

Covered Conductors – Tree Wire Systems

Description:

Tree wire or covered open wire consists of the conductor (aluminum, aluminum alloy or ACSR) and the extruded covering (conductor shield, low density inner layer and protective outer layer). Covering thickness depends on the system voltage. It is designed for full span applications and is supported on polyethylene insulators. Covered conductors are available in black or gray depending on visual preference.

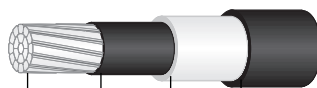
Benefits:

- Covering prevents faults due to contact
- Proprietary, high density outer layer resists abrasion and electrical tracking
- Phase spacing less than the NESC minimum is possible because conductors are covered
- Pole hardware is the same as bare wire construction except that Hendrix polyethylene insulators are required

Application:

Hendrix provides tree wire designed for systems from 5kV through 46kV. Polyethylene insulators must be used to insure dielectric compatibility with conductor covering. Conductors are supported on crossarms or standoff brackets. Span lengths are limited by the conductor breaking strength and the amount of sag that is permissible. Covered conductors are rated for continuous operation at 75°C. (Consult Hendrix sales representative for 46kV tree wire systems).

15kV Tree Wire



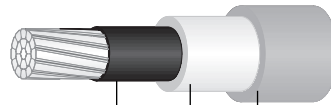
0.075" black or gray high density polyethylene (0.080" for 795 kcmil)

0.075" natural linear low density polyethylene (0.080" for 795 kcmil)

0.015" black semiconducting polyethylene (0.020" for 477 kcmil and larger)

Aluminum, Aluminum Alloy or ACSR (copper, AWAC, ACAR conductors are also available)

25kV Tree Wire

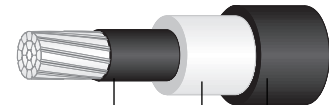


0.125" black or gray high density polyethylene

0.125" natural linear low density polyethylene

0.015" black semiconducting polyethylene (0.020" for 477 kcmil and larger)

35kV Tree Wire



0.125" black or gray high density polyethylene

0.175" natural linear low density polyethylene

0.015" black semiconducting polyethylene (0.020" for 477 kcmil and larger)

continued



Covered Conductors – Tree Wire Systems

ACSR Concentric Round Conductors*

Size	Strands (Al/Steel)	15kV Tree Wire		25kV Tree Wire		35kV Tree Wire	
		Cable Diameter (inches)	Cable Weight (lbs/1000 ft)	Cable Diameter (inches)	Cable Weight (lbs/1000 ft)	Cable Diameter (inches)	Cable Weight (lbs/1000 ft)
#4 AWG	6/1	0.580	156	0.780	245	0.880	298
#2 AWG	6/1	0.646	207	0.846	304	0.946	362
#1 AWG	6/1	0.684	241	0.884	343	0.984	404
1/0 AWG	6/1	0.728	284	0.928	391	1.028	454
2/0 AWG	6/1	0.777	336	0.977	450	1.077	516
3/0 AWG	6/1	0.832	400	1.032	521	1.132	591
4/0 AWG	6/1	0.893	478	1.093	607	1.193	681
266.8 kcmil	18/1	0.939	480	1.139	615	1.239	691
266.8 kcmil	26/7	0.972	561	1.172	700	1.272	778
336.4 kcmil	18/1	1.014	576	1.214	720	1.314	802
336.4 kcmil	26/7	1.050	677	1.250	826	1.350	910
336.4 kcmil	30/7	1.071	747	1.271	899	1.371	984
397.5 kcmil	18/1	1.073	660	1.273	812	1.373	897
397.5 kcmil	24/7	1.102	740	1.302	896	1.402	983
397.5 kcmil	26/7	1.113	778	1.313	935	1.413	1,023
477.0 kcmil	18/1	1.154	775	1.354	938	1.454	1,028
477.0 kcmil	24/7	1.186	872	1.386	1,039	1.486	1,131
477.0 kcmil	26/7	1.198	918	1.398	1,086	1.498	1,179
477.0 kcmil	30/7	1.223	1,015	1.423	1,186	1.523	1,281
556.5 kcmil	18/1	1.219	881	1.419	1,052	1.519	1,146
556.5 kcmil	24/7	1.254	994	1.454	1,169	1.554	1,265
556.5 kcmil	26/7	1.267	1,047	1.467	1,223	1.567	1,321
636.0 kcmil	18/1	1.280	986	1.480	1,165	1.580	1,263
636.0 kcmil	24/7	1.317	1,114	1.517	1,297	1.617	1,398
636.0 kcmil	26/7	1.330	1,174	1.530	1,359	1.630	1,460
795.0 kcmil	24/7	1.432	1,352	1.632	1,550	1.732	1,657
795.0 kcmil	26/7	1.448	1,428	1.648	1,628	1.748	1,736
795.0 kcmil	45/7	1.403	1,209	1.603	1,403	1.703	1,509

* Conductor selection must be based on rated breaking strength, span length and regional loading conditions.

continued

Covered Conductors – Tree Wire Systems

Aluminum (1350-H19) Compact Conductors*

Size	Strands	15kV Tree Wire		25kV Tree Wire		35kV Tree Wire	
		Cable Diameter (inches)	Cable Weight (lbs/1000 ft)	Cable Diameter (inches)	Cable Weight (lbs/1000 ft)	Cable Diameter (inches)	Cable Weight (lbs/1000 ft)
1/0 AWG	7	0.668	215	0.868	321	0.968	384
2/0 AWG	7	0.711	251	0.911	363	1.011	429
3/0 AWG	7	0.756	297	0.956	414	1.056	483
4/0 AWG	7	0.808	351	1.008	476	1.108	548
266.8 kcmil	7	0.867	416	1.067	550	1.167	625
336.4 kcmil	19	0.937	497	1.137	640	1.237	721
397.5 kcmil	19	0.990	568	1.190	718	1.290	803
477.0 kcmil	19	1.062	662	1.262	815	1.362	903
556.5 kcmil	19	1.120	752	1.320	912	1.420	1,004
636.0 kcmil	19	1.175	839	1.374	1,005	1.476	1,102
795.0 kcmil	19	1.292	1,049	1.472	1,211	1.572	1,315

Aluminum Alloy (6201-T81) Concentric Round Conductors*

Equivalent Size	Code Word	15kV Tree Wire		25kV Tree Wire		35kV Tree Wire	
		Cable Diameter (inches)	Cable Weight (lbs/1000 ft)	Cable Diameter (inches)	Cable Weight (lbs/1000 ft)	Cable Diameter (inches)	Cable Weight (lbs/1000 ft)
4 AWG	Alton	0.580	144	0.780	233	0.880	286
2 AWG	Ames	0.646	189	0.846	286	0.946	343
1/0 AWG	Azusa	0.728	255	0.928	362	1.028	424
2/0 AWG	Anaheim	0.777	299	0.977	413	1.077	478
3/0 AWG	Amherst	0.832	353	1.032	474	1.132	543
4/0 AWG	Alliance	0.893	419	1.093	548	1.193	621
266.8 kcmil	Butte	0.972	493	1.172	632	1.272	709
336.4 kcmil	Canton	1.051	592	1.251	741	1.351	822
397.5 kcmil	Cairo	1.113	677	1.313	834	1.413	918
477.0 kcmil	Darien	1.198	796	1.398	964	1.498	1,053
556.5 kcmil	Elgin	1.267	904	1.467	1,081	1.567	1,175
636.0 kcmil	Flint	1.331	994	1.531	1,179	1.631	1,276
795.0 kcmil	Greeley	1.448	1,204	1.648	1,404	1.748	1,507

* Conductor selection must be based on rated breaking strength, span length and regional loading conditions.