

## WIRE GAGE TABLE-SOLID CONDUCTORS

AWG	Diameter in Inches	Circle Mils	Cross Sectional Area in Sq. Inches	Lb./1000 Ft.	
				Copper	Aluminum
0000	.4600	211600	.1662	640.5	194.7
000	.4096	167800	.1318	507.8	154.4
00	.3648	133100	.1045	402.8	122.4
0	.3249	105600	.08291	319.5	97.13
1	.2893	83690	.06573	253.3	77.00
2	.2576	66360	.05212	200.9	61.07
3	.2294	52620	.04133	159.3	48.43
4	.2043	41740	.03278	126.3	38.39
5	.1819	33090	.02599	100.2	30.46
6	.1620	26240	.02061	79.4	24.15
7	.1443	20820	.01635	63.0	19.16
8	.1285	16510	.01297	49.9	15.19
9	.1144	13090	.01028	39.6	12.04
10	.1019	10380	.00816	31.4	9.55
11	.0907	8230	.00646	24.9	7.57
12	.0808	6530	.00513	19.8	6.02
13	.0720	5180	.00407	15.7	4.77
14	.0641	4110	.00323	12.4	3.77
15	.0571	3260	.00256	9.87	3.00
16	.0508	2580	.00203	7.81	2.37
17	.0453	2050	.00161	6.21	1.89
18	.0403	1620	.00128	4.92	1.50
19	.0359	1290	.00101	3.90	1.19
20	.0320	1020	.000804	3.10	.942
21	.0285	812	.000638	2.46	.748
22	.0253	640	.000503	1.94	.599
23	.0226	511	.000401	1.55	.471
24	.0201	404	.000317	1.22	.371
25	.0179	320	.000252	.970	.295
26	.0159	253	.000199	.765	.233
27	.0142	202	.000158	.610	.185
28	.0126	159	.000125	.481	.146
29	.0113	128	.000100	.387	.118
30	.0100	100	.0000785	.303	.0921
31	.0089	79.2	.0000622	.240	.0730
32	.0080	64.0	.0000503	.194	.0590
33	.0071	50.4	.0000396	.153	.0465
34	.0063	39.7	.0000312	.120	.0365
35	.0056	31.4	.0000246	.0949	.0283
36	.0050	25.0	.0000196	.0757	.0230
37	.0045	20.2	.0000159	.0613	.0186
38	.0040	16.0	.0000126	.0484	.0147

## CONVERSION FACTORS

To Convert	Into	Multiply by	Conversely Multiply by
Acres	Square feet	43,560	$2.296 \times 10^{-5}$
Atmospheres	Cms of mercury	76	0.01316
Atmospheres	Inches of mercury	29.92	0.03342
Atmospheres	Kilograms per sq meter	10,332	$9.678 \times 10^{-5}$
Atmospheres	Pounds per sq inch	14.70	0.06804
Btu	Foot-pounds	777.97	0.0012854
Calories (large)	Kilogram-meters	426.85	0.00234
Circular mils	Square mils	0.7854	1.272
Centigrade	Fahrenheit	$(C^{\circ} \times 9/5) + 32$	$(F^{\circ} - 32) \times 5/9$
Cubic inches	Cubic centimeters	16.39	$6.102 \times 10^{-2}$
Cubic inches	Cubic feet	$5.787 \times 10^{-4}$	1728
Cubic inches	Cubic meters	$1.639 \times 10^{-5}$	61,023
Cubic inches	Cubic yards	$2.143 \times 10^{-5}$	46,656
Cubic inches	Gallons	$4.329 \times 10^{-3}$	231
Dynes	Poundals	$7.233 \times 10^{-8}$	13,826
Ergs	Btu	$0.9475 \times 10^{-10}$	$1.055 \times 10^{10}$
Ergs	Foot-pounds	$7.3756 \times 10^{-3}$	$1.3558 \times 10^7$
Ergs	Gram calorie	$0.2390 \times 10^{-7}$	$4.184 \times 10^7$
Ergs	Watt-hour	$0.2778 \times 10^{-10}$	$3.600 \times 10^{10}$
Gallons (U.S.)	Gallons (British)	0.83268	1.20094
Grams	Dynes	980.665	0.0010197
Grams	Grains	15.432	0.0648
Grams	Kilograms	$10^{-3}$	$10^3$
Grams	Ounces (avoir)	0.03527	28.35
Grams	Poundals	0.07093	14.10
Grams	Pounds	$2.205 \times 10^{-3}$	453.6
Grams per centimeter	Pounds per in.	$5.600 \times 10^{-3}$	178.6
Grams per cu cm	Pounds per cu in.	0.03613	27.680
Grams per sq cm	Pounds per sq ft	2.0481	0.4883
Horsepower	Btu per min	42.40	0.02357
Horsepower	Foot-pounds per min	33,000	$3.030 \times 10^{-5}$
Horsepower	Kg calories per min	10.68	0.09358
Inches	Centimeters	2.540	0.3937
Inches	Feet	$8.333 \times 10^{-2}$	12
Inches	Miles	$1.578 \times 10^{-5}$	$6.336 \times 10^4$
Inches	Mils	$10^3$	$10^{-3}$
Inches	Yards	$2.778 \times 10^{-2}$	36
Inches of mercury (O°C)	Pounds per sq in.	0.49116	2.0360
Joules	Btu	0.0009488	1054.5
Joules	Ergs	$10^7$	$10^{-7}$
Joules	Foot-pounds	0.7375	1.356
Kilograms	Tons (2000 lbs.)	0.001102	907.185
Kilometers	Miles	0.62137	1.6094

## CONVERSION FACTORS (Continued)

To Convert	into	Multiply by	Conversely Multiply by
Kilowatt-hours	Btu	3413	$2.930 \times 10^{-4}$
Kilowatt-hours	Foot-pounds	$2.656 \times 10^6$	$3.766 \times 10^{-7}$
Kilowatt-hours	Horsepower-hours	1.341	0.7455
Kilowatt-hours	Joules	$3.6 \times 10^6$	$2.778 \times 10^7$
Kilowatt-hours	Kilogram-calories	860	$1.163 \times 10^{-3}$
Kilowatt-hours	Kilogram-meters	$3.672 \times 10^5$	$2.723 \times 10^{-4}$
Liters	Cubic centimeters	$10^3$	$10^{-3}$
Liters	Cubic inches	61.02	0.0164
Liters	Cubic meters	$10^{-3}$	$10^3$
Liters	Cubic yards	$1.308 \times 10^{-3}$	764.6
Liters	Gallons (U.S.)	0.26418	3.783
Liters	Pints (liquid)	2.1134	0.4732
Meters	Centimeters	100	0.01
Meters	Feet	3.2808	0.3048
Meters	Inches	39.37	0.0254
Meters	Kilometers	$10^{-3}$	$10^3$
Meters	Miles	$6.214 \times 10^{-4}$	$1.609 \times 10^3$
Meters	Yards	1.094	0.9144
Meters per min	Centimeters per sec	1.667	0.6000
Meters per min	Feet per min	3.281	0.3048
Meters per min	Kilometers per hour	0.06	16.67
Meters per min	Miles per hour	0.03728	26.82
Miles (nautical)	Feet	6080.2	$1.6447 \times 10^{-4}$
Miles (nautical)	Miles (statute)	1.1516	0.86836
Miles (statute)	Feet	5280	$1.894 \times 10^{-4}$
Miles (statute)	Yards	1760	$5.682 \times 10^{-4}$
Miles per hour	Feet per min	88	0.01136
Miles per hour	Feet per sec	1.467	0.6818
Miles per hour	Knots	0.8684	1.152
Poundals	Pounds (weight)	0.03108	32.174
Square inches	Circular mils	$1.273 \times 10^6$	$7.854 \times 10^{-7}$
Square inches	Square centimeters	6.452	0.1550
Square inches	Square feet	$6.944 \times 10^{-3}$	144
Square inches	Square mils	$10^6$	$10^{-6}$
Square inches	Square yards	$7.716 \times 10^{-4}$	1296
Square meters	Square feet	10.7639	0.0929
Square miles	Square kilometers	2.590	0.3861
Tonnes	Tons (2000 lbs.)	1.1023	0.9072
Watts	Btu per minute	0.05688	17.58
Watts	Ergs per second	$10^7$	$10^{-7}$
Watts	Foot-pounds per min	44.27	0.022597
Watts	Horsepower	$1.341 \times 10^{-3}$	745.7
Watts	Kilogram-calories per min	0.01433	69.77

## CONDUCTOR COLOR CODING ICEA Method 1 — For NEC Applications

Conductor Number	Option A		Option B		Option C		Option D	
	Base Color	Tracer	Base Color	Tracer	Base Color	Tracer	Base Color	Tracer
1	Black	—	Black	—	Black	—	Black	—
2	Red	—	White	—	Green	—	White	—
3	Blue	—	Red	—	Red	—	Green	—
4	Orange	—	Blue	—	Blue	—	Red	—
5	Yellow	—	Orange	—	Orange	—	Blue	—
6	Brown	—	Yellow	—	Yellow	—	Orange	—
7	Red	Black	Brown	—	Brown	—	Yellow	—
8	Blue	Black	Red	Black	Red	Black	Brown	—
9	Orange	Black	Blue	Black	Blue	Black	Red	Black
10	Yellow	Black	Orange	Black	Orange	Black	Blue	Black
11	Brown	Black	Yellow	Black	Yellow	Black	Orange	Black
12	Black	Red	Brown	Black	Brown	Black	Yellow	Black
13	Blue	Red	Black	Red	Black	Red	Brown	Black
14	Orange	Red	Blue	Red	Blue	Red	Black	Red
15	Yellow	Red	Orange	Red	Orange	Red	Blue	Red
16	Brown	Red	Yellow	Red	Yellow	Red	Orange	Red
17	Black	Blue	Brown	Red	Brown	Red	Yellow	Red
18	Red	Blue	Black	Blue	Black	Blue	Brown	Red
19	Orange	Blue	Red	Blue	Red	Blue	Black	Blue
20	Yellow	Blue	Orange	Blue	Orange	Blue	Red	Blue
21	Brown	Blue	Yellow	Blue	Yellow	Blue	Orange	Blue
22	Black	Orange	Brown	Blue	Brown	Blue	Yellow	Blue
23	Red	Orange	Black	Orange	Black	Orange	Brown	Blue
24	Blue	Orange	Red	Orange	Red	Orange	Black	Orange
25	Yellow	Orange	Blue	Orange	Blue	Orange	Red	Orange
26	Brown	Orange	Yellow	Orange	Yellow	Orange	Blue	Orange
27	Black	Yellow	Brown	Orange	Brown	Orange	Yellow	Orange
28	Red	Yellow	Black	Yellow	Black	Yellow	Brown	Orange
29	Blue	Yellow	Red	Yellow	Red	Yellow	Black	Yellow
30	Orange	Yellow	Blue	Yellow	Blue	Yellow	Red	Yellow
31	Brown	Yellow	Orange	Yellow	Orange	Yellow	Blue	Yellow
32	Black	Brown	Brown	Yellow	Brown	Yellow	Orange	Yellow
33	Red	Brown	Black	Brown	Black	Brown	Brown	Yellow
34	Blue	Brown	Red	Brown	Red	Brown	Black	Brown
35	Orange	Brown	Blue	Brown	Blue	Brown	Red	Brown
36	Yellow	Brown	Orange	Brown	Orange	Brown	Blue	Brown
37	—	—	Yellow	Brown	Yellow	Brown	Orange	Brown
38	—	—	—	—	—	—	Yellow	Brown

Option A — For cables without grounding or neutral conductor  
 Option B — For cables requiring a white grounded (neutral) conductor  
 Option C — For cables requiring a green grounding conductor  
 Option D — For cables requiring both white grounded (neutral) and green grounding conductors

## CONDUCTOR COLOR CODING

Conductor Number	Colored Conductors ICEA Method 1 – Non NEC Applications (2)	Printed Conductors Alpha-Numeric
1	Black	1 – One
2	White	2 – Two
3	Red	3 – Three
4	Green	4 – Four
5	Orange	5 – Five
6	Blue	6 – Six
7	White with Black Tracer	7 – Seven
8	Red with Black Tracer	8 – Eight
9	Green with Black Tracer	9 – Nine
10	Orange with Black Tracer	10 – Ten
11	Blue with Black Tracer	11 – Eleven
12	Black with White Tracer	12 – Twelve
13	Red with White Tracer	13 – Thirteen
14	Green with White Tracer	14 – Fourteen
15	Blue with White Tracer	15 – Fifteen
16	Black with Red Tracer	16 – Sixteen
17	White with Red Tracer	17 – Seventeen
18	Orange with Red Tracer	18 – Eighteen
19	Blue with Red Tracer	19 – Nineteen
20	Red with Green Tracer	20 – Twenty
21	Orange with Green Tracer	21 – Twenty-one

- Notes: 1. For more than 21 conductors ICEA recommends the color sequence be repeated as necessary.  
2. For Method 1 color sequence to comply with NEC applications, see TECH I006.