

Alumoweld® Overhead Ground Wire

Alumoweld wire and strand are used by power utilities, as well as formed wire and optical ground wire manufacturers. Alumoweld is suitable in corrosive environments, lowering maintenance and replacement costs.

Features

Corrosion Resistance

Alumoweld overhead ground wire has excellent corrosion resistance. Its strength and conductivity remain unchanged in any atmosphere where aluminum is satisfactory, especially those known to be corrosive from industrial or atmospheric conditions.

This assurance against corrosion is obtained through the application of a thick covering of pure aluminum, which provides a substantial barrier of protective metal. The minimum cladding thickness of Alumoweld is 10% of the radius of the wire. The cladding has a continuous, strong metallic bond to the steel core that will not crack or flake.

Strength Comparable to Steel

Alumoweld also provides strength greater than or comparable to other overhead ground wires. For commonly used wire sizes, the tensile strength of the individual wire can approach 200,000 pounds per square inch. When used in a strand for overhead ground wire, this high strength permits greater span lengths, less sag, and heavier loads under storm loading conditions.

Lightweight

Directly related to strength and sag performance is the lighter weight of Alumoweld. This lighter weight, combined with high strength, permits Alumoweld to be installed to the same sags as steel with correspondingly lower tensions and lower stresses on the towers or supporting structures.



Applications

- Overhead ground wire
- Shield wire protecting transmission lines against lightning damage

Alumoweld Strand ASTM B-416

Number & Size of Wires	Nominal Wire Diameter		Nominal Strand Diameter		Breaking Load		Weight		Resistance		Cross Section	
	AWG	in.	mm	in.	mm	lbs	kg	lbs/1000 ft	kg/km	Ohms/1000 ft@68°F	Ohms/km@20°C	sq. in.
37 No. 6	0.1620	4.115	1.130	28.70	120,200	54,500	2222.00	3307.0	0.05356	0.1757	0.76264	492.20
37 No. 7	0.1443	3.665	1.010	25.70	100,700	45,690	1762.00	2623.0	0.06754	0.2216	0.60509	390.30
37 No. 8	0.1285	3.264	0.899	22.80	84,200	38,190	1398.00	2080.0	0.08516	0.2794	0.47984	309.50
37 No. 9	0.1144	2.906	0.801	20.30	66,770	30,290	1108.00	1649.0	0.10740	0.3523	0.38032	245.50
37 No.10	0.1019	2.588	0.713	18.10	52,950	24,020	879.00	1308.0	0.13540	0.4443	0.30174	194.70
19 No. 5	0.1819	4.620	0.910	23.10	73,350	33,270	1430.00	2129.0	0.08224	0.2698	0.49438	318.70
19 No. 6	0.1620	4.115	0.810	20.60	61,700	27,990	1134.00	1688.0	0.10370	0.3402	0.39163	252.70
19 No. 7	0.1443	3.665	0.721	18.30	51,730	23,460	899.50	1339.0	0.13080	0.4290	0.31073	200.40



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Alumoweld® Overhead Ground Wire

Alumoweld Strand ASTM B-416 (cont.)

Number & Size of Wires	Nominal Wire Diameter		Nominal Strand Diameter		Breaking Lod		Weight		Resistance		Cross Section	
	AWG	in.	mm	in.	mm	lbs	kg	lbs/1000 ft	kg/km	Ohms/1000 ft@68°F	Ohms/km@20°C	sq. in.
19 No. 8	0.1285	3.264	0.642	16.30	43,240	19,610	713.50	1062.0	0.16490	0.5409	0.24641	158.90
19 No. 9	0.1144	2.906	0.572	14.50	34,290	15,550	565.80	842.0	0.20790	0.6821	0.19530	126.10
19 No.10	0.1019	2.588	0.509	12.90	27,190	12,330	448.70	667.7	0.26220	0.8601	0.15495	99.96
7 No. 5	0.1819	4.620	0.546	13.90	27,030	12,260	524.90	781.1	0.22640	0.7426	0.18193	117.40
7 No. 6	0.1620	4.115	0.486	12.40	22,730	10,310	416.30	619.5	0.28030	0.9198	0.14435	93.10
7 No. 7	0.1443	3.665	0.433	11.00	19,060	8,645	330.00	491.1	0.35350	1.1600	0.11448	73.87
7 No. 8	0.1285	3.264	0.385	9.78	15,930	7,226	261.80	389.6	0.44580	1.4630	0.09077	58.56
7 No. 9	0.1144	2.906	0.343	8.71	12,630	5,729	207.60	308.9	0.56210	1.8440	0.07198	46.44
7 No.10	0.1019	2.588	0.306	7.76	10,020	4,545	164.70	245.1	0.70880	2.3250	0.05708	36.83
7 No.11	0.0907	2.304	0.272	6.91	7,945	3,604	130.60	194.4	0.89380	2.9320	0.04527	29.21
7 No.12	0.0808	2.052	0.242	6.16	6,301	2,858	103.60	154.2	1.12700	3.6970	0.03590	23.16
3 No. 5	0.1819	4.620	0.392	9.96	12,230	5,547	224.50	334.1	0.51770	1.6990	0.07796	50.32
3 No. 6	0.1620	4.115	0.349	8.87	10,280	4,663	178.10	265.0	0.65280	2.1420	0.06185	39.90
3 No. 7	0.1443	3.665	0.311	7.90	8,621	3,910	141.20	210.1	0.82320	2.7010	0.04905	31.65
3 No. 8	0.1285	3.264	0.277	7.03	7,206	3,269	112.00	166.7	1.03800	3.4060	0.03890	25.10
3 No. 9	0.1144	2.906	0.247	6.26	5,715	2,592	88.81	132.2	1.30900	4.2940	0.03085	19.90
3 No.10	0.1019	2.588	0.220	5.58	4,532	2,056	70.43	104.8	1.65100	5.4150	0.02446	15.78

Alumoweld Strand ASTM B-415

Number & Size of Wires	Nominal Wire Diameter		Nominal Strand Diameter		Breaking Lod		Weight		Resistance		Cross Section	
	AWG	in.	mm	in.	mm	lbs	kg	lbs/1000 ft	kg/km	Ohms/1000 ft@68°F	Ohms/km@20°C	sq. in.
No. 5	0.1819	4.620	165	116.0	4,290	1,946	74.25	110.5	1.541	5.056	0.02599	16.77
No. 6	0.1620	4.115	175	123.0	3,608	1,637	58.88	87.6	1.943	6.375	0.02062	13.30
No. 7	0.1443	3.665	185	130.1	3,025	1,372	46.69	69.5	2.450	8.038	0.01635	10.55
No. 8	0.1285	3.264	195	137.1	2,529	1,147	37.03	55.1	3.089	10.130	0.01297	8.37
No. 9	0.1144	2.906	195	137.1	2,005	909	29.37	43.7	3.896	12.780	0.01028	6.63
No.10	0.1019	2.588	195	137.1	1,590	721	23.29	34.7	4.912	16.120	0.00816	5.26
No.11	0.0907	2.304	195	137.1	1,261	572	18.47	27.5	6.194	20.320	0.00647	4.17
No.12	0.0808	2.052	195	137.1	1,000	454	14.65	21.8	7.811	25.630	0.00513	3.31

Modulus of Elasticity: Strand 23,000,000; Solid Wire 23,500,000. Coefficient of Linear Expansion: 0.000,007,2 per degree F.
 Modulus of Elasticity: Strand 16,200 kg/mm²; Solid Wire 16,500 kg/mm². Coefficient of Linear Expansion: 0.000,013 per degree C.

Qualifications

Governing Body	Standard Code	Component
ASTM	B415	Alumium Clad Steel Wire (ACS wire)

Contact AFL for your Alumoweld solution.