ACSR/TW/AW

Aluminum Conductor, Aluminum-Clad Steel Reinforced, Trapezoidal Wire Construction

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Image not to scale. See Table 1 for dimensions.

CONSTRUCTION:

1. **Core:** Stranded aluminum-clad steel core, available in AW2 normal-strength and AW3 high-strength classes
2. **Stranding:** Hard-drawn aluminum (1350-H19) trapezoidal-shaped wires with 61.2% conductivity

APPLICATIONS AND FEATURES:

ACSR/TW/AW (Aluminum Conductor, Aluminum-Clad Steel Reinforced, Trapezoidal Wire) is a compact conductor consisting of trapezoidal-shaped hard-drawn aluminum wires surrounding an aluminum-clad steel core. The aluminum strands provide electrical conductivity, while the aluminum-clad steel core provides mechanical strength, additional conductivity, and corrosion protection.

The trapezoidal-wire design increases packing efficiency, allowing either more aluminum within a given conductor diameter or a reduced diameter for a given aluminum area. Area-equivalent designs can reduce wind and ice loading, while diameter-equivalent designs can increase aluminum area and electrical capacity.

ACSR/TW/AW is suited for overhead transmission and distribution applications requiring the strength and proven performance of ACSR, the compact geometry of trapezoidal-wire construction, and the corrosion resistance of an aluminum-clad steel core.

Continuous operating temperature - 75°C
Emergency operating temperature - 100°C

SPECIFICATIONS:

- ASTM B230 Standard Specification for Aluminum 1350-H19 Wire for Electrical Purposes
- ASTM B500 Standard Specification for Metallic Coated or Aluminum-Clad Stranded Steel Core for Use in Overhead Electrical Conductors
- ASTM B502 Standard Specification for Aluminum-Clad Steel Core Wire for Use in Overhead Electrical Aluminum Conductors
- ASTM B779 Standard Specification for Shaped Wire Compact Concentric-Lay-Stranded Aluminum Conductors, Steel-Reinforced (ACSR/TW)

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Area Equal to Standard ACSR Conductor - Weights, Measurements, Electrical and Engineering Data

Stock Number	Code Word	Conductor Size	Type No.	Stranding	Cross-Sectional Area		Layers of Al	Diameter			Weight		Rated Breaking Strength		DC Resistance @ 20°C
					Al	Total		AW Strands	AW Core	Complete Conductor	Al	Total	AW2	AW3	
		kcmil		Al/AW	in²	in²		in	in	in	lb/1000ft	lb/1000ft	lb	lb	Ω/mile
TBA	Partridge/TW/AW	266.8	16	14/7	0.2095	0.2436	2	0.0788	0.2364	0.595	250.6	348.4	10,700	11,200	0.3251
TBA	Merlin/TW/AW	336.4	6	14/1	0.2642	0.2789	2	0.1367	0.1367	0.630	315.3	357.3	8,420	8,560	0.2663
TBA	Linnet/TW/AW	336.4	16	16/7	0.2642	0.3072	2	0.0884	0.2652	0.659	316.1	439.5	13,400	14,000	0.2578
TBA	Oriole/TW/AW	336.4	23	16/7	0.2642	0.3259	2	0.1059	0.3177	0.692	317.6	494.6	16,500	17,100	0.2532
TBA	Ibis/TW/AW	397.5	16	20/7	0.3122	0.3630	2	0.0961	0.2883	0.725	373.5	519.2	15,800	16,300	0.2181
TBA	Lark/TW/AW	397.5	23	16/7	0.3122	0.3850	2	0.1151	0.3453	0.740	375.3	584.1	19,400	20,100	0.2143
TBA	Flicker/TW/AW	477.0	13	18/7	0.3746	0.4232	2	0.0940	0.2820	0.776	447.7	587.1	16,700	17,200	0.1836
TBA	Hawk/TW/AW	477.0	16	18/7	0.3746	0.4356	2	0.1053	0.3159	0.790	448.1	623.1	18,800	19,400	0.1818
TBA	Hen/TW/AW	477.0	23	20/7	0.3746	0.4620	2	0.1261	0.3783	0.820	450.3	701.0	23,200	23,600	0.1786
TBA	Parakeet/TW/AW	556.5	13	18/7	0.4371	0.4937	2	0.1015	0.3045	0.840	522.4	684.8	19,500	20,000	0.1573
TBA	Dove/TW/AW	556.5	16	20/7	0.4371	0.5083	2	0.1138	0.3414	0.850	522.9	727.1	21,900	22,600	0.1558
TBA	Eagle/TW/AW	556.5	23	20/7	0.4371	0.5391	2	0.1362	0.4086	0.870	525.5	818.1	26,600	27,600	0.1531
TBA	Squab/TW/AW	605.0	16	20/7	0.4752	0.5525	2	0.1186	0.3558	0.885	568.5	790.2	23,800	24,600	0.1433
TBA	Teal/TW/AW	605.0	23	20/19	0.4752	0.5835	2	0.0852	0.4260	0.916	571.3	882.6	28,500	30,000	0.1410
TBA	Swift/TW/AW	636.0	3	27/1	0.4995	0.5134	3	0.1329	0.1329	0.850	598.4	638.1	13,400	13,500	0.1427
TBA	Rook/TW/AW	636.0	13	20/7	0.4995	0.5642	2	0.1085	0.3255	0.893	597.0	782.6	22,300	22,900	0.1377
TBA	Grosbeak/TW/AW	636.0	16	20/7	0.4995	0.5808	2	0.1216	0.3648	0.909	597.6	830.8	25,000	25,400	0.1363
TBA	Scoter/TW/AW	636.0	23	22/7	0.4995	0.6160	2	0.1456	0.4368	0.942	600.5	934.7	29,300	30,400	0.1339
TBA	Egret/TW/AW	636.0	23	22/19	0.4995	0.6135	2	0.0874	0.4370	0.942	600.5	928.2	29,900	31,500	0.1342
TBA	Starling/TW/AW	715.5	16	20/7	0.5620	0.6535	2	0.1290	0.3870	0.958	672.3	934.8	27,700	28,600	0.1212
TBA	Redwing/TW/AW	715.5	23	20/19	0.5620	0.6900	2	0.0926	0.4630	0.994	675.6	1044	33,600	34,800	0.1193
TBA	Tern/TW/AW	795.0	7	20/7	0.6244	0.6676	2	0.0886	0.2658	0.960	745.2	869.1	21,500	22,100	0.1122
TBA	Puffin/TW/AW	795.0	10	18/7	0.6244	0.6857	2	0.1056	0.3168	0.980	745.9	921.7	24,200	24,800	0.1112
TBA	Condor/TW/AW	795.0	13	20/7	0.6244	0.7053	2	0.1213	0.3639	0.993	746.3	978.4	27,800	28,200	0.1101
TBA	Drake/TW/AW	795.0	16	20/7	0.6244	0.7261	2	0.1360	0.4080	1.010	747.0	1039	30,800	31,800	0.1091
TBA	Mallard/TW/AW	795.0	23	22/19	0.6244	0.7668	2	0.0977	0.4885	1.050	750.6	1160	37,400	38,700	0.1073
TBA	Canary/TW/AW	900.0	13	20/7	0.7069	0.7985	2	0.1291	0.3873	1.055	844.9	1108	30,700	31,600	0.0973
TBA	Phoenix/TW/AW	954.0	5	30/7	0.7493	0.7878	3	0.0837	0.2511	1.044	897.7	1008	23,200	23,700	0.0944
TBA	Rail/TW/AW	954.0	7	32/7	0.7493	0.8011	3	0.0971	0.2913	1.061	898.6	1047	25,400	25,900	0.0939
TBA	Cardinal/TW/AW	954.0	13	20/7	0.7493	0.8464	2	0.1329	0.3987	1.080	895.5	1174	32,600	33,500	0.0918
TBA	Canvasback/TW/AW	954.0	23	24/19	0.7493	0.9201	2	0.1070	0.5350	1.149	900.8	1392	44,900	46,500	0.0894
TBA	Snowbird/TW/AW	1033.5	5	30/7	0.8117	0.8535	3	0.0872	0.2616	1.089	972.5	1092	25,100	25,700	0.0871
TBA	Ortolan/TW/AW	1033.5	7	34/7	0.8117	0.8678	3	0.1010	0.3030	1.102	973.4	1134	27,500	28,100	0.0867
TBA	Curlew/TW/AW	1033.5	13	22/7	0.8117	0.9169	2	0.1383	0.4149	1.131	970.1	1272	34,800	36,300	0.0847

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Stock Number	Code Word	Conductor Size	Type No.	Stranding	Cross-Sectional Area		Layers of Al	Diameter			Weight		Rated Breaking Strength		DC Resistance @ 20°C
					Al	Total		AW Strands	AW Core	Complete Conductor	Al	Total	AW2	AW3	
		kcmil		Al/AW	in²	in²		in	in	in	lb/ 1000ft	lb/ 1000ft	lb	lb	Ω/mile
TBA	Avocet/TW/AW	1113.0	5	30/7	0.8741	0.9190	3	0.0904	0.2712	1.130	1047	1176	27,100	27,500	0.0809
TBA	Bluejay/TW/ AW	1113.0	7	34/7	0.8741	0.9346	3	0.1049	0.3147	1.143	1048	1222	29,700	30,300	0.0805
TBA	Finch/TW/AW	1113.0	13	38/19	0.8741	0.9850	3	0.0862	0.4310	1.190	1051	1370	37,600	39,100	0.0792
TBA	Oxbird/TW/AW	1192.5	5	30/7	0.9366	0.9848	3	0.0936	0.2808	1.170	1122	1260	29,000	29,500	0.0755
TBA	Bunting/TW/ AW	1192.5	7	34/7	0.9366	1.0013	3	0.1085	0.3255	1.181	1123	1309	31,800	32,400	0.0751
TBA	Grackle/TW/ AW	1192.5	13	38/19	0.9366	1.0553	3	0.0892	0.4460	1.225	1126	1467	40,200	41,900	0.0739
TBA	Scissortail/TW/ AW	1272.0	5	30/7	0.9990	1.0504	3	0.0967	0.2901	1.203	1197	1344	30,900	31,400	0.0708
TBA	Bittern/TW/AW	1272.0	7	38/7	0.9990	1.0681	3	0.1121	0.3363	1.224	1198	1396	33,900	34,600	0.0705
TBA	Pheasant/TW/ AW	1272.0	13	39/19	0.9990	1.1256	3	0.0921	0.4605	1.260	1201	1565	42,900	44,100	0.0693
TBA	Dipper/TW/AW	1351.5	7	36/7	1.0615	1.1348	3	0.1155	0.3465	1.256	1273	1483	36,000	36,700	0.0663
TBA	Martin/TW/AW	1351.5	13	42/19	1.0615	1.1959	3	0.0949	0.4745	1.300	1276	1662	45,600	46,800	0.0652
TBA	Bobolink/TW/ AW	1431.0	7	36/7	1.1239	1.2016	3	0.1189	0.3567	1.290	1348	1571	38,100	38,900	0.0626
TBA	Plover/TW/AW	1431.0	13	40/19	1.1239	1.2663	3	0.0977	0.4885	1.337	1351	1760	48,300	49,600	0.0616
TBA	Lapwing/TW/ AW	1590.0	7	36/7	1.2488	1.3351	3	0.1253	0.3759	1.358	1498	1746	41,800	42,200	0.0564
TBA	Falcon/TW/AW	1590.0	13	42/19	1.2488	1.4071	3	0.1030	0.5150	1.410	1501	1956	53,600	55,100	0.0554
TBA	Chukar/TW/AW	1780.0	8	38/19	1.3980	1.5120	3	0.0874	0.4370	1.445	1674	2002	49,100	50,700	0.0501
TBA	Bluebird/TW/ AW	2156.0	8	64/19	1.6933	1.8311	4	0.0961	0.4805	1.608	2045	2441	59,800	61,100	0.0417

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Diameter Equal to Standard ACSR Conductor - Weights, Measurements, Electrical and Engineering Data

Stock Number	Code Word	Conductor Size	Type No.	Stranding	ACSR with Equal Diameter			Cross-Sectional Area		Layers of Al	Diameter			Weight		Rated Breaking Strength		DC Resistance @ 20°C
					Code Word	Size	Stranding	Al	Total		AW Strands	AW Core	Complete Conductor	Al	Total	AW2	AW3	
		kcmil		Al/AW		kcmil	Al/AW	in²	in²		in	in	in	lb/1000ft	lb/1000ft	lb	lb	Ω/mile
TBA	Monongahela/TW/AW	405.1	6	14/1	Merlin	336.4	18/1	0.3182	0.3363	2	0.1520	0.1520	0.680	379.7	431.4	10,000	10,200	0.2210
TBA	Calumet/TW/AW	565.3	16	20/7	Hawk	477.0	26/7	0.4440	0.5162	2	0.1146	0.3438	0.860	531.2	738.3	22,300	22,900	0.1534
TBA	Mohawk/TW/AW	571.7	13	18/7	Flicker	477.0	24/7	0.4490	0.5073	2	0.1030	0.3090	0.850	536.6	703.8	20,000	20,600	0.1532
TBA	Oswego/TW/AW	664.8	16	20/7	Dove	556.5	26/7	0.5221	0.6072	2	0.1244	0.3732	0.927	624.6	868.7	26,200	26,600	0.1304
TBA	Mystic/TW/AW	666.6	13	20/7	Parakeet	556.5	24/7	0.5235	0.5914	2	0.1111	0.3333	0.913	625.7	820.5	23,300	24,000	0.1314
TBA	Wabash/TW/AW	762.8	16	20/7	Grosbeak	636.0	26/7	0.5991	0.6965	2	0.1331	0.3993	0.990	716.7	996.1	29,600	30,500	0.1137
TBA	Maumee/TW/AW	768.2	13	20/7	Rook	636.0	24/7	0.6033	0.6818	2	0.1195	0.3585	0.977	721.0	946.2	26,900	27,700	0.1140
TBA	Nechako/TW/AW	768.9	3	27/1	Swift	636.0	36/1	0.6039	0.6220	3	0.1520	0.1520	0.930	723.5	775.2	16,300	16,400	0.1180
TBA	Fraser/TW/AW	946.7	10	34/7	Puffin	795.0	22/7	0.7435	0.8167	3	0.1154	0.3462	1.077	892.5	1103	28,900	29,600	0.0938
TBA	Kettle/TW/AW	957.2	7	32/7	Tern	795.0	45/7	0.7518	0.8038	3	0.0973	0.2919	1.060	901.6	1051	25,500	26,000	0.0936
TBA	Suwannee/TW/AW	959.6	16	22/7	Drake	795.0	26/7	0.7537	0.8762	2	0.1493	0.4479	1.110	901.7	1253	36,000	37,200	0.0904
TBA	Columbia/TW/AW	966.2	13	22/7	Condor	795.0	54/7	0.7589	0.8573	2	0.1338	0.4014	1.092	907.0	1189	33,400	34,300	0.0906
TBA	Genesee/TW/AW	1158.0	7	34/7	Rail	954.0	45/7	0.9095	0.9734	3	0.1078	0.3234	1.165	1091	1274	31,000	31,600	0.0774
TBA	Hudson/TW/AW	1158.4	13	24/7	Cardinal	954.0	54/7	0.9098	1.0281	2	0.1467	0.4401	1.196	1087	1426	38,500	39,600	0.0756
TBA	Cheyenne/TW/AW	1168.1	5	30/7	Phoenix	954.0	42/7	0.9174	0.9645	3	0.0926	0.2778	1.155	1099	1234	28,400	28,800	0.0771
TBA	Yukon/TW/AW	1233.6	13	38/19	Curlew	1033.5	54/7	0.9689	1.0925	3	0.0910	0.4550	1.245	1165	1520	41,700	42,900	0.0714
TBA	Nelson/TW/AW	1257.1	7	36/7	Ortolan	1033.5	45/7	0.9873	1.0556	3	0.1115	0.3345	1.213	1184	1380	33,500	34,200	0.0713
TBA	Catawba/TW/AW	1272.0	5	30/7	Snowbird	1033.5	42/7	0.9990	1.0504	3	0.0967	0.2901	1.203	1197	1344	30,900	31,400	0.0708
TBA	Thames/TW/AW	1334.6	13	38/19	Finch	1113.0	54/19	1.0482	1.1812	3	0.0944	0.4720	1.290	1260	1642	45,000	46,300	0.0660
TBA	Mackenzie/TW/AW	1359.7	7	38/7	Bluejay	1113.0	45/7	1.0679	1.1418	3	0.1159	0.3477	1.260	1281	1493	36,200	37,000	0.0659
TBA	Truckee/TW/AW	1372.5	5	30/7	Avocet	1113.0	42/7	1.0780	1.1334	3	0.1004	0.3012	1.248	1292	1451	32,900	33,400	0.0656
TBA	Merrimack/TW/AW	1433.6	13	39/19	Grackle	1192.5	54/19	1.1259	1.2686	3	0.0978	0.4890	1.340	1354	1764	48,400	49,700	0.0615
TBA	Miramichi/TW/AW	1455.3	7	36/7	Bunting	1192.5	45/7	1.1430	1.2222	3	0.1200	0.3600	1.302	1371	1598	38,800	39,200	0.0616
TBA	St. Croix/TW/AW	1467.8	5	33/7	Oxbird	1192.5	42/7	1.1528	1.2124	3	0.1041	0.3123	1.292	1381	1552	35,200	35,800	0.0613

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Stock Number	Code Word	Conductor Size	Type No.	Stranding	ACSR with Equal Diameter			Cross-Sectional Area		Layers of Al	Diameter			Weight		Rated Breaking Strength		DC Resistance @ 20°C
					Code Word	Size	Stranding	Al	Total		AW Strands	AW Core	Complete Conductor	Al	Total	AW2	AW3	
		kcmil		Al/AW		kcmil	Al/AW	in²	in²		in	in	in	lb/1000ft	lb/1000ft	lb	lb	Ω/mile
TBA	Rio Grande/TW/AW	1533.3	13	38/19	Pheasant	1272.0	54/19	1.2043	1.3571	3	0.1012	0.5060	1.380	1448	1887	51,800	53,200	0.0575
TBA	Potomac/TW/AW	1557.4	7	36/7	Bittern	1272.0	45/7	1.2232	1.3079	3	0.1241	0.3723	1.350	1467	1710	41,500	41,900	0.0575
TBA	Platte/TW/AW	1569.0	5	33/7	Scissortail	1272.0	42/7	1.2323	1.2957	3	0.1074	0.3222	1.334	1476	1658	37,600	38,200	0.0574
TBA	Pecos/TW/AW	1622.0	13	39/19	Martin	1351.5	54/19	1.2739	1.4428	3	0.1064	0.5320	1.420	1531	2017	55,900	57,500	0.0542
TBA	Schuylkill/TW/AW	1657.4	7	36/7	Dipper	1351.5	45/7	1.3017	1.3918	3	0.1280	0.3840	1.386	1561	1820	43,600	44,000	0.0541
TBA	James/TW/AW	1730.6	13	39/19	Plover	1431.0	54/19	1.3592	1.5316	3	0.1075	0.5375	1.470	1634	2130	57,800	59,400	0.0509
TBA	Pee Dee/TW/AW	1758.6	7	38/7	Bobolink	1431.0	45/7	1.3812	1.4768	3	0.1319	0.3957	1.430	1656	1930	45,800	46,700	0.0510
TBA	Cumberland/TW/AW	1926.9	13	42/19	Falcon	1590.0	54/19	1.5134	1.7050	3	0.1133	0.5665	1.550	1819	2370	64,300	66,000	0.0457
TBA	Athabaska/TW/AW	1949.6	7	44/7	Lapwing	1590.0	45/7	1.5312	1.6377	3	0.1392	0.4176	1.504	1836	2142	50,300	51,900	0.0460
TBA	Powder/TW/AW	2153.8	8	64/19	Chukar	1780.0	84/19	1.6916	1.8294	4	0.0961	0.4805	1.596	2043	2439	59,800	61,100	0.0417
TBA	Santee/TW/AW	2627.3	8	64/19	Bluebird	2156.0	84/19	2.0635	2.2318	4	0.1062	0.5310	1.761	2492	2976	73,000	74,500	0.0342

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