Technical Data For NEMA (In Inches)

AWG	Bare Copper Diameters (Inches) Min.	Nom.	Max.	Bare Copper Resistance (ohms/1000Ft.) Min.	Nom.	Max.	Single Build Minimum Increase (inches)	Single Build Overall Diameter (Inches) Min.	Nom.	Max.	Heavy Build Minimum Increase (inches)	Heavy Build Overall Diameter (Inches) Min.	Nom.	Max.	Triple Build Minimum Increase (inches)	Triple Build Overall Diameter (Inches) Min.	Nom.	Max.	Area Circ. Mils. Nom.	Single Build Lbs. 1000Ft Nom.	Ft/lb Nom.	Ohms/lb Nom.	Wires/Sq.In Nom.	Ohms/ Cu. In. Nom.	Recommended Winding Tensions (grams)	Typical Elong. %	AWG
24.0	0.0199	0.0201	0.0202	24.91	25.55	26.19	0.001	0.0209	0.0213	0.0217	0.019	0.0218	0.0233	0.0227	0.0029	0.0228	0.0232	0.0236	404	1.246	802.7	20.606	2,204	4.714	1,450	42	24.0
24.5	0.0188	0.019	0.0191	27.86	28.60	29.34	0.001	0.0198	0.0202	0.0206	0.019	0.0207	0.0212	0.0216	0.0029	0.0217	0.0221	0.0225	361	1.114	897.4	25.781	2,450	5.866	1,310	42	24.5
25.0	0.0177	0.0179	0.018	31.37	32.24	33.10	0.0009	0.0186	0.019	0.0194	0.018	0.0195	0.0199	0.0203	0.0027	0.0204	0.0208	0.0212	320	0.988	1,012	32.744	2,770	7.472	1,175	42	25.0
25.5	0.0167	0.0169	0.017	35.17	36.18	37.19	0.0009	0.0176	0.018	0.0184	0.018	0.0185	0.0189	0.0193	0.0027	0.0194	0.0198	0.0202	286	0.882	1,134	41.162	3,086	9.338	1,060	42	25.5
26.0	0.0157	0.0159	0.016	39.71	40.89	42.07	0.0009	0.0166	0.017	0.0173	0.017	0.0174	0.0178	0.0182	0.0026	0.0183	0.0187	0.0191	253	0.781	1,280	52.52	3,460	11.82	950	42	26.0
26.5	0.0149	0.015	0.0151	44.58	45.65	46.71	0.0009	0.0158	0.0162	0.0165	0.017	0.0166	0.017	0.0174	0.0026	0.0175	0.01785	0.0182	225	0.697	1,434	66.081	3,810	14.63	860	41	26.5
27.0	0.0141	0.0142	0.0143	49.71	50.94	52.17	0.0008	0.0149	0.0153	0.0156	0.016	0.0157	0.0161	0.0164	0.0025	0.0166	0.01695	0.0173	202	0.625	1,601	82.351	4,272	18.31	770	41	27.0
27.5	0.0133	0.0134	0.0135	55.78	57.20	58.63	0.0008	0.0141	0.0145	0.0148	0.016	0.0149	0.0153	0.0156	0.0025	0.0158	0.01615	0.0165	180	0.557	1,795	103.7	4,756	22.89	700	41	27.5
28.0	0.0125	0.0126	0.0127	63.02	64.70	66.37	0.0008	0.0133	0.0137	0.014	0.016	0.0141	0.0144	0.0147	0.0023	0.0148	0.01515	0.0155	159	0.493	2,027	132.44	5,328	29	630	40	28.0
28.5	0.0118	0.0119	0.012	70.59	72.54	74.48	0.0008	0.0126	0.013	0.0133	0.016	0.0134	0.0137	0.014	0.0023	0.0141	0.01445	0.0148	142	0.441	2,269	166.21	5,917	36.11	585	40	28.5
29.0	0.0112	0.0113	0.0114	78.22	80.45	82.68	0.0007	0.0119	0.0123	0.0126	0.015	0.0127	0.013	0.0133	0.0022	0.0134	0.01375	0.0141	128	0.397	2,520	204.69	6,610	44.74	540	40	29.0
29.5	0.0105	0.0106	0.0107	88.79	91.43	94.07	0.0007	0.0112	0.0116	0.0119	0.015	0.012	0.0123	0.0126	0.0022	0.0127	0.01305	0.0134	112	0.35	2,859	263.89	7,431	57.16	470	40	29.5
30.0	0.0099	0.01	0.0101	99.65	102.7	105.8	0.0007	0.0106	0.0109	0.0112	0.014	0.0113	0.0116	0.0119	0.002	0.0119	0.01235	0.0128	100	0.311	3,212	333.11	8,416	72.73	400	40	30.0
30.5	0.0094	0.0095	0.0096	110.3	113.8	117.4	0.0007	0.0101	0.0104	0.0107	0.014	0.0108	0.0111	0.0114	0.002	0.0114	0.01185	0.0123	90.25	0.281	3,555	408.5	9,245	88.52	355	39	30.5
31.0	0.0088	0.0089	0.009	125.5	129.7	133.9	0.0006	0.0094	0.0097	0.01	0.013	0.0101	0.0105	0.0108	0.0018	0.0106	0.011	0.0114	79.21	0.247	4,054	530.8	10,628	115.9	315	39	31.0
31.5	0.0083	0.0084	0.0085	140.7	145.6	150.5	0.0006	0.0089	0.0092	0.0095	0.013	0.0096	0.009	0.0103	0.0018	0.0101	0.0105	0.0109	70.56	0.22	4,547	668.3	11,814	144.7	290	39	31.5
32.0	0.0079	0.008	0.0081	154.9	160.6	166.2	0.0006	0.0085	0.0088	0.0091	0.012	0.0091	0.0095	0.0098	0.0017	0.0096	0.00995	0.0103	64	0.2	5,003	810.7	12,913	174.3	270	37	32.0
32.5	0.0074	0.0075	0.0076	176.0	182.7	189.4	0.0005	0.0079	0.0083	0.0086	0.012	0.0086	0.009	0.0093	0.0017	0.0091	0.00945	0.0098	56.25	0.176	5,686	1,048	14,515	223	245	37	32.5
33.0	0.007	0.0071	0.0072	196.1	203.9	211.7	0.0005	0.0075	0.0078	0.0081	0.011	0.0081	0.0084	0.0088	0.0015	0.0085	0.00885	0.0092	50.41	0.157	6,352	1,307	16,436	281.7	225	37	33.0
33.5	0.0066	0.0067	0.0068	219.8	229.0	238.1	0.0005	0.0071	0.0074	0.0077	0.011	0.0077	0.0081	0.0084	0.0015	0.0081	0.00845	0.0088	44.89	0.14	7,124	1,646	18,261	351.5	200	35	33.5
34.0	0.0062	0.0063	0.0064	248.2	259.0	269.8	0.0005	0.0067	0.0069	0.0072	0.01	0.0072	0.0075	0.0078	0.0014	0.0076	0.0079	0.0082	39.69	0.124	8,086	2,108	21,003	457.3	182	35	34.0
34.5	0.0058	0.0059	0.006	282.4	295.3	308.3	0.0004	0.0062	0.0065	0.0068	0.01	0.0068	0.0071	0.0074	0.0014	0.0072	0.0075	0.0078	34.81	0.109	9,185	2,737	23,668	587.6	165	34	34.5
35.0	0.0055	0.0056	0.0057	312.9	327.9	342.8	0.0004	0.0059	0.0062	0.0064	0.009	0.0064	0.0067	0.007	0.0013	0.0068	0.0071	0.0074	31.36	0.0979	10,213	3,377	26,014	716.9	147	34	35.0
35.5	0.0052	0.0053	0.0054	348.6	366.1	383.5	0.0004	0.0056	0.0058	0.0061	0.009	0.0061	0.0064	0.0067	0.0013	0.0065	0.0068	0.0071	28.09	0.0878	11,390	4,205	29,726	914.6	133	34	35.5
36.0	0.0049	0.005	0.0051	390.8	411.4	431.9	0.0004	0.0053	0.0055	0.0058	0.008	0.0057	0.006	0.0063	0.0012	0.0061	0.0064	0.0067	25	0.0783	12,772	5,298	33,057	1,142	120	33	36.0
36.5	0.0046	0.0047	0.0048	441.2	465.7	490.1	0.0003	0.0049	0.0052	0.0055	0.008	0.0054	0.0057	0.006	0.0012	0.0058	0.0061	0.0064	22.09	0.0692	14,445	6,782	36,982	1,447	110	33	36.5
37.0	0.0044	0.0045	0.0046	480.4	508.0	535.7	0.0003	0.0047	0.005	0.0052	0.008	0.0052	0.0054	0.0057	0.0011	0.0055	0.00575	0.006	20.25	0.0633	15,798	8,091	40,000	1,707	100	32	37.0
37.5	0.0041	0.0042	0.0043	549.8	583.4	617.0	0.0003	0.0044	0.0047	0.005	0.008	0.0049	0.0052	0.0054	0.0011	0.0052	0.00545	0.0057	17.64	0.0544	18,038	10,605	45,269	2,218	90	32	37.5
38.0	0.0039	0.004	0.0041	604.7	643.3	681.9	0.0003	0.0042	0.0044	0.0047	0.007	0.0046	0.0048	0.0051	0.001	0.0049	0.00515	0.0054	16	0.0501	19,952	12,933	51,562	2,785	81	31	38.0
38.5	0.0036	0.0037	0.0038	703.9	752.1	800.2	0.0003	0.0039	0.0041	0.0044	0.007	0.0043	0.0046	0.0048	0.001	0.0046	0.00485	0.0051	13.69	0.043	23,261	17,622	59,488	3,756	72	31	38.5
39.0	0.0034	0.0035	0.0036	784.3	840.7	897.1	0.0002	0.0036	0.0039	0.0041	0.006	0.004	0.0043	0.0045	0.0009	0.0043	0.00455	0.0048	12.25	0.0384	26,058	22,061	65,746	4,638	64	30	39.0
39.5	0.0032	0.0033	0.0034	879.3	946.1	1,013	0.0002	0.0034	0.0037	0.0039	0.006	0.0038	0.0041	0.0043	0.0009	0.0041	0.00435	0.0046	10.89	0.0341	29,295	27,899	73,046	5,797	58	30	39.5
40.0	0.003	0.0031	0.0032	992.7	1,073	1,152	0.0002	0.0032	0.0034	0.0037	0.006	0.0036	0.0038	0.004	0.0008	0.0038	0.00405	0.0043	9.61	0.0301	33,217	35,847	81,630	7.341	52	29	40.0
40.5	0.0029	0.003	0.0031	1,058	1,145	1,233	0.002	0.0031	0.0034	0.0036	0.006	0.0035	0.0037	0.0039	0.0008	0.0037	0.00395	0.0042	9	0.0283	35,361	40,748	86,505	8,306	47	27	40.5
41.0	0.0027	0.0028	0.0029	1,209	1,316	1,423	0.0002	0.0029	0.0031	0.0033	0.005	0.0032	0.0034	0.0036	0.0008	0.0035	0.00375	0.004	7.84	0.0246	40,718	53,863	104,058	11,470	42	25	41.0
41.5	0.0025	0.0026	0.0027	1,394	1,527	1,659	0.0002	0.0027	0.0029	0.0031	0.005	0.003	0.0032	0.0034	0.0008	0.0033	0.00355	0.0038	6.76	0.0212	47,181	72,384	113,906	15,202	38	25	41.5
42.0	0.0024	0.0025	0.0026	1,504	1,652	1,801	0.0002	0.0026	0.0028	0.003	0.004	0.0028	0.003	0.0032	0.0007	0.0031	0.00335	0.0036	6.25	0.0195	51,313	85,147	127,551	17,638	34	24	42.0
42.5	0.0023	0.0024	0.0025	1,626	1,793	1,960	0.0002	0.0025	0.0026	0.0028	0.004	0.0027	0.0029	0.0031	0.0007	0.003	0.00325	0.0035	5.76	0.018	55,635	100,172	147,928	22,195	30	23	42.5
43.0	0.0021	0.0022	0.0023	1,922	2,137	2,352	0.0002	0.0023	0.0024	0.0026	0.004	0.0025	0.0027	0.0029	0.0006	0.0027	0.00295	0.0032	4.84	0.0151	66,092	141,619	176,611	31,536	26	22	43.0
43.5	0.002	0.0021	0.0022	2,100	2,346	2,593	0.0001	0.0021	0.0023	0.0025	0.004	0.0024	0.0026	0.0028	0.0006	0.0026	0.00285	0.0031	4.41	0.0138	72,462	170,408	189,035	37,046	24	21	43.5
44.0	0.0019	0.002	0.0021	2,305	2,589	2,873	0.0001	0.002	0.0022	0.0024	0.004	0.0023	0.0025	0.0027	0.0006	0.0025	0.00275	0.003	4	0.0125	79,798	206,897	206,611	44,641	22	21	44.0
44.5	0.0018	0.0019	0.002	2,451	2,871	3,201	0.0001	0.0019	0.0021	0.0023	0.004	0.0022	0.0024	0.0026	0.0006	0.0024	0.00265	0.0029	3.61	0.0113	88,308	253,696	226,757	54,287	19	20	44.5

AWG	Bare Copper Diameters (Inches) Min.	Nom.	Max.	Bare Copper Resistance* (ohms/Ft.) Min.	Nom.	Max.	Single Build Minimum Increase (inches)	Single Build Overall Diameter (Inches) Min.	Nom.	Max.	Heavy Build Minimum Increase (inches)	Heavy Build Overall Diameter (Inches) Min.	Nom.	Max.	Triple Build Minimum Increase (inches)	Triple Build Overall Diameter (Inches) Min.	Nom.	Max.	Area Circ. Mils. Nom.	Single Build Lbs. 1000Ft Nom.	Ft/lb Nom.	Ohms/ gram Nom.	Wires/Sq.In Nom.	Ohms/ Cu. In. Nom.	Recommended Winding Tensions (grams)	Typical Elong. %	AWG
45.0	0.00169	0.00176	0.00183	3.08	3.348	3.616	0.0001	0.00179	0.001920	0.002050	0.0003	0.00199	0.00215	0.0023	0.0005	0.0022	0.00245	0.0027	3.1	0.00965	103,600	746	271,441	75,683	17.0	20	45.0
45.5	0.0016	0.00166	0.00173	3.472	3.757	4.099	0.0001	0.0017	0.001820	0.001960	0.0003	0.0019	0.00205	0.0022	0.0005	0.0021	0.00235	0.0026	2.76	0.00834	119,900	993	301,896	94,519	15.0	20	45.5
46.0	0.00151	0.00157	0.00164	3.87	4.207	4.544	0.0001	0.00161	0.001730	0.001850	0.0003	0.00181	0.00196	0.0021	0.0005	0.0020	0.00221	0.0024	2.47	0.00768	130,200	1,210	334,084	117,138	14.0	20	46.0
46.5	0.00142	0.00148	0.00154	4.377	4.733	5.134	0.0001	0.00152	0.001640	0.001750	0.0003	0.00172	0.00186	0.002	0.0005	0.0019	0.00211	0.0023	2.19	0.00663	150,800	1,573	371,802	146,645	12.0	20	46.5
47.0	0.00135	0.0014	0.00146	4.868	5.291	5.714	0.0001	0.00145	0.001580	0.001700	0.0003	0.00165	0.00178	0.0019					1.96	0.00604	165,600	1,930	400,689	176,621	11.0	19	47.0
47.5	0.00127	0.00132	0.00137	5.525	5.962	6.453	0.0001	0.00137	0.001500	0.001610	0.0003	0.00157	0.00169	0.00181					1.74	0.00527	189,700	2,494	444,444	220,815	10.0	18	47.5
48.0	0.00119	0.00124	0.00129	6.205	6.745	7.285	0.0001	0.00129	0.001400	0.001500	0.0002	0.00139	0.00155	0.0017					1.54	0.00487	205,300	3,050	509,796	286,777	9.0	18	48.0
48.5	0.00113	0.00117	0.00122	7.008	7.585	8.123	0.0001	0.00123	0.001310	0.001410	0.0002	0.00133	0.00144	0.00155					1.37	0.00414	241,500	4,039	582,717	368,325	8.0	16	48.5
49.0	0.00107	0.00111	0.00116	7.744	8.417	9.09	0.0001	0.00117	0.001240	0.001300	0.0002	0.00127	0.00139	0.0015					1.23	0.00385	259,700	4,810	649,636	456,176	7.0	17	49.0
49.5	0.00101	0.00105	0.00109	8.72	9.386	10.371	0.0001	0.0011	0.001180	0.001260	0.0002	0.00121	0.00132	0.000143					1.1	0.00334	299,400	6,195	718,184	561,740	6.0	15	49.5
50.0	0.00095	0.00099	0.00103	9.734	10.58	11.43	0.0001	0.00105	0.001130	0.001200	0.0002	0.00115	0.00128	0.0014					0.98	0.00308	324,700	7,560	783,225	690,474	5.0	16	50.0
51.0	0.00085	0.00088	0.00092	12.32	13.39	14.46	0.0001	0.00095	0.001030	0.001100	0.0002	0.00105	0.00117	0.00129					0.775	0.00246	406,500	11,960	942,841	1,051,779	4.0	15	51.0
52.0	0.00075	0.00078	0.00081	15.69	17.05	18.41	0.0001	0.00085	0.000930	0.001000	0.0002	0.00095	0.00105	0.00115					0.608	0.00196	510,200	19,180	1,155,625	1,642,711	3.0	14	52.0
53.0	0.00067	0.0007	0.00073	19.48	21.17	22.86	0.00005	0.00072	0.000790	0.000850	0.0001	0.0008	0.00092	0.00103					0.49	0.00153	653,600	30,510	1,602,756	2,826,737	2.5	12	53.0
54.0	0.0006	0.00062	0.00065	24.82	26.98	29.14	0.00005	0.00065	0.000700	0.000750	0.0001	0.00073	0.00084	0.00095					0.384	0.00121	826,400	49,130	2,042,041	4,588,435	2.0	11	54.0
55.0	0.00053	0.00055	0.00057	31.54	34.28	37.02	0.00005	0.00058	0.000640	0.000700	0.0001	0.00066	0.00077	0.00087					0.303	0.00097	1,032,000	77,920	2,439,844	6,974,283	1.5	10	55.0
56.0	0.00047	0.00049	0.00051	39.73	43.19	46.65	0.00005	0.00052	0.000590	0.000650	0.0001	0.0006	0.00071	0.00081					0.24	0.00078	1,283,700	122,360	2,837,025	10,339,461	1.0	9	56.0
57.0	0.00042	0.000438	0.000457	49.735	54.06	58.385	0.00004	0.000461	0.000509	0.000557									0.192	0.000611	1,636,700	195,160	4,000,000		0.8	8	57.0
58.0	0.000375	0.00039	0.000407	62.57	68.011	73.452	0.00004	0.000416	0.000462	0.000507									0.152	0.00049	2,040,800	306,390	4,726,276		0.6	7	58.0

All tolerances based on NEMA MW 1000

*Resistance based upon copper conductivity of 100% I.A.C.S. Actual values may be up to 102% I.A.C.S.

45 - 58 AWG theoretical bare wire diameters by resistance

60.0