

Medium-voltage cable accessories technical information

AEIC and ICEA cable insulation diameter

AEIC CS8-06

Specification for extruded dielectric, shielded power cable rated 5–46 kV

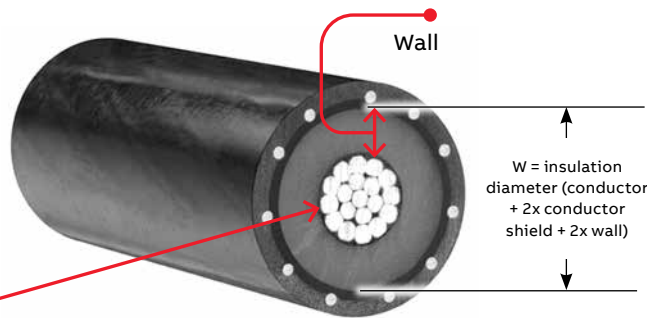
AEIC-calculated diameters – Solid and compressed stranding from tables C-4 and C-6 and compact stranding from tables C-5 and C-7

ANSI/ICEA S-94-649-2004 & S-97-682-2000

Standard for concentric neutral cables and utility shielded power cables rated 5–46 kV

ICEA – Concentric stranding from table C-3, compressed stranding from table C-4, compact stranding from table C-5

ICEA abbreviated – For additional cables, please refer to the standard



- 15 kV 100% – 175 mil insulation (0.175")
- 15 kV 133% – 220 mil insulation (0.220")
- 25 kV 100% – 260 mil insulation (0.260")
- 35 kV 100% – 345 mil insulation (0.345")

15 kV cable (100% level, 175 mil)

Aluminum and copper conductor size (AWG or kcmil)	Industry standard	Solid conductor		Stranded conductor		Compressed conductor		Compact conductor	
		Diameter in inches over insulation		Diameter in inches over insulation		Diameter in inches over insulation		Diameter in inches over insulation	
		Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.
#2	AEIC	0.610	0.700	–	–	0.635	0.725	0.620	0.710
	ICEA	0.610	0.695	0.645	0.730	0.635	0.720	0.620	0.705
#1	AEIC	0.645	0.730	–	–	0.675	0.765	0.655	0.740
	ICEA	0.645	0.725	0.685	0.770	0.675	0.760	0.655	0.735
1/0	AEIC	0.680	0.770	–	–	0.715	0.805	0.690	0.775
	ICEA	0.680	0.760	0.725	0.810	0.715	0.800	0.690	0.775
2/0	AEIC	–	–	–	–	0.760	0.850	0.730	0.815
	ICEA	–	–	0.775	0.855	0.760	0.845	0.730	0.815
3/0	AEIC	–	–	–	–	0.810	0.900	0.775	0.865
	ICEA	–	–	0.825	0.905	0.810	0.895	0.775	0.860
4/0	AEIC	–	–	–	–	0.865	0.955	0.830	0.915
	ICEA	–	–	0.880	0.965	0.865	0.950	0.830	0.910
250	AEIC	–	–	–	–	–	–	–	–
	ICEA	–	–	0.935	1.020	0.920	1.005	0.880	0.965
350	AEIC	–	–	–	–	1.025	1.115	0.980	1.065
	ICEA	–	–	1.045	1.130	1.025	1.110	0.980	1.065
500	AEIC	–	–	–	–	1.150	1.245	1.100	1.185
	ICEA	–	–	1.175	1.260	1.150	1.235	1.100	1.185
750	AEIC	–	–	–	–	1.340	1.440	1.280	1.370
	ICEA	–	–	1.370	1.455	1.340	1.425	1.280	1.365
1000	AEIC	–	–	–	–	1.485	1.590	1.430	1.520
	ICEA	–	–	1.520	1.610	1.485	1.575	1.430	1.515

ICEA Note: Diameters specified in the above table are different than specified by AEIC CS8-00. Consult accessory manufacturer for proper selection of accessories. Diameters to be measured in accordance with 9.6.

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15 kV cable (133% level, 220 mil)

Aluminum and copper conductor size (AWG or kcmil)	Industry standard	Solid conductor		Stranded conductor		Compressed conductor		Compact conductor	
		Diameter in inches over insulation		Diameter in inches over insulation		Diameter in inches over insulation		Diameter in inches over insulation	
		Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.
#2	AEIC	0.700	0.790	-	-	0.725	0.815	0.710	0.800
	ICEA	0.700	0.790	0.735	0.825	0.725	0.815	0.710	0.800
#1	AEIC	0.735	0.820	-	-	0.765	0.855	0.745	0.830
	ICEA	0.735	0.820	0.775	0.865	0.765	0.855	0.745	0.830
1/0	AEIC	0.770	0.860	-	-	0.805	0.895	0.780	0.865
	ICEA	0.770	0.855	0.815	0.905	0.805	0.895	0.780	0.865
2/0	AEIC	-	-	-	-	0.850	0.940	0.820	0.905
	ICEA	-	-	0.865	0.950	0.850	0.935	0.820	0.905
3/0	AEIC	-	-	-	-	0.900	0.990	0.865	0.955
	ICEA	-	-	0.915	1.000	0.900	0.985	0.865	0.955
4/0	AEIC	-	-	-	-	0.955	1.045	0.920	1.005
	ICEA	-	-	0.970	1.060	0.955	1.045	0.920	1.005
250	AEIC	-	-	-	-	-	-	-	-
	ICEA	-	-	1.025	1.115	1.010	1.100	0.970	1.060
350	AEIC	-	-	-	-	1.115	1.205	1.070	1.155
	ICEA	-	-	1.135	1.220	1.115	1.200	1.070	1.155
500	AEIC	-	-	-	-	1.240	1.335	1.190	1.275
	ICEA	-	-	1.265	1.355	1.240	1.330	1.190	1.275
750	AEIC	-	-	-	-	1.430	1.530	1.370	1.460
	ICEA	-	-	1.460	1.550	1.430	1.520	1.370	1.460
1000	AEIC	-	-	-	-	1.575	1.680	1.520	1.610
	ICEA	-	-	1.610	1.705	1.575	1.670	1.520	1.610

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AEIC and ICEA cable insulation diameter

25 kV cable (100% Level, 260 mil)

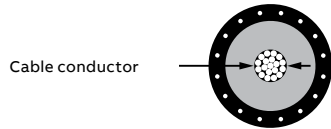
Aluminum and copper conductor size (AWG or kcmil)	Industry standard	Solid conductor		Stranded conductor		Compressed conductor		Compact conductor	
		Diameter in inches over insulation		Diameter in inches over insulation		Diameter in inches over insulation		Diameter in inches over insulation	
		Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.
#1	AEIC	0.805	0.900	–	–	0.835	0.935	0.815	0.910
	ICEA	0.805	0.895	0.845	0.935	0.835	0.925	0.815	0.905
1/0	AEIC	0.840	0.940	–	–	0.875	0.975	0.850	0.945
	ICEA	0.840	0.930	0.885	0.980	0.875	0.965	0.850	0.940
2/0	AEIC	–	–	–	–	0.920	1.020	0.890	0.985
	ICEA	–	–	0.935	1.025	0.920	1.010	0.890	0.980
3/0	AEIC	–	–	–	–	0.970	1.070	0.935	1.035
	ICEA	–	–	0.985	1.075	0.970	1.060	0.935	1.030
4/0	AEIC	–	–	–	–	1.025	1.125	0.990	1.085
	ICEA	–	–	1.040	1.135	1.025	1.115	0.990	1.080
250	AEIC	–	–	–	–	–	–	–	–
	ICEA	–	–	1.095	1.190	1.080	1.175	1.040	1.135
350	AEIC	–	–	–	–	1.185	1.295	1.140	1.245
	ICEA	–	–	1.205	1.295	1.185	1.275	1.140	1.230
500	AEIC	–	–	–	–	1.310	1.425	1.260	1.365
	ICEA	–	–	1.335	1.430	1.310	1.405	1.260	1.350
750	AEIC	–	–	–	–	1.500	1.620	1.440	1.550
	ICEA	–	–	1.530	1.625	1.500	1.595	1.440	1.535
1000	AEIC	–	–	–	–	1.645	1.770	1.590	1.700
	ICEA	–	–	1.680	1.775	1.645	1.740	1.590	1.685

35 kV cable (100% level, 345 mil)

Aluminum and copper conductor size (AWG or kcmil)	Industry standard	Solid conductor		Stranded conductor		Compressed conductor		Compact conductor	
		Diameter in inches over insulation		Diameter in inches over insulation		Diameter in inches over insulation		Diameter in inches over insulation	
		Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.
1/0	AEIC	1.010	1.110	–	–	1.045	1.145	1.020	1.115
	ICEA	1.010	1.110	1.055	1.155	1.045	1.145	1.020	1.120
2/0	AEIC	–	–	–	–	1.090	1.190	1.060	1.155
	ICEA	–	–	1.105	1.200	1.090	1.190	1.060	1.160
3/0	AEIC	–	–	–	–	1.140	1.240	1.105	1.205
	ICEA	–	–	1.155	1.255	1.140	1.240	1.105	1.205
4/0	AEIC	–	–	–	–	1.195	1.295	1.160	1.255
	ICEA	–	–	1.210	1.310	1.195	1.295	1.160	1.260
250	AEIC	–	–	–	–	–	–	–	–
	ICEA	–	–	1.265	1.370	1.250	1.350	1.210	1.315
350	AEIC	–	–	–	–	1.355	1.470	1.310	1.420
	ICEA	–	–	1.375	1.475	1.355	1.455	1.310	1.410
500	AEIC	–	–	–	–	1.480	1.600	1.430	1.540
	ICEA	–	–	1.505	1.605	1.480	1.580	1.430	1.530
750	AEIC	–	–	–	–	1.670	1.795	1.610	1.725
	ICEA	–	–	1.700	1.800	1.670	1.770	1.610	1.710
1000	AEIC	–	–	–	–	1.815	1.945	1.760	1.875
	ICEA	–	–	1.850	1.955	1.815	1.920	1.760	1.865

ICEA Note: Diameters specified in the above table are different than specified by AEIC CS8-00. Consult accessory manufacturer for proper selection of accessories. Diameters to be measured in accordance with 9.6.

Conductor diameters for copper and aluminum (Class B) stranded, compressed, compact and solid cables



Conductor diameters for copper and aluminum (Class B) stranded, compressed, compact and solid cables

Conductor size (AWG or kcmil)	No. of strands and their nom. strand dia. (in.)	Cross-sectional area		Stranded conductors (inches)	Compressed conductors (inches)	Compact conductors (inches)	Solid conductors (inches)
		Square inches	mm ² conversion				
#14	7 x 0.0242	0.0032	2.08	0.073	-	-	0.064
#12	7 x 0.0305	0.0051	3.31	0.092	-	-	0.081
#10	7 x 0.0385	0.0082	5.26	0.116	-	-	0.102
#8	7 x 0.0486	0.0130	8.37	0.146	-	-	0.129
#6	7 x 0.0612	0.0206	13.30	0.184	-	-	0.162
#4	7 x 0.0772	0.0328	21.15	0.232	-	-	0.204
#2	7 x 0.0974	0.0521	33.62	0.292	0.283	0.268	0.258
#1	19 x 0.0664	0.0657	42.41	0.332	0.322	0.299	0.289
1/0	19 x 0.0745	0.0829	53.49	0.373	0.362	0.336	0.325
2/0	19 x 0.0837	0.1054	67.43	0.418	0.405	0.376	-
3/0	19 x 0.0940	0.1318	85.01	0.470	0.456	0.423	-
4/0	19 x 0.1055	0.1662	107.2	0.528	0.512	0.475	-
250	37 x 0.0822	0.1964	127	0.575	0.558	0.520	-
350	37 x 0.0973	0.2749	177	0.681	0.661	0.616	-
500	37 x 0.1162	0.3924	253	0.813	0.789	0.736	-
600	61 x 0.0992	0.4712	304	0.893	0.866	0.813	-
700	61 x 0.1071	0.5498	355	0.964	0.935	0.877	-
750	61 x 0.1109	0.5890	380	0.998	0.968	0.908	-
800	61 x 0.1145	0.6283	405	1.031	1.000	0.938	-
900	61 x 0.1215	0.7069	456	1.094	1.061	0.999	-
1000	61 x 0.1280	0.7854	507	1.152	1.117	1.060	-
1100	91 x 0.1099	0.8639	557	1.209	1.173	-	-
1200	91 x 0.1148	0.9425	608	1.263	1.225	-	-
1250	91 x 0.1172	0.9818	633	1.289	1.250	-	-
1300	91 x 0.1195	1.021	659	1.315	1.276	-	-
1400	91 x 0.1240	1.100	709	1.364	1.323	-	-
1500	91 x 0.1284	1.178	760	1.412	1.370	-	-
1600	127 x 0.1122	1.257	811	1.459	1.415	-	-
1700	127 x 0.1157	1.335	861	1.504	1.459	-	-
1750	127 x 0.1174	1.374	887	1.526	1.480	-	-
1800	127 x 0.1191	1.414	912	1.548	1.502	-	-
1900	127 x 0.1223	1.492	963	1.590	1.542	-	-
2000	127 x 0.1225	1.571	1010	1.632	1.583	-	-