Southwire®

C^7® OVERHEAD CONDUCTOR BROCHURE

SOUTHWIRE.COM

INNOVATION STARTS AT THE CORE

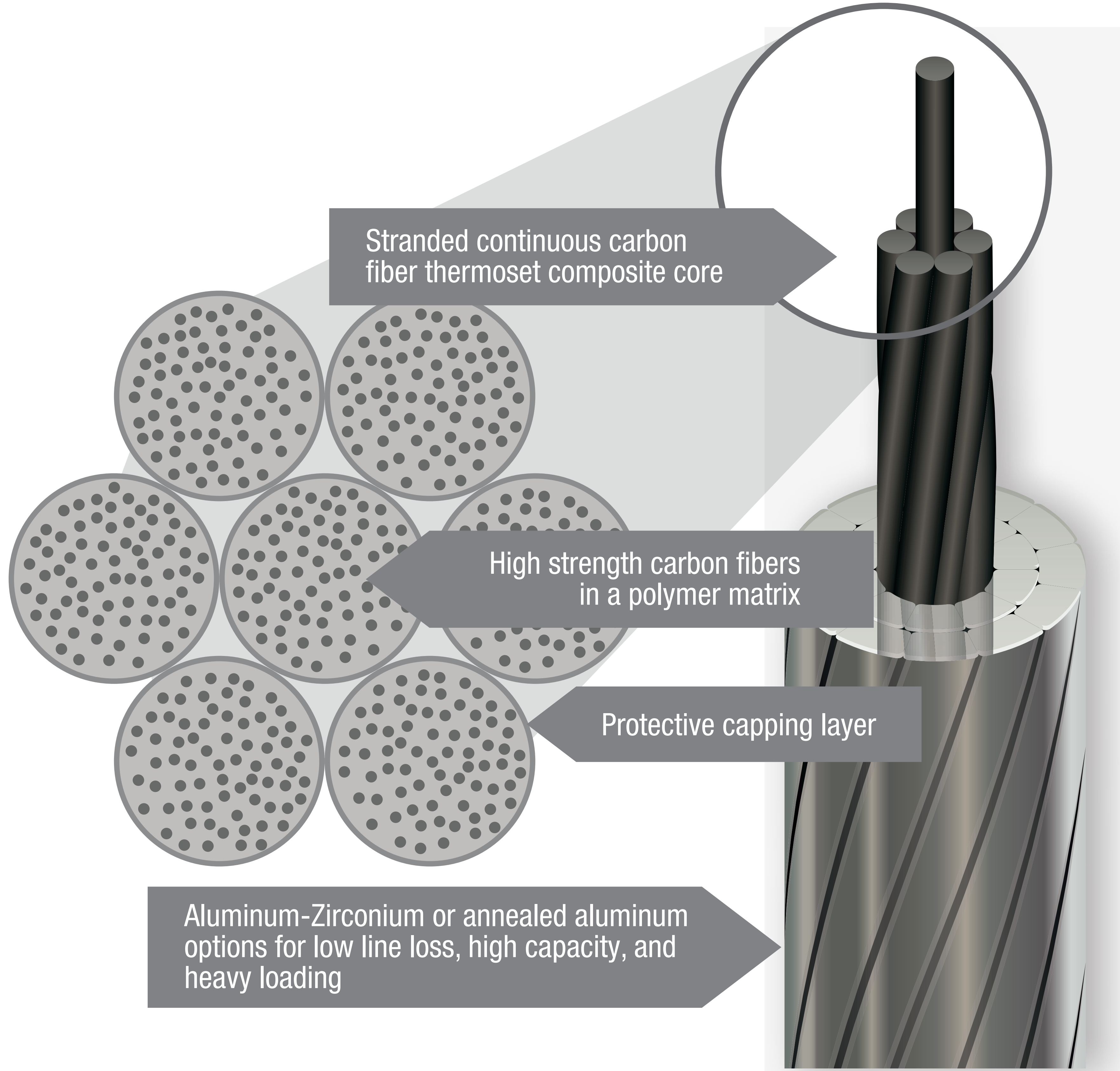
Lighter, Stronger, Tougher.
Southwire is revolutionizing the industry with its innovative C7® Overhead Conductor. With its unique stranded construction, Southwire's C7® Overhead Conductor is the most durable, rugged, and reliable composite core conductor on the market - and the only composite core conductor 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

$C^{7®}$ 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 168 meters, to 561 meters. The existing conductor was 402.8 mm² 26/7 ACSR "Drake". The conductor solution was required to maintain existing clearances (design considerations limited sag to 12 meters) while also maintaining existing ampacity and tensions. The design considered NESC "Heavy" loading with an additional Extreme Ice/Wind load.

$C^{7®}$ 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 $C^{7®}$ overhead conductor solution, 241.7 mm² Type 23 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.

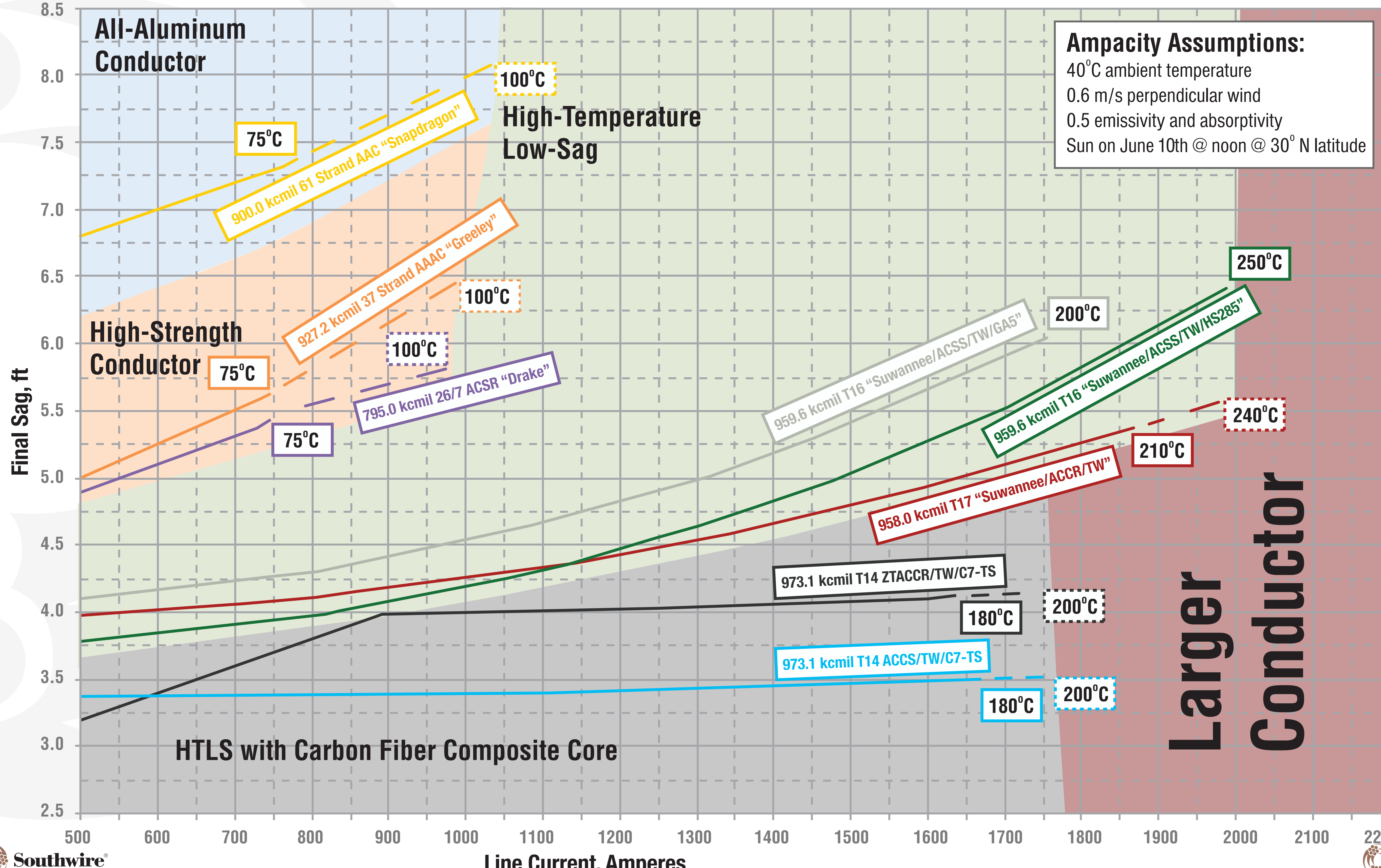
Showing Up and Showing Out:
Using the $C^{7®}$ overhead conductor solution, the sag in the 561-m span decreased by 66% compared to the existing Drake. Conductor weight also decreased by 53%. .

Conductor Type	Size mm²	Stranding/ Type No.	Outside Diameter mm	Weight kg/m	RBS kN	Evaluation Results					
						Max Tension		Loaded Weight kg/m	Cond. Temp. °C	Current A	Final Sag m
						kg	%RBS				
ACSR*	402.8	26/7	28.1	1.627	140	5,661	40%	4.409	100	994	29.87
ACCS/TW/C7-TS	241.7	23	20.8	0.760	129	5,455	41%	3.167	180	1049	10.24

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

ALTERNATIVES

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



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

Code Word	Conductor Size, mm²	Type No.	Cross-Sectional Area, mm²		Layers of Al-Zr	Stranding		Diameter		Weight/km		
			Al-Zr	Total		No. of Al-Zr Strands	C7 Strands, mm	C7 Core, mm	Complete Conductor, mm	Al-Zr, kg	C7, kg	Total, kg
Shenandoah/TW	135.2	21	135.2	163.4	2	14	7 x 2.27	6.8	15.4	372.5	46.0	418.3
Olympic/TW	164.7	17	164.7	192.9	2	20	7 x 2.27	6.8	17.0	452.4	46.0	498.4
Wrangell/TW	170.5	17	170.5	198.7	2	20	7 x 2.27	6.8	17.3	468.3	46.0	514.2
Badlands/TW	170.5	22	170.5	207.6	2	16	7 x 2.60	7.8	17.4	470.0	60.4	530.4
Andes/TW	201.4	14	201.4	229.7	2	18	7 x 2.27	6.8	18.0	552.6	46.0	598.5
Joshua Tree/TW	201.4	16	201.4	234.0	2	18	7 x 2.43	7.3	18.2	553.0	53.0	605.8
Sequoia/TW	201.4	22	201.4	245.5	2	18	7 x 2.83	8.5	18.7	555.2	71.7	627.1
Rogers/TW	241.7	13	241.7	274.3	2	18	7 x 2.43	7.3	19.8	663.0	53.0	715.8
Yosemite/TW	241.7	15	241.7	278.8	2	18	7 x 2.60	7.8	20.0	663.4	60.4	723.8
Capitol Reef/TW	241.7	23	241.7	296.8	2	20	7 x 3.17	9.5	20.8	666.8	89.6	756.4
Tortugas/TW	322.3	10	322.3	354.8	2	20	7 x 2.43	7.3	22.4	883.4	53.0	936.4
Yellowstone/TW	322.3	12	322.3	359.4	2	16	7 x 2.60	7.8	22.5	883.7	60.4	944.1
Glacier/TW	322.3	15	322.3	371.7	2	20	7 x 3.00	9.0	23.0	884.4	80.5	964.9
Carlsbad/TW	322.3	22	322.3	393.5	2	22	7 x 3.60	10.8	24.1	888.4	115.8	1004.4
Congaree/TW	325.2	11	325.2	362.3	2	16	7 x 2.60	7.8	22.6	891.6	60.4	952.0
Vinson/TW	361.8	10	361.8	399.0	2	16	7 x 2.60	7.8	23.7	991.7	60.4	1052.1
Kilimanjaro/TW	402.8	7	402.8	431.1	2	20	7 x 2.27	6.8	24.4	1103.2	46.0	1149.2
Alps/TW	402.8	9	402.8	440.0	2	20	7 x 2.60	7.8	24.7	1103.9	60.4	1164.3
Wind Cave/TW	402.8	12	402.8	452.3	2	20	7 x 3.00	9.0	25.1	1104.7	80.5	1185.0
Denali/TW	402.8	16	402.8	468.9	2	20	7 x 3.47	10.4	25.7	1105.9	107.4	1213.3
Rocky/TW	402.8	22	402.8	490.8	2	24	7 x 4.00	12.0	26.5	1110.6	143.0	1253.6
Crater Lake/TW	483.4	7	483.4	515.9	3	34	7 x 2.43	7.3	26.9	1330.4	53.0	1383.3
Fuji/TW	483.4	12	483.4	543.3	2	20	7 x 3.30	9.9	27.4	1325.5	97.3	1422.8
Jasper/TW	483.4	16	483.4	560.0	2	22	7 x 3.73	11.2	28.0	1327.1	124.6	1451.7
Arches/TW	483.4	20	483.4	578.8	2	20	7 x 4.17	12.5	28.6	1330.9	155.2	1486.1
Everglades/TW	493.1	14	493.1	564.3	2	20	7 x 3.60	10.8	28.1	1352.7	115.8	1468.5
Big Bend/TW	523.7	5	523.7	551.9	3	34	7 x 2.27	6.8	27.8	1439.8	46.0	1485.8
Lassen/TW	523.7	7	523.7	560.8	3	34	7 x 2.60	7.8	28.0	1441.3	60.4	1501.7
Samoa/TW	523.7	13	523.7	589.7	2	22	7 x 3.47	10.4	28.7	1436.2	107.4	1543.7
Cook/TW	564.0	5	564.0	592.2	3	30	7 x 2.27	6.8	28.6	1550.5	46.0	1596.5
Blanc/TW	564.0	7	564.0	601.2	3	34	7 x 2.60	7.8	28.9	1552.0	60.4	1612.4
Gannett/TW	564.0	13	564.0	635.2	3	38	7 x 3.60	10.8	30.0	1555.9	115.8	1671.7
Washington/TW	604.2	5	604.2	632.5	3	34	7 x 2.27	6.8	29.6	1661.4	46.0	1707.2
Elbert/TW	604.2	7	604.2	648.4	3	34	7 x 2.83	8.5	30.1	1662.9	71.7	1734.8
Acadia/TW	604.2	13	604.2	680.9	3	38	7 x 3.73	11.2	31.1	1667.0	124.6	1791.6
Redwood/TW	625.1	7	625.1	669.2	3	38	7 x 2.83	8.5	30.6	1720.3	71.7	1792.0
Biscayne/TW	625.1	13	625.1	707.3	3	36	7 x 3.87	11.6	31.6	1724.5	133.6	1858.1
Saguaro/TW	644.5	5	644.5	677.1	3	38	7 x 2.43	7.3	30.8	1772.1	53.0	1824.9
Sierra Nevada/TW	644.5	7	644.5	688.6	3	38	7 x 2.83	8.5	31.1	1773.7	71.7	1845.6
Voyageurs/TW	644.5	13	644.5	726.7	3	39	7 x 3.87	11.6	32.0	1778.1	133.6	1911.7
Cascades/TW	684.8	7	684.8	734.3	3	38	7 x 3.00	9.0	32.1	1884.6	80.5	1965.1
Banff/TW	684.8	10	684.8	750.9	3	42	7 x 3.47	10.4	32.5	1886.5	107.4	1993.8
Elbrus/TW	684.8	13	684.8	772.8	3	42	7 x 4.00	12.0	33.0	1889.2	143.0	2032.2
Bryce Canyon/TW	805.7	7	805.7	860.8	3	36	7 x 3.17	9.5	34.5	2217.2	89.6	2307.0
Zion/TW	805.7	12	805.7	901.1	3	42	7 x 4.17	12.5	35.7	2221.5	155.2	2376.7
Teton/TW	901.9	5	901.9	951.4	3	38	7 x 3.00	9.0	36.1	2479.7	80.5	2560.2
Everest/TW	901.9	8	901.9	973.2	3	38	7 x 3.60	10.8	36.6	2483.0	115.8	2598.8

RBS, kN	Resistance				GMR, m	Reactance @ 0.6m Spacing 60 Hz		Ampacity		Type No.	Conductor Size, mm²	Code Word
	dc @ 20°C, Ω/km	ac–60 Hz @ 25°C, Ω/km	ac–60 Hz @ 180°C, Ω/km	ac–60 Hz @ 200°C, Ω/km		Inductive Xa, Ω/km	Capacitive X'a, MΩ-km	@ 180°C, A	@ 200°C, A			
80.1	0.2180	0.2226	0.3585	0.3761	0.0062	0.2937	0.1754	738	776	21	135.2	Shenandoah/TW
85.4	0.1785	0.1823	0.2936	0.3080	0.0070	0.2841	0.1708	840	884	17	164.7	Olympic/TW
85.4	0.1724	0.1762	0.2837	0.2976	0.0071	0.2832	0.1701	859	903	17	170.5	Wrangell/TW
104.1	0.1730	0.1767	0.2846	0.2986	0.0072	0.2826	0.1698	859	904	22	170.5	Badlands/TW
90.3	0.1457	0.1491	0.2398	0.2516	0.0073	0.2819	0.1680	946	995	14	201.4	Andes/TW
99.2	0.1458	0.1491	0.2400	0.2517	0.0074	0.2804	0.1675	949	998	16	201.4	Joshua Tree/TW
123.7	0.1464	0.1496	0.2409	0.2527	0.0077	0.2769	0.1662	955	1005	22	201.4	Sequoia/TW
105.0	0.1214	0.1243	0.2000	0.2097	0.0079	0.2752	0.1637	1066	1122	13	241.7	Rogers/TW
114.3	0.1215	0.1244	0.2000	0.2098	0.0081	0.2738	0.1632	1069	1125	15	241.7	Yosemite/TW
152.1	0.1221	0.1249	0.2010	0.2108	0.0087	0.2677	0.1613	1080	1137	23	241.7	Capitol Reef/TW
117.0	0.0910	0.0936	0.1501	0.1575	0.0090	0.2657	0.1579	1277	1346	10	322.3	Tortugas/TW
125.4	0.0910	0.0936	0.1501	0.1575	0.0091	0.2652	0.1574	1280	1349	12	322.3	Yellowstone/TW
152.6	0.0911	0.0936	0.1502	0.1575	0.0094	0.2618	0.1564	1288	1357	15	322.3	Glacier/TW
183.7	0.0915	0.0938	0.1507	0.1581	0.0100	0.2575	0.1543	1305	1375	22	322.3	Carlsbad/TW
125.9	0.0902	0.0928	0.1488	0.1560	0.0091	0.2650	0.1572	1288	1356	11	325.2	Congaree/TW
131.2	0.0810	0.0835	0.1338	0.1403	0.0095	0.2618	0.1550	1378	1452	10	361.8	Vinson/TW
118.8	0.0727	0.0752	0.1203	0.1261	0.0096	0.2604	0.1535	1467	1546	7	402.8	Kilimanjaro/TW
137.5	0.0728	0.0752	0.1203	0.1261	0.0099	0.2584	0.1529	1473	1552	9	402.8	Alps/TW
163.2	0.0728	0.0751	0.1203	0.1261	0.0102	0.2559	0.1522	1480	1561	12	402.8	Wind Cave/TW
197.9	0.0729	0.0751	0.1204	0.1262	0.0106	0.2532	0.1513	1490	1571	16	402.8	Denali/TW
227.7	0.0732	0.0753	0.1207	0.1266	0.0112	0.2492	0.1497	1502	1584	22	402.8	Rocky/TW
139.7	0.0609	0.0634	0.1010	0.1059	0.0105	0.2542	0.1490	1650	1740	7	483.4	Crater Lake/TW
197.1	0.0607	0.0629	0.1004	0.1053	0.0111	0.2495	0.1482	1664	1755	12	483.4	Fuji/TW
216.6	0.0608	0.0629	0.1005	0.1053	0.0115	0.2475	0.1469	1676	1768	16	483.4	Jasper/TW
252.7	0.0609	0.0629	0.1007	0.1056	0.0120	0.2438	0.1460	1686	1779	20	483.4	Arches/TW
208.2	0.0595	0.0617	0.0985	0.1033	0.0116	0.2467	0.1468	1695	1788	14	493.1	Everglades/TW
136.6	0.0562	0.0588	0.0933	0.0978	0.0107	0.2525	0.1474	1734	1829	5	523.7	Big Bend/TW
155.2	0.0562	0.0587	0.0933	0.0978	0.0109	0.2508	0.1471	1739	1834	7	523.7	Lassen/TW
216.2	0.0560	0.0582	0.0928	0.0973	0.0115	0.2469	0.1458	1757	1854	13	523.7	Samoa/TW
140.6	0.0521	0.0549	0.0868	0.0910	0.0108	0.2517	0.1461	1814	1914	5	564.0	Cook/TW
161.0	0.0522	0.0547	0.0868	0.0910	0.0113	0.2487	0.1455	1821	1922	7	564.0	Blanc/TW
218.4	0.0523	0.0546	0.0868	0.0910	0.0122	0.2428	0.1437	1842	1945	13	564.0	Gannett/TW
146.3	0.0487	0.0514	0.0812	0.0851	0.0113	0.2482	0.1444	1897	2003	5	604.2	Washington/TW
179.7	0.0487	0.0513	0.0812	0.0850	0.0118	0.2454	0.1437	1907	2013	7	604.2	Elbert/TW
234.9	0.0488	0.0511	0.0811	0.0850	0.0126	0.2402	0.1421	1927	2035	13	604.2	Acadia/TW
185.0	0.0471	0.0497	0.0785	0.0823	0.0120	0.2437	0.1427	1950	2059	7	625.1	Redwood/TW
248.2	0.0472	0.0495	0.0784	0.0822	0.0129	0.2385	0.1411	1971	2081	13	625.1	Biscayne/TW
163.2	0.0456	0.0484	0.0762	0.0798	0.0119	0.2447	0.1426	1982	2093	5	644.5	Saguaro/TW
187.7	0.0457	0.0483	0.0762	0.0798	0.0122	0.2427	0.1421	1989	2100	7	644.5	Sierra Nevada/TW
251.3	0.0458	0.0480	0.0761	0.0798	0.0131	0.2374	0.1407	2008	2120	13	644.5	Voyageurs/TW
202.8	0.0430	0.0456	0.0718	0.0752	0.0126	0.2400	0.1405	2070	2186	7	684.8	Cascades/TW
239.8	0.0431	0.0455	0.0718	0.0752	0.0131	0.2374	0.1400	2078	2194	10	684.8	Banff/TW
268.2	0.0431	0.0454	0.0718	0.0752	0.0135	0.2349	0.1392	2089	2206	13	684.8	Elbrus/TW
232.2	0.0365	0.0394	0.0615	0.0643	0.0133	0.2361	0.1371	2289	2420	7	805.7	Bryce Canyon/TW
297.6	0.0366	0.0391	0.0613	0.0642	0.0145	0.2295	0.1355	2316	2448	12	805.7	Zion/TW
234.0	0.0326	0.0357	0.0552	0.0578	0.0140	0.2322	0.1349	2451	2593	5	901.9	Teton/TW
265.6	0.0326	0.0355	0.0551	0.0577	0.0145	0.2297	0.1342	2464	2606	8	901.9	Everest/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.

Notes: (3) Ampacity based on 25°C ambient temperature, 0.61 m/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 Aluminum Conductor, Composite Supported (ACCS/TW/C7®-TS)

Code Word	Conductor Size, mm²	Type No.	Cross-Sectional Area, mm² Al	Cross-Sectional Area, mm² Total	Layers of Al	Stranding No. of Al Strands	Stranding C7 Strands, mm	Diameter C7 Core, mm	Diameter Complete Conductor, mm	Weight/km Al, kg	Weight/km C7, kg	Weight/km Total, kg
Shenandoah/TW	135.2	21	135.2	163.4	2	14	7 x 2.27	6.8	15.4	374.4	46.0	420.3
Olympic/TW	164.7	17	164.7	192.9	2	20	7 x 2.27	6.8	17.0	454.8	46.0	500.6
Wrangell/TW	170.5	17	170.5	198.7	2	20	7 x 2.27	6.8	17.3	470.7	46.0	516.7
Badlands/TW	170.5	22	170.5	207.6	2	16	7 x 2.60	7.8	17.4	472.3	60.4	532.8
Andes/TW	201.4	14	201.4	229.7	2	18	7 x 2.27	6.8	18.0	555.4	46.0	601.4
Joshua Tree/TW	201.4	16	201.4	234.0	2	18	7 x 2.43	7.3	18.2	555.8	53.0	608.8
Sequoia/TW	201.4	22	201.4	245.5	2	18	7 x 2.83	8.5	18.7	558.2	71.7	629.9
Rogers/TW	241.7	13	241.7	274.3	2	18	7 x 2.43	7.3	19.8	665.8	53.0	719.2
Yosemite/TW	241.7	15	241.7	278.8	2	18	7 x 2.60	7.8	20.0	666.8	60.4	727.3
Capitol Reef/TW	241.7	23	241.7	296.8	2	20	7 x 3.17	9.5	20.8	670.3	89.6	759.9
Tortugas/TW	322.3	10	322.3	354.8	2	20	7 x 2.43	7.3	22.4	888.0	53.0	941.0
Yellowstone/TW	322.3	12	322.3	359.4	2	16	7 x 2.60	7.8	22.5	888.3	60.4	948.7
Glacier/TW	322.3	15	322.3	371.7	2	20	7 x 3.00	9.0	23.0	889.0	80.5	969.5
Carlsbad/TW	322.3	22	322.3	393.5	2	22	7 x 3.60	10.8	24.1	893.0	115.8	1008.8
Congaree/TW	325.2	11	325.2	362.3	2	16	7 x 2.60	7.8	22.6	896.2	60.4	956.6
Vinson/TW	361.8	10	361.8	399.0	2	16	7 x 2.60	7.8	23.7	996.9	60.4	1057.3
Kilimanjaro/TW	402.8	7	402.8	431.1	2	20	7 x 2.27	6.8	24.4	1108.8	46.0	1154.8
Alps/TW	402.8	9	402.8	440.0	2	20	7 x 2.60	7.8	24.7	1109.7	60.4	1170.1
Wind Cave/TW	402.8	12	402.8	452.3	2	20	7 x 3.00	9.0	25.1	1110.3	80.5	1190.8
Denali/TW	402.8	16	402.8	468.9	2	20	7 x 3.47	10.4	25.7	1111.7	107.4	1219.1
Rocky/TW	402.8	22	402.8	490.8	2	24	7 x 4.00	12.0	26.5	1116.3	143.0	1259.3
Crater Lake/TW	483.4	7	483.4	515.9	3	34	7 x 2.43	7.3	26.9	1337.3	53.0	1390.1
Fuji/TW	483.4	12	483.4	543.3	2	20	7 x 3.30	9.9	27.4	1332.4	97.3	1429.7
Jasper/TW	483.4	16	483.4	560.0	2	22	7 x 3.73	11.2	28.0	1334.0	124.6	1458.6
Arches/TW	483.4	20	483.4	578.8	2	20	7 x 4.17	12.5	28.6	1337.7	155.2	1492.9
Everglades/TW	493.1	14	493.1	564.3	2	20	7 x 3.60	10.8	28.1	1359.7	115.8	1475.5
Big Bend/TW	523.7	5	523.7	551.9	3	34	7 x 2.27	6.8	27.8	1447.2	46.0	1493.2
Lassen/TW	523.7	7	523.7	560.8	3	34	7 x 2.60	7.8	28.0	1448.6	60.4	1509.0
Samoa/TW	523.7	13	523.7	589.7	2	22	7 x 3.47	10.4	28.7	1443.7	107.4	1551.1
Cook/TW	564.0	5	564.0	592.2	3	30	7 x 2.27	6.8	28.6	1558.6	46.0	1604.5
Blanc/TW	564.0	7	564.0	601.2	3	34	7 x 2.60	7.8	28.9	1560.0	60.4	1620.5
Gannett/TW	564.0	13	564.0	635.2	3	38	7 x 3.60	10.8	30.0	1563.9	115.8	1679.7
Washington/TW	604.2	5	604.2	632.5	3	34	7 x 2.27	6.8	29.6	1669.9	46.0	1715.9
Elbert/TW	604.2	7	604.2	648.4	3	34	7 x 2.83	8.5	30.1	1671.5	71.7	1743.2
Acadia/TW	604.2	13	604.2	680.9	3	38	7 x 3.73	11.2	31.1	1675.5	124.6	1800.2
Redwood/TW	625.1	7	625.1	669.2	3	38	7 x 2.83	8.5	30.6	1729.1	71.7	1800.8
Biscayne/TW	625.1	13	625.1	707.3	3	36	7 x 3.87	11.6	31.6	1733.3	133.6	1866.9
Saguaro/TW	644.5	5	644.5	677.1	3	38	7 x 2.43	7.3	30.8	1781.2	53.0	1834.2
Sierra Nevada/TW	644.5	7	644.5	688.6	3	38	7 x 2.83	8.5	31.1	1783.0	71.7	1854.7
Voyageurs/TW	644.5	13	644.5	726.7	3	39	7 x 3.87	11.6	32.0	1787.3	133.6	1920.9
Cascades/TW	684.8	7	684.8	734.3	3	38	7 x 3.00	9.0	32.1	1894.4	80.5	1974.8
Banff/TW	684.8	10	684.8	750.9	3	42	7 x 3.47	10.4	32.5	1896.2	107.4	2003.7
Elbrus/TW	684.8	13	684.8	772.8	3	42	7 x 4.00	12.0	33.0	1899.0	143.0	2042.1
Bryce Canyon/TW	805.7	7	805.7	860.8	3	36	7 x 3.17	9.5	34.5	2228.7	89.6	2318.3
Zion/TW	805.7	12	805.7	901.1	3	42	7 x 4.17	12.5	35.7	2233.0	155.2	2388.2
Teton/TW	901.9	5	901.9	951.4	3	38	7 x 3.00	9.0	36.1	2492.5	80.5	2573.0
Everest/TW	901.9	8	901.9	973.2	3	38	7 x 3.60	10.8	36.6	2495.8	115.8	2611.6

RBS, kN	Resistance dc @ 20°C, Ω/km	Resistance ac–60 Hz @ 25°C, Ω/km	Resistance ac–60 Hz @ 180°C, Ω/km	Resistance ac–60 Hz @ 200°C, Ω/km	GMR, m	Reactance @ 0.6m Spacing 60 Hz Inductive Xa, Ω/km	Reactance @ 0.6m Spacing 60 Hz Capacitive X'a, MΩ-km	Ampacity @ 180°C, A	Ampacity @ 200°C, A	Type No.	Conductor Size, mm²	Code Word
66.7	0.2077	0.2122	0.3459	0.3632	0.0062	0.2937	0.1754	752	790	21	135.2	Shenandoah/TW
68.5	0.1700	0.1739	0.2833	0.2974	0.0070	0.2841	0.1708	856	900	17	164.7	Olympic/TW
68.9	0.1642	0.1680	0.2737	0.2873	0.0071	0.2832	0.1701	874	919	17	170.5	Wrangell/TW
87.6	0.1648	0.1685	0.2746	0.2883	0.0072	0.2826	0.1698	875	919	22	170.5	Badlands/TW
70.7	0.1388	0.1421	0.2314	0.2430	0.0073	0.2819	0.1680	963	1013	14	201.4	Andes/TW
79.6	0.1389	0.1422	0.2315	0.2431	0.0074	0.2804	0.1675	966	1016	16	201.4	Joshua Tree/TW
104.1	0.1394	0.1427	0.2325	0.2440	0.0077	0.2769	0.1662	972	1023	22	201.4	Sequoia/TW
81.8	0.1156	0.1186	0.1929	0.2025	0.0079	0.2752	0.1637	1085	1141	13	241.7	Rogers/TW
91.6	0.1157	0.1186	0.1930	0.2026	0.0081	0.2738	0.1632	1088	1145	15	241.7	Yosemite/TW
129.4	0.1163	0.1191	0.1939	0.2036	0.0087	0.2677	0.1613	1100	1157	23	241.7	Capitol Reef/TW
86.3	0.0867	0.0893	0.1448	0.1520	0.0090	0.2657	0.1579	1300	1369	10	322.3	Tortugas/TW
96.1	0.0867	0.0893	0.1449	0.1520	0.0091	0.2652	0.1574	1304	1373	12	322.3	Yellowstone/TW
121.9	0.0868	0.0892	0.1449	0.1521	0.0094	0.2618	0.1564	1311	1381	15	322.3	Glacier/TW
164.1	0.0872	0.0895	0.1455	0.1527	0.0100	0.2575	0.1543	1328	1399	22	322.3	Carlsbad/TW
96.1	0.0859	0.0885	0.1436	0.1507	0.0091	0.2650	0.1572	1311	1380	11	325.2	Congaree/TW
98.3	0.0772	0.0797	0.1291	0.1355	0.0095	0.2618	0.1550	1403	1477	10	361.8	Vinson/TW
81.8	0.0693	0.0718	0.1161	0.1219	0.0096	0.2604	0.1535	1493	1574	7	402.8	Kilimanjaro/TW
100.5	0.0693	0.0718	0.1161	0.1219	0.0099	0.2584	0.1529	1499	1580	9	402.8	Alps/TW
126.3	0.0693	0.0717	0.1161	0.1219	0.0102	0.2559	0.1522	1507	1588	12	402.8	Wind Cave/TW
161.0	0.0695	0.0716	0.1161	0.1219	0.0106	0.2532	0.1513	1516	1598	16	402.8	Denali/TW
202.8	0.0697	0.0718	0.1165	0.1223	0.0112	0.2492	0.1497	1529	1612	22	402.8	Rocky/TW
94.7	0.0580	0.0606	0.0975	0.1023	0.0105	0.2542	0.1490	1679	1770	7	483.4	Crater Lake/TW
152.6	0.0578	0.0601	0.0969	0.1017	0.0111	0.2495	0.1482	1693	1785	12	483.4	Fuji/TW
184.2	0.0578	0.0600	0.0969	0.1017	0.0115	0.2475	0.1469	1706	1799	16	483.4	Jasper/TW
222.9	0.0580	0.0601	0.0971	0.1020	0.0120	0.2438	0.1460	1716	1810	20	483.4	Arches/TW
173.5	0.0567	0.0589	0.0951	0.0997	0.0116	0.2467	0.1468	1725	1819	14	493.1	Everglades/TW
88.1	0.0535	0.0562	0.0901	0.0945	0.0107	0.2525	0.1474	1765	1861	5	523.7	Big Bend/TW
106.8	0.0536	0.0561	0.0901	0.0945	0.0109	0.2508	0.1471	1770	1866	7	523.7	Lassen/TW
168.1	0.0534	0.0556	0.0896	0.0940	0.0115	0.2469	0.1458	1788	1886	13	523.7	Samoa/TW
89.9	0.0497	0.0524	0.0838	0.0879	0.0108	0.2517	0.1461	1846	1948	5	564.0	Cook/TW
109.0	0.0497	0.0524	0.0838	0.0879	0.0113	0.2487	0.1455	1853	1955	7	564.0	Blanc/TW
177.0	0.0498	0.0521	0.0838	0.0879	0.0122	0.2428	0.1437	1875	1978	13	564.0	Gannett/TW
92.1	0.0464	0.0492	0.0784	0.0822	0.0113	0.2482	0.1444	1931	2037	5	604.2	Washington/TW
125.4	0.0464	0.0490	0.0784	0.0821	0.0118	0.2454	0.1437	1941	2048	7	604.2	Elbert/TW
189.9	0.0465	0.0488	0.0783	0.0821	0.0126	0.2402	0.1421	1961	2070	13	604.2	Acadia/TW
126.8	0.0449	0.0475	0.0758	0.0795	0.0120	0.2437	0.1427	1985	2095	7	625.1	Redwood/TW
202.8	0.0450	0.0472	0.0757	0.0794	0.0129	0.2385	0.1411	2006	2117	13	625.1	Biscayne/TW
103.6	0.0435	0.0463	0.0736	0.0772	0.0119	0.2447	0.1426	2016	2128	5	644.5	Saguaro/TW
127.7	0.0435	0.0462	0.0736	0.0772	0.0122	0.2427	0.1421	2024	2136	7	644.5	Sierra Nevada/TW
203.7	0.0436	0.0459	0.0735	0.0771	0.0131	0.2374	0.1407	2043	2157	13	644.5	Voyageurs/TW
141.5	0.0409	0.0437	0.0693	0.0727	0.0126	0.2400	0.1405	2106	2223	7	684.8	Cascades/TW
176.1	0.0410	0.0435	0.0693	0.0727	0.0131	0.2374	0.1400	2114	2232	10	684.8	Banff/TW
218.0	0.0411	0.0434	0.0693	0.0726	0.0135	0.2349	0.1392	2126	2244	13	684.8	Elbrus/TW
159.7	0.0348	0.0377	0.0593	0.0622	0.0133	0.2361	0.1371	2329	2461	7	805.7	Bryce Canyon/TW
239.8	0.0349	0.0374	0.0592	0.0621	0.0145	0.2295	0.1355	2356	2490	12	805.7	Zion/TW
153.0	0.0311	0.0343	0.0534	0.0559	0.0140	0.2322	0.1349	2493	2636	5	901.9	Teton/TW
195.3	0.0311	0.0341	0.0533	0.0558	0.0145	0.2297	0.1342	2506	2650	8	901.9	Everest/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.

Notes: (3) Ampacity based on 25°C ambient temperature, 0.61 m/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®

C7® OVERHEAD CONDUCTOR
BROCHURE

SOUTHWIRE.COM