/7 ACSR "Drake". The conductor solution was required to maintain existing clearances (design considerations limited sag to 40 feet) while also maintaining existing ampacity and tensions. The design considered NESC "Heavy" loading with an additional Extreme Ice/Wind load.

C7® Overhead Conductor was pinpointed early on for its high-temperature, low-sag properties and its corrosion resistance. The proposed solution utilized a 7-strand carbon fiber thermoset core with trapezoidal-shaped annealed aluminum strands. Due to its high conductivity and high temperature rating, the C7® overhead conductor solution, 477.0 kcmil Type 23 Capitol Reef/ACCS/TW/C7-TS, required 40% less aluminum to maintain the existing rating. The high strength of the carbon fiber composite core also allowed for a 16% smaller core to be used.

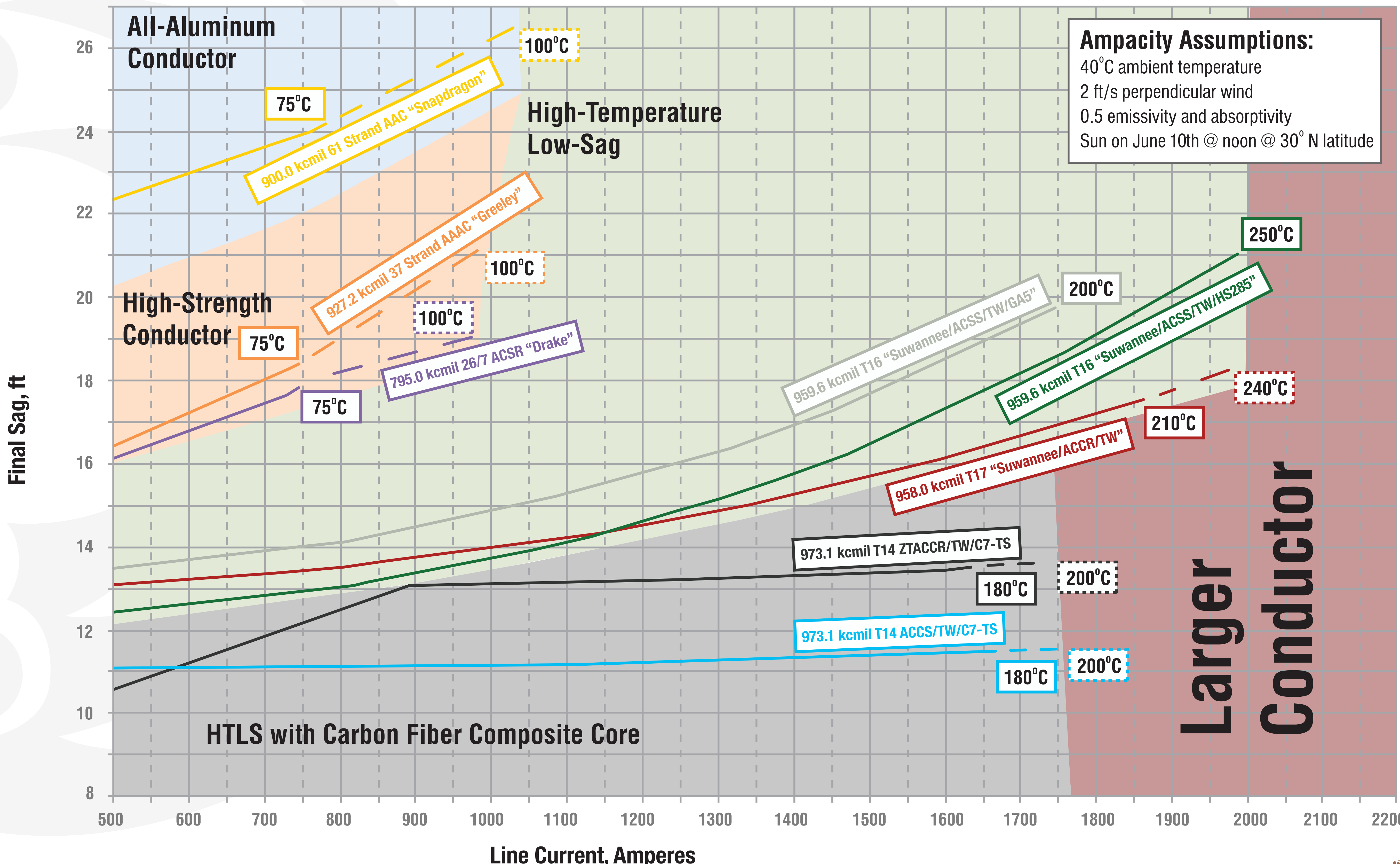
Showing Up and Showing Out:
Using the C7® overhead conductor solution, the sag in the 1,840-ft span decreased by 66% compared to the existing Drake. Conductor weight also decreased by 53%.

Conductor Type	Size kcmil	Stranding/ Type No.	Outside Diameter in	Weight lb/ft	RBS lb	Evaluation Results					
						Max Tension		Loaded Weight lb/ft	Cond. Temp. °C	Current A	Final Sag ft
						lb	%RBS				
ACSR*	795.0	26/7	1.108	1.093	31,500	12,480	40%	2.963	100	994	98.01
ACCS/TW/C7-TS	477.0	23	0.818	0.511	29,100	12,027	41%	2.128	180	1049	33.59

*Sag-tension results assume movement of the structure and use of existing Drake

COMPARING THE
ALTERNATIVES

Conductor Performance Map, 1.108" OD, 800-ft RS, NESC "Medium", NESC Tension Limits



Shaped Wire Concentric-Lay-Stranded Compact Aluminum Conductor, Composite Supported (ACCS/TW/C7®-TS)

Code Word	Conductor Size, kcmil	Type No.	Cross-Sectional Area, in²		Layers of Al	Stranding		Diameter		Weight/1000 feet			RBS, lb	Resistance				GMR, ft	Reactance @ 1 ft Spacing 60 Hz		Ampacity		Type No.	Conductor Size, kcmil	Code Word
			Al	Total		No. of Al Strands	C7 Strands, in	C7 Core, in	Complete Conductor, in	Al, lb	C7, lb	Total, lb		dc @ 20°C, Ω/mile	ac–60 Hz @ 25°C, Ω/mile	ac–60 Hz @ 180°C, Ω/mile	ac–60 Hz @ 200°C, Ω/mile		Inductive Xa, Ω/mile	Capacitive X'a, MΩ-mile	@ 180°C, A	@ 200°C, A			
Fundy/TW	203.2	43	0.1596	0.2280	1	8	7 x 0.1115	0.3346	0.585	194.2	48.2	242.4	22,100	0.4445	0.4539	0.7402	0.7771	0.0205	0.4719	0.1102	644	677	21	203.2	Fundy/TW
Shenandoah/TW	266.8	21	0.2095	0.2533	1	8	7 x 0.0892	0.2677	0.608	255.0	30.9	285.8	15,000	0.3387	0.3461	0.5642	0.5924	0.0204	0.4724	0.1090	746	784	17	266.8	Shenandoah/TW
Olympic/TW	325.0	17	0.2553	0.2990	2	20	7 x 0.0892	0.2677	0.671	309.2	30.9	340.1	15,400	0.2769	0.2831	0.4614	0.4844	0.0231	0.4572	0.1061	851	894	17	325.0	Olympic/TW
Wrangell/TW	336.4	17	0.2642	0.3080	2	20	7 x 0.0892	0.2677	0.681	320.1	30.9	351.0	15,500	0.2675	0.2736	0.4458	0.4680	0.0234	0.4558	0.1057	869	914	22	336.4	Wrangell/TW
Badlands/TW	336.4	22	0.2642	0.3218	2	20	7 x 0.1024	0.3071	0.685	320.1	40.6	360.7	19,700	0.2675	0.2735	0.4456	0.4679	0.0239	0.4530	0.1055	871	916	14	336.4	Badlands/TW
Andes/TW	397.5	14	0.3122	0.3560	2	18	7 x 0.0892	0.2677	0.710	378.1	30.9	408.9	15,900	0.2263	0.2317	0.3772	0.3960	0.0238	0.4537	0.1044	957	1006	16	397.5	Andes/TW
Joshua Tree/TW	397.5	16	0.3122	0.3627	2	18	7 x 0.0958	0.2874	0.718	373.5	35.6	409.1	17,900	0.2235	0.2288	0.3726	0.3912	0.0243	0.4513	0.1041	966	1016	22	397.5	Joshua Tree/TW
Sequoia/TW	397.5	22	0.3122	0.3806	2	18	7 x 0.1115	0.3346	0.738	378.1	48.2	426.3	23,400	0.2262	0.2315	0.3771	0.3958	0.0254	0.4457	0.1033	969	1019	13	397.5	Sequoia/TW
Rogers/TW	477.0	13	0.3746	0.4251	2	18	7 x 0.0958	0.2874	0.778	447.4	35.6	483.3	18,400	0.1861	0.1908	0.3104	0.3259	0.0260	0.4429	0.1017	1085	1141	15	477.0	Rogers/TW
Yosemite/TW	477.0	15	0.3746	0.4322	2	18	7 x 0.1024	0.3071	0.787	453.7	40.6	494.3	20,600	0.1886	0.1933	0.3145	0.3301	0.0265	0.4406	0.1014	1082	1138	23	477.0	Yosemite/TW
Capitol Reef/TW	477.0	23	0.3746	0.4601	2	20	7 x 0.1247	0.3740	0.820	450.4	60.2	510.6	29,100	0.1872	0.1917	0.3120	0.3276	0.0287	0.4308	0.1002	1100	1157	10	477.0	Capitol Reef/TW
Tortugas/TW	636.0	10	0.4995	0.5500	2	20	7 x 0.0958	0.2874	0.880	596.7	35.6	632.3	19,400	0.1395	0.1437	0.2331	0.2447	0.0295	0.4276	0.0981	1300	1369	12	636.0	Tortugas/TW
Yellowstone/TW	636.0	12	0.4995	0.5571	2	16	7 x 0.1024	0.3071	0.887	605.4	40.6	646.0	21,600	0.1415	0.1457	0.2364	0.2482	0.0297	0.4268	0.0978	1294	1363	15	636.0	Yellowstone/TW
Glacier/TW	636.0	15	0.4995	0.5762	2	20	7 x 0.1181	0.3543	0.905	605.2	54.1	659.2	27,400	0.1415	0.1455	0.2362	0.2480	0.0310	0.4214	0.0972	1303	1372	22	636.0	Glacier/TW
Carlsbad/TW	636.0	22	0.4995	0.6100	2	20	7 x 0.1417	0.4252	0.937	605.2	77.8	683.0	36,900	0.1415	0.1452	0.2361	0.2478	0.0328	0.4147	0.0962	1318	1388	11	636.0	Carlsbad/TW
Congaree/TW	641.7	11	0.5040	0.5616	2	16	7 x 0.1024	0.3071	0.890	610.8	40.6	651.4	21,600	0.1403	0.1444	0.2344	0.2460	0.0298	0.4264	0.0977	1302	1371	10	641.7	Congaree/TW
Vinson/TW	714.0	10	0.5608	0.6184	2	16	7 x 0.1024	0.3071	0.933	669.9	40.6	710.5	22,100	0.1243	0.1283	0.2078	0.2181	0.0311	0.4213	0.0963	1403	1477	7	714.0	Vinson/TW
Kilimanjaro/TW	795.0	7	0.6244	0.6682	2	20	7 x 0.0892	0.2677	0.962	745.1	30.9	776.0	18,400	0.1115	0.1156	0.1868	0.1961	0.0316	0.4191	0.0954	1493	1574	9	795.0	Kilimanjaro/TW
Alps/TW	795.0	9	0.6244	0.6820	2	20	7 x 0.1024	0.3071	0.974	756.5	40.6	797.1	22,600	0.1132	0.1172	0.1895	0.1989	0.0325	0.4158	0.0950	1489	1568	12	795.0	Alps/TW
Wind Cave/TW	795.0	12	0.6244	0.7011	2	20	7 x 0.1181	0.3543	0.990	756.5	54.1	810.5	28,400	0.1132	0.1170	0.1894	0.1988	0.0335	0.4119	0.0946	1497	1577	16	795.0	Wind Cave/TW
Denali/TW	795.0	16	0.6244	0.7268	2	20	7 x 0.1365	0.4094	1.010	747.0	72.2	819.2	36,200	0.1118	0.1153	0.1869	0.1961	0.0348	0.4075	0.0940	1516	1598	22	795.0	Denali/TW
Rocky/TW	795.0	22	0.6244	0.7607	2	24	7 x 0.1575	0.4724	1.044	756.3	96.1	852.4	45,600	0.1132	0.1165	0.1891	0.1984	0.0367	0.4010	0.0930	1523	1605	7	795.0	Rocky/TW
Crater Lake/TW	954.0	7	0.7493	0.7997	3	34	7 x 0.0958	0.2874	1.058	898.6	35.6	934.1	21,300	0.0934	0.0975	0.1569	0.1646	0.0343	0.4091	0.0926	1679	1770	12	954.0	Crater Lake/TW
Grand Canyon/TW	954.0	10	0.7493	0.8260	3	34	7 x 0.1181	0.3543	1.072	899.4	54.1	953.5	29,300	0.0935	0.0973	0.1568	0.1645	0.0356	0.4047	0.0922	1686	1778	16	954.0	Grand Canyon/TW
Fuji/TW	954.0	12	0.7493	0.8421	2	20	7 x 0.1299	0.3898	1.077	907.8	65.4	973.2	34,300	0.0943	0.0980	0.1581	0.1659	0.0365	0.4015	0.0921	1682	1773	20	954.0	Fuji/TW
Jasper/TW	954.0	16	0.7493	0.8680	2	22	7 x 0.1470	0.4409	1.104	896.4	83.7	980.1	41,400	0.0931	0.0966	0.1560	0.1637	0.0376	0.3983	0.0913	1706	1799	14	954.0	Jasper/TW
Arches/TW	954.0	20	0.7493	0.8972	2	20	7 x 0.1640	0.4921	1.126	907.8	104.3	1012.0	50,100	0.0943	0.0976	0.1579	0.1657	0.0393	0.3928	0.0907	1707	1800	5	954.0	Arches/TW
Everglades/TW	973.1	14	0.7643	0.8747	2	20	7 x 0.1417	0.4252	1.108	925.9	77.8	1003.8	39,000	0.0925	0.0960	0.1550	0.1626	0.0379	0.3971	0.0912	1714	1808	7	973.1	Everglades/TW
Big Bend/TW	1033.5	5	0.8117	0.8555	3	34	7 x 0.0892	0.2677	1.093	972.5	30.9	1003.4	19,800	0.0861	0.0904	0.1450	0.1521	0.0351	0.4064	0.0916	1765	1861	13	1033.5	Big Bend/TW
Lassen/TW	1033.5	7	0.8117	0.8693	3	34	7 x 0.1024	0.3071	1.103	973.4	40.6	1014.0	24,000	0.0862	0.0903	0.1450	0.1521	0.0359	0.4037	0.0914	1770	1866	5	1033.5	Lassen/TW
Tahoe/TW	1033.5	11	0.8117	0.8972	3	34	7 x 0.1247	0.3740	1.118	980.9	60.2	1041.2	32,500	0.0869	0.0907	0.1459	0.1530	0.0372	0.3995	0.0910	1772	1869	7	1033.5	Tahoe/TW
Samoa/TW	1033.5	13	0.8117	0.9141	2	22	7 x 0.1365	0.4094	1.130	970.1	72.2	1042.3	37,800	0.0859	0.0895	0.1442	0.1513	0.0378	0.3973	0.0906	1788	1886	13	1033.5	Samoa/TW
Cook/TW	1113.0	5	0.8741	0.9179	3	30	7 x 0.0892	0.2677	1.125	1047.3	30.9	1078.2	20,200	0.0800	0.0844	0.1349	0.1415	0.0355	0.4051	0.0908	1846	1948	5	1113.0	Cook/TW
Blanc/TW	1113.0	7	0.8741	0.9318	3	34	7 x 0.1024	0.3071	1.139	1048.3	40.6	1088.9	24,500	0.0800	0.0843	0.1349	0.1415	0.0370	0.4002	0.0904	1854	1955	7	1113.0	Blanc/TW
Niagara/TW	1113.0	10	0.8741	0.9596	3	34	7 x 0.1247	0.3740	1.155	1049.3	60.2	1109.6	32,900	0.0801	0.0840	0.1348	0.1414	0.0383	0.3960	0.0900	1862	1965	13	1113.0	Niagara/TW
Gannett/TW	1113.0	13	0.8741	0.9846	3	38	7 x 0.1417	0.4252	1.181	1050.9	77.8	1128.7	39,800	0.0802	0.0839	0.1348	0.1415	0.0400	0.3907	0.0893	1875	1978	7	1113.0	Gannett/TW
Washington/TW	1192.5	5	0.9366	0.9804	3	34	7 x 0.0892	0.2677	1.166	1122.1	30.9	1153.0	20,700	0.0746	0.0792	0.1262	0.1323	0.0372	0.3994	0.0897	1931	2037	13	1192.5	Washington/TW
Elbert/TW	1192.5	7	0.9366	1.0050	3	34	7 x 0.1115	0.3346	1.184	1123.2	48.2	1171.4	28,200	0.0747	0.0789	0.1261	0.1322	0.0386	0.3949	0.0893	1941	2048	5	1192.5	Elbert/TW
Kings Canyon/TW	1192.5	10	0.9366	1.0294	3	34	7 x 0.1299	0.3898	1.203	1124.3	65.4	1189.7	35,700	0.0748	0.0787	0.1260	0.1321	0.0398	0.3910	0.0888	1951	2059	7	1192.5	Kings Canyon/TW
Acadia/TW	1192.5	13	0.9366	1.0554	3	38	7 x 0.1470	0.4409	1.223	1125.9	83.7	1209.7	42,700	0.0749	0.0786	0.1260	0.1322	0.0414	0.3865	0.0883	1962	2070	13	1192.5	Acadia/TW
Redwood/TW	1233.6	7	0.9689	1.0373	3	36	7 x 0.1115	0.3346	1.207	1161.9	48.2	1210.1	28,500	0.0722	0.0765	0.1220	0.1279	0.0395	0.3922	0.0887	1985	2095	7	1233.6	Redwood/TW
Mesa Verde/TW	1233.6	10	0.9689	1.0617	3	38	7 x 0.1299	0.3898	1.221	1163.0	65.4	1228.5	35,900	0.0723	0.0763	0.1219	0.1279	0.0407	0.3886	0.0883	1993	2104	10	1233.6	Mesa Verde/TW
Biscayne/TW	1233.6	13	0.9689	1.0963	3	38	7 x 0.1522	0.4567	1.245	1164.7	89.8	1254.5	45,600	0.0724	0.0760	0.1219	0.1278	0.0422	0.3840	0.0878	2006	2117	13	1233.6	Biscayne/TW
Saguaro/TW	1272.0	5	0.9990	1.0495	3	38	7 x 0.0958	0.2874	1.211	1196.9	35.6	1232.5	23,300	0.0700	0.0745	0.1185	0.1242	0.0390	0.3938	0.0886	2017	2129	7	1272.0	Saguaro/TW
Sierra Nevada/TW	1272.0	7	0.9990	1.0674	3	38	7 x 0.1115	0.3346	1.224	1198.1	48.2	1246.3	28,700	0.0700	0.0744	0.1184	0.1242	0.0400	0.3906	0.0883	2024	2136	12	1272.0	Sierra Nevada/TW
Eldorado/TW	1272.0	10	0.9990	1.1014	3	38	7 x 0.1365	0.4094	1.244	1199.3	72.2	1271.4	39,100	0.0701	0.0740	0.1183	0.1240	0.0416	0.3859	0.0878	2036	2149	5	1272.0	Eldorado/TW
Voyageurs/TW	1272.0	13	0.9990	1.1264	3	39	7 x 0.1522	0.4567	1.259	1201.0	89.8	1290.8	45,800	0.0702	0.0739	0.1183	0.1241	0.0429	0.3820	0.0874	2043	2157	8	1272.0	Voyageurs/TW
Cascades/TW	1351.5	7	1.0615	1.1382	3	38	7 x 0.1181	0.3543	1.264	1273.0	54.1	1327.0	31,800	0.0659	0.0703	0.1116	0.1170	0.0414	0.3863	0.0873	2106	2224	7	1351.5	Cascades/TW
Banff/TW	1351.5	10	1.0615	1.1639	3	42	7 x 0.1365	0.4094	1.278	1274.2	72.2	1346.4	39,600	0.0660	0.0700	0.1116	0.1170	0.0429	0.3820	0.0870	2114	2232	13	1351.5	Banff/TW
Elbrus/TW	1351.5	13	1.0615	1.1978	3	42	7 x 0.1575	0.4724	1.299	1276.1	96.1	1372.2	49,000	0.0661	0.0698	0.1115	0.1169	0.0443	0.3781	0.0865	2126	2244	7	1351.5	Elbrus/TW
Bryce Canyon/TW	1590.0	7	1.2488	1.3342	3	36	7 x 0.1247	0.3740	1.357	1497.6	60.2	1557.8	35,900	0.0560	0.0607	0.0955	0.1001	0.0437	0.3799	0.0852	2329	2461	10	1590.0	Bryce Canyon/TW
Adirondack/TW	1590.0	10	1.2488	1.3762	3	38	7 x 0.1522	0.4567	1.386	1499.1	89.8	1588.9	47,800	0.0561	0.0603	0.0953	0.0999	0.0463	0.3727	0.0846	2348	2480	13	1590.0	Adirondack/TW
Zion/TW	1590.0	12	1.2488	1.3967	3	42	7 x 0.1640	0.4921	1.405	1509.4	104.3	1613.7	53,900	0.0565	0.0605	0.0958	0.1004	0.0477	0.3692	0.0842	2352	2485	7	1590.0	Zion/TW
Teton/TW	1780.0	5	1.3980	1.4747	3	38	7 x 0.1181	0.3543	1.422	1674.9	54.1	1729.0	34,400	0.0500	0.0552	0.0859	0.0899	0.0460	0.3737	0.0838	2493	2636	12	1780.0	Teton/TW
Everest/TW	1780.0	8	1.3980	1.5084	3	38	7 x 0.1417	0.4252	1.441	1674.1	77.8	1751.9	43,900	0.0500	0.0547	0.0856	0.0896	0.0475	0.3697	0.0834	2509	2652	5	1780.0	Everest/TW
Katmai/TW	1780.0	10	1.3980	1.5344	3	38	7 x 0.1575	0.4724	1.463	1678.2	96.1	1774.3	51,600	0.0501	0.0546	0.0856	0.0897	0.0488	0.3665	0.0830	2521	2665	8	1780.0	Katmai/TW

Notes: (1) The final design of a TW conductor is contingent upon several factors such as: layer diameter, wire width, and wire thickness. This may result in a slight variation in the number of wires, number of layers, and outside diameter from that shown in the table.
(2) Resistance and ampacity based on an aluminum conductivity of 63'% IACS at 20°C.
(3) Ampacity based on 25°C ambient temperature, 2 ft/s perpendicular wind, 0.5 emissivity, 0.5 absorptivity, 60 Hz, clear atmosphere, sea level, 30° N. latitude, N-S line azimuth, noon on June 10th.

Shaped Wire Concentric-Lay-Stranded Compact Thermal-Resistant Aluminum Conductor, Composite Reinforced (ZTACCR/TW/C7®-TS)

Code Word	Conductor Size, kcmil	Type No.	Cross-Sectional Area, in² Al-Zr	Cross-Sectional Area, in² Total	Layers of Al-Zr	Stranding No. of Al-Zr Strands	Stranding C7 Strands, in	Diameter C7 Core, in	Diameter Complete Conductor, in	Weight/1000 feet Al-Zr, lb	Weight/1000 feet C7, lb	Weight/1000 feet Total, lb	RBS, lb	Resistance dc @ 20°C, Ω/mile	Resistance ac–60 Hz @ 25°C, Ω/mile	Resistance ac–60 Hz @ 180°C, Ω/mile	Resistance ac–60 Hz @ 200°C, Ω/mile	GMR, ft	Reactance @ 1 ft Spacing 60 Hz Inductive Xa, Ω/mile	Reactance @ 1 ft Spacing 60 Hz Capacitive X'a, MΩ-mile	Ampacity @ 180°C, A	Ampacity @ 200°C, A	Type No.	Conductor Size, kcmil	Code Word
Fundy/TW	203.2	43	0.1596	0.2280	1	8	7 x 0.1115	0.3346	0.585	194.2	48.2	242.4	21,600	0.4666	0.4761	0.7650	0.8023	0.0205	0.4719	0.1102	634	666	21	203.2	Fundy/TW
Shenandoah/TW	266.8	21	0.2095	0.2533	1	8	7 x 0.0892	0.2677	0.608	255.0	30.9	285.8	18,000	0.3555	0.3630	0.5831	0.6115	0.0204	0.4724	0.1090	734	772	17	266.8	Shenandoah/TW
Olympic/TW	325.0	17	0.2553	0.2990	2	20	7 x 0.0892	0.2677	0.671	309.2	30.9	340.1	19,200	0.2906	0.2969	0.4768	0.5000	0.0231	0.4572	0.1061	837	880	17	325.0	Olympic/TW
Wrangell/TW	336.4	17	0.2642	0.3080	2	20	7 x 0.0892	0.2677	0.681	320.1	30.9	351.0	19,200	0.2808	0.2869	0.4607	0.4831	0.0234	0.4558	0.1057	855	899	22	336.4	Wrangell/TW
Badlands/TW	336.4	22	0.2642	0.3218	2	20	7 x 0.1024	0.3071	0.685	320.1	40.6	360.7	23,400	0.2807	0.2868	0.4606	0.4830	0.0239	0.4530	0.1055	857	901	14	336.4	Badlands/TW
Andes/TW	397.5	14	0.3122	0.3560	2	18	7 x 0.0892	0.2677	0.710	378.1	30.9	408.9	20,300	0.2375	0.2429	0.3899	0.4088	0.0238	0.4537	0.1044	941	990	16	397.5	Andes/TW
Joshua Tree/TW	397.5	16	0.3122	0.3627	2	18	7 x 0.0958	0.2874	0.718	373.5	35.6	409.1	22,300	0.2346	0.2399	0.3851	0.4038	0.0243	0.4513	0.1041	950	1000	22	397.5	Joshua Tree/TW
Sequoia/TW	397.5	22	0.3122	0.3806	2	18	7 x 0.1115	0.3346	0.738	378.1	48.2	426.3	27,800	0.2375	0.2427	0.3897	0.4086	0.0254	0.4457	0.1033	953	1003	13	397.5	Sequoia/TW
Rogers/TW	477.0	13	0.3746	0.4251	2	18	7 x 0.0958	0.2874	0.778	447.4	35.6	483.3	23,600	0.1953	0.2001	0.3208	0.3364	0.0260	0.4429	0.1017	1067	1123	15	477.0	Rogers/TW
Yosemite/TW	477.0	15	0.3746	0.4322	2	18	7 x 0.1024	0.3071	0.787	453.7	40.6	494.3	25,700	0.1979	0.2026	0.3250	0.3408	0.0265	0.4406	0.1014	1064	1120	23	477.0	Yosemite/TW
Capitol Reef/TW	477.0	23	0.3746	0.4601	2	20	7 x 0.1247	0.3740	0.820	450.4	60.2	510.6	34,200	0.1965	0.2010	0.3225	0.3382	0.0287	0.4308	0.1002	1082	1139	10	477.0	Capitol Reef/TW
Tortugas/TW	636.0	10	0.4995	0.5500	2	20	7 x 0.0958	0.2874	0.880	596.7	35.6	632.3	26,300	0.1464	0.1506	0.2409	0.2526	0.0295	0.4276	0.0981	1279	1348	12	636.0	Tortugas/TW
Yellowstone/TW	636.0	12	0.4995	0.5571	2	16	7 x 0.1024	0.3071	0.887	605.4	40.6	646.0	28,200	0.1486	0.1527	0.2443	0.2562	0.0297	0.4268	0.0978	1273	1342	15	636.0	Yellowstone/TW
Glacier/TW	636.0	15	0.4995	0.5762	2	20	7 x 0.1181	0.3543	0.905	605.2	54.1	659.2	34,300	0.1485	0.1525	0.2441	0.2560	0.0310	0.4214	0.0972	1282	1351	22	636.0	Glacier/TW
Carlsbad/TW	636.0	22	0.4995	0.6100	2	20	7 x 0.1417	0.4252	0.937	605.2	77.8	683.0	41,300	0.1485	0.1523	0.2440	0.2558	0.0328	0.4147	0.0962	1296	1366	11	636.0	Carlsbad/TW
Congaree/TW	641.7	11	0.5040	0.5616	2	16	7 x 0.1024	0.3071	0.890	610.8	40.6	651.4	28,300	0.1472	0.1513	0.2422	0.2539	0.0298	0.4264	0.0977	1280	1349	10	641.7	Congaree/TW
Vinson/TW	714.0	10	0.5608	0.6184	2	16	7 x 0.1024	0.3071	0.933	669.9	40.6	710.5	29,500	0.1304	0.1344	0.2148	0.2251	0.0311	0.4213	0.0963	1380	1454	7	714.0	Vinson/TW
Kilimanjaro/TW	795.0	7	0.6244	0.6682	2	20	7 x 0.0892	0.2677	0.962	745.1	30.9	776.0	26,700	0.1170	0.1211	0.1930	0.2023	0.0316	0.4191	0.0954	1469	1549	9	795.0	Kilimanjaro/TW
Alps/TW	795.0	9	0.6244	0.6820	2	20	7 x 0.1024	0.3071	0.974	756.5	40.6	797.1	30,900	0.1188	0.1227	0.1958	0.2053	0.0325	0.4158	0.0950	1464	1544	12	795.0	Alps/TW
Wind Cave/TW	795.0	12	0.6244	0.7011	2	20	7 x 0.1181	0.3543	0.990	756.5	54.1	810.5	36,700	0.1188	0.1226	0.1957	0.2051	0.0335	0.4119	0.0946	1472	1552	16	795.0	Wind Cave/TW
Denali/TW	795.0	16	0.6244	0.7268	2	20	7 x 0.1365	0.4094	1.010	747.0	72.2	819.2	44,500	0.1173	0.1209	0.1931	0.2024	0.0348	0.4075	0.0940	1492	1573	22	795.0	Denali/TW
Rocky/TW	795.0	22	0.6244	0.7607	2	24	7 x 0.1575	0.4724	1.044	756.3	96.1	852.4	51,200	0.1188	0.1221	0.1954	0.2048	0.0367	0.4010	0.0930	1498	1580	7	795.0	Rocky/TW
Crater Lake/TW	954.0	7	0.7493	0.7997	3	34	7 x 0.0958	0.2874	1.058	898.6	35.6	934.1	31,400	0.0980	0.1021	0.1621	0.1698	0.0343	0.4091	0.0926	1652	1743	12	954.0	Crater Lake/TW
Grand Canyon/TW	954.0	10	0.7493	0.8260	3	34	7 x 0.1181	0.3543	1.072	899.4	54.1	953.5	39,400	0.0981	0.1019	0.1620	0.1698	0.0356	0.4047	0.0922	1659	1750	16	954.0	Grand Canyon/TW
Fuji/TW	954.0	12	0.7493	0.8421	2	20	7 x 0.1299	0.3898	1.077	907.8	65.4	973.2	44,300	0.0990	0.1026	0.1634	0.1712	0.0365	0.4015	0.0921	1655	1746	20	954.0	Fuji/TW
Jasper/TW	954.0	16	0.7493	0.8680	2	22	7 x 0.1470	0.4409	1.104	896.4	83.7	980.1	48,700	0.0978	0.1012	0.1612	0.1690	0.0376	0.3983	0.0913	1679	1771	14	954.0	Jasper/TW
Arches/TW	954.0	20	0.7493	0.8972	2	20	7 x 0.1640	0.4921	1.126	907.8	104.3	1012.0	56,800	0.0990	0.1022	0.1631	0.1710	0.0393	0.3928	0.0907	1679	1772	5	954.0	Arches/TW
Everglades/TW	973.1	14	0.7643	0.8747	2	20	7 x 0.1417	0.4252	1.108	925.9	77.8	1003.8	46,800	0.0971	0.1005	0.1601	0.1678	0.0379	0.3971	0.0912	1686	1779	7	973.1	Everglades/TW
Big Bend/TW	1033.5	5	0.8117	0.8555	3	34	7 x 0.0892	0.2677	1.093	972.5	30.9	1003.4	30,700	0.0904	0.0946	0.1497	0.1569	0.0351	0.4064	0.0916	1736	1832	13	1033.5	Big Bend/TW
Lassen/TW	1033.5	7	0.8117	0.8693	3	34	7 x 0.1024	0.3071	1.103	973.4	40.6	1014.0	34,900	0.0905	0.0945	0.1498	0.1569	0.0359	0.4037	0.0914	1741	1837	5	1033.5	Lassen/TW
Tahoe/TW	1033.5	11	0.8117	0.8972	3	34	7 x 0.1247	0.3740	1.118	980.9	60.2	1041.2	43,400	0.0912	0.0949	0.1507	0.1579	0.0372	0.3995	0.0910	1743	1840	7	1033.5	Tahoe/TW
Samoa/TW	1033.5	13	0.8117	0.9141	2	22	7 x 0.1365	0.4094	1.130	970.1	72.2	1042.3	48,600	0.0902	0.0937	0.1490	0.1561	0.0378	0.3973	0.0906	1759	1857	13	1033.5	Samoa/TW
Cook/TW	1113.0	5	0.8741	0.9179	3	30	7 x 0.0892	0.2677	1.125	1047.3	30.9	1078.2	31,600	0.0839	0.0882	0.1393	0.1459	0.0355	0.4051	0.0908	1817	1918	5	1113.0	Cook/TW
Blanc/TW	1113.0	7	0.8741	0.9318	3	34	7 x 0.1024	0.3071	1.139	1048.3	40.6	1088.9	36,200	0.0840	0.0881	0.1393	0.1460	0.0370	0.4002	0.0904	1824	1925	7	1113.0	Blanc/TW
Niagara/TW	1113.0	10	0.8741	0.9596	3	34	7 x 0.1247	0.3740	1.155	1049.3	60.2	1109.6	44,700	0.0841	0.0879	0.1392	0.1459	0.0383	0.3960	0.0900	1833	1934	13	1113.0	Niagara/TW
Gannett/TW	1113.0	13	0.8741	0.9846	3	38	7 x 0.1417	0.4252	1.181	1050.9	77.8	1128.7	49,100	0.0842	0.0878	0.1393	0.1460	0.0400	0.3907	0.0893	1845	1948	7	1113.0	Gannett/TW
Washington/TW	1192.5	5	0.9366	0.9804	3	34	7 x 0.0892	0.2677	1.166	1122.1	30.9	1153.0	32,900	0.0783	0.0828	0.1303	0.1365	0.0372	0.3994	0.0897	1900	2006	13	1192.5	Washington/TW
Elbert/TW	1192.5	7	0.9366	1.0050	3	34	7 x 0.1115	0.3346	1.184	1123.2	48.2	1171.4	40,400	0.0784	0.0825	0.1302	0.1364	0.0386	0.3949	0.0893	1910	2017	5	1192.5	Elbert/TW
Kings Canyon/TW	1192.5	10	0.9366	1.0294	3	34	7 x 0.1299	0.3898	1.203	1124.3	65.4	1189.7	47,900	0.0785	0.0823	0.1301	0.1363	0.0398	0.3910	0.0888	1920	2027	7	1192.5	Kings Canyon/TW
Acadia/TW	1192.5	13	0.9366	1.0554	3	38	7 x 0.1470	0.4409	1.223	1125.9	83.7	1209.7	52,800	0.0786	0.0822	0.1302	0.1364	0.0414	0.3865	0.0883	1930	2038	13	1192.5	Acadia/TW
Redwood/TW	1233.6	7	0.9689	1.0373	3	36	7 x 0.1115	0.3346	1.207	1161.9	48.2	1210.1	41,100	0.0758	0.0800	0.1260	0.1320	0.0395	0.3922	0.0887	1953	2062	7	1233.6	Redwood/TW
Mesa Verde/TW	1233.6	10	0.9689	1.0617	3	38	7 x 0.1299	0.3898	1.221	1163.0	65.4	1228.5	49,000	0.0759	0.0798	0.1259	0.1319	0.0407	0.3886	0.0883	1961	2071	10	1233.6	Mesa Verde/TW
Biscayne/TW	1233.6	13	0.9689	1.0963	3	38	7 x 0.1522	0.4567	1.245	1164.7	89.8	1254.5	55,800	0.0760	0.0796	0.1259	0.1319	0.0422	0.3840	0.0878	1974	2084	13	1233.6	Biscayne/TW
Saguaro/TW	1272.0	5	0.9990	1.0495	3	38	7 x 0.0958	0.2874	1.211	1196.9	35.6	1232.5	36,700	0.0734	0.0779	0.1223	0.1281	0.0390	0.3938	0.0886	1985	2096	7	1272.0	Saguaro/TW
Sierra Nevada/TW	1272.0	7	0.9990	1.0674	3	38	7 x 0.1115	0.3346	1.224	1198.1	48.2	1246.3	42,200	0.0735	0.0777	0.1223	0.1281	0.0400	0.3906	0.0883	1992	2103	12	1272.0	Sierra Nevada/TW
Eldorado/TW	1272.0	10	0.9990	1.1014	3	38	7 x 0.1365	0.4094	1.244	1199.3	72.2	1271.4	52,600	0.0736	0.0774	0.1222	0.1280	0.0416	0.3859	0.0878	2003	2115	5	1272.0	Eldorado/TW
Voyageurs/TW	1272.0	13	0.9990	1.1264	3	39	7 x 0.1522	0.4567	1.259	1201.0	89.8	1290.8	56,500	0.0737	0.0773	0.1222	0.1280	0.0429	0.3820	0.0874	2011	2123	8	1272.0	Voyageurs/TW
Cascades/TW	1351.5	7	1.0615	1.1382	3	38	7 x 0.1181	0.3543	1.264	1273.0	54.1	1327.0	45,600	0.0692	0.0734	0.1153	0.1207	0.0414	0.3863	0.0873	2073	2189	7	1351.5	Cascades/TW
Banff/TW	1351.5	10	1.0615	1.1639	3	42	7 x 0.1365	0.4094	1.278	1274.2	72.2	1346.4	53,900	0.0693	0.0732	0.1152	0.1207	0.0429	0.3820	0.0870	2081	2198	13	1351.5	Banff/TW
Elbrus/TW	1351.5	13	1.0615	1.1978	3	42	7 x 0.1575	0.4724	1.299	1276.1	96.1	1372.2	60,300	0.0694	0.0730	0.1152	0.1206	0.0443	0.3781	0.0865	2092	2210	7	1351.5	Elbrus/TW
Bryce Canyon/TW	1590.0	7	1.2488	1.3342	3	36	7 x 0.1247	0.3740	1.357	1497.6	60.2	1557.8	52,200	0.0588	0.0634	0.0986	0.1032	0.0437	0.3799	0.0852	2293	2423	10	1590.0	Bryce Canyon/TW
Adirondack/TW	1590.0	10	1.2488	1.3762	3	38	7 x 0.1522	0.4567	1.386	1499.1	89.8	1588.9	61,200	0.0589	0.0630	0.0984	0.1030	0.0463	0.3727	0.0846	2311	2443	13	1590.0	Adirondack/TW
Zion/TW	1590.0	12	1.2488	1.3967	3	42	7 x 0.1640	0.4921	1.405	1509.4	104.3	1613.7	66,900	0.0593	0.0632	0.0989	0.1036	0.0477	0.3692	0.0842	2314	2447	7	1590.0	Zion/TW
Teton/TW	1780.0	5	1.3980	1.4747	3	38	7 x 0.1181	0.3543	1.422	1674.9	54.1	1729.0	52,600	0.0525	0.0575	0.0886	0.0927	0.0460	0.3737	0.0838	2455	2597	12	1780.0	Teton/TW
Everest/TW	1780.0	8	1.3980	1.5084	3	38	7 x 0.1417	0.4252	1.441	1674.1	77.8	1751.9	59,700	0.0525	0.0571	0.0883	0.0924	0.0475	0.3697	0.0834	2470	2612	5	1780.0	Everest/TW
Katmai/TW	1780.0	10	1.3980	1.5344	3	38	7 x 0.1575	0.4724	1.463	1678.2	96.1	1774.3	66,800	0.0526	0.0569	0.0883	0.0924	0.0488	0.3665	0.0830	2481	2624	8	1780.0	Katmai/TW

Notes: (1) The final design of a TW conductor is contingent upon several factors such as: layer diameter, wire width, and wire thickness. This may result in a slight variation in the number of wires, number of layers, and outside diameter from that shown in the table.
(2) Resistance and ampacity based on an aluminum-zirconium alloy conductivity of 60% IACS at 20°C.
(3) Ampacity based on 25°C ambient temperature, 2 ft/s perpendicular wind, 0.5 emissivity, 0.5 absorptivity, 60 Hz, clear atmosphere, sea level, 30° N. latitude, N-S line azimuth, noon on June 10th.

Southwire®

C^{7}® OVERHEAD CONDUCTOR
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