

# HM Wire International, Inc.

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Resistance Conversions – To convert resistance to 20°C (68°F), divide resistance by the conversion factor for the corresponding temperature and metal indicated in the table below. To find ohms/foot, divide Volume Resistivity by area in circular mils.

## Dielectric Strength for Common Insulation Classes

### Dielectric Strength – Minimum Breakdown Voltage

AWG SIZE	Elongation MIN %	MW 15-C (105°C)		MW 28-C (130°C)		MW 80-C (155°C)		MW 35-C (200°C)	
		Single	Heavy	Single	Heavy	Single	Heavy	Single	Heavy
10	35		6200		5575				6200
11	35		6000		5400				6000
12	34		5800		5225				5800
13	34		5600		5050				5600
14	33	3525	6325	3175	5700	3175	5700	3525	6325
15	33	3425	6175	3075	5550	3075	5550	3425	6175
16	33	3325	6000	3000	5400	3000	5400	3325	6000
17	32	3250	5850	2925	5275	2925	5275	3250	5850
18	32	3175	5700	2850	5125	2850	5125	3175	5700
19	31	3075	5550	2775	5000	2775	5000	3075	5550
20	30	3000	5400	2700	4850	2700	4850	3000	5400
21	30	2925	5250	2625	4725	2625	4725	2925	5250
22	29	2850	5125	2575	4625	2575	4625	2850	5125
23	29	2775	5000	2500	4500	2500	4500	2775	5000
24	28	2700	4850	2425	4375	2425	4375	2700	4850
25	28	2625	4725	2375	4250	2375	4250	2625	5725
26	27	2550	4600	2300	4150	2300	4150	2550	4600
27	27	2500	4500	2250	4050	2250	4050	2500	4500
28	26	2425	4375	2175	3950	2175	3950	2425	4375
29	26	2375	4250	2150	3825	2150	3825	2375	4250
30	25	2300	4150	2075	3725	2075	3725	2300	4150
31	24	2075	3825	1875	3450	1875	3450	2075	3825
32	24	1850	3525	1675	3175	1675	3175	1850	3525
33	23	1675	3250	1500	2925	1500	2925	1675	3250
34	22	1500	2975	1350	2675	1350	2675	1500	2975
35	21	1325	2750	1200	2475	1200	2475	1325	2750
36	20	1200	2525	1075	2275	1075	2275	1200	2525
37	20	1075	2325	975	2100	975	2100	1075	2325
38	19	950	2150	850	1925	850	1925	950	2150
39	18	850	1975	775	1775	775	1775	850	1975

# Resistance and Dielectric Data – Resistance Correction Factors for Annealed Copper and Aluminum Wire

To be used as a guideline only. The data herein falls within a normal range but should not be used to establish specification limits or used alone on the basis of design.

Temperature		Resistance Correction Factor		Temperature		Resistance Correction Factor		Temperature		Resistance Correction Factor	
°C	°F	Cu	Al	°C	°F	Cu	Al	°C	°F	Cu	Al
15	59	0.9804	0.9796	23.5	74.3	1.0138	1.0144	29.5	85.1	1.0373	1.0390
16	60.8	0.9843	0.9837	24	45.2	1.0157	1.0164	30	86	1.0393	1.0410
17	62.6	0.9882	0.9878	24.5	76.1	1.0177	1.0185	31	87.8	1.0432	1.0449
18	64.4	0.9921	0.9918	25	77	1.0197	1.0205	32	89.6	1.0472	1.0490
19	66.2	0.9961	0.9959	25.5	77.9	1.0216	1.0226	33	91.4	1.0511	1.0530
20	68	1.0000	1.0000	26	78.8	1.0236	1.0246	34	93.2	1.0550	1.0571
20.5	68.9	1.0020	1.0021	26.5	79.7	1.0255	1.0267	35	95	1.0590	1.0612
21	69.8	1.0039	1.0041	27	80.6	1.0275	1.0287	36	96.8	1.0629	1.0653
21.5	70.7	1.0059	1.0062	27.5	81.5	1.0295	1.0308	37	98.6	1.0668	1.0694
22	71.6	1.0079	1.0082	28	82.4	1.0314	1.0328	38	100.4	1.0707	1.0734
22.5	72.5	1.0098	1.0103	28.5	83.3	1.0334	1.0349	39	102.2	1.0747	1.0775
23	73.4	1.0118	1.0123	29	84.2	1.0354	1.0369	40	104	1.0786	1.0816