

Standard Wire Gauges - SWG, B&S & AWG Sizing Chart

Wire gauge refers to the thickness or diameter of a wire. There are three referenced wire gauges, Standard Wire Gauge (SWG), Brown & Sharpe (B&S) and American Wire Gauge (AWG).

B&S Gauge and AWG are equivalent, however SWG is different and there is no direct relationship to the B&S/AWG, so standard wire gauge is either SWG or it is B&S/AWG. In all cases the smaller the diameter the higher the gauge number.

The SWG and the B&S/AWG have specified diameters, see chart below. The wire gauges are used to describe the wire diameter of all wires regardless of the metal used.

Common wires include copper, brass, aluminium, stainless steel and a number of metal alloys including resistance wires and solder wires etc.

The chart below shows the diameter in inches and mm, plus the cross sectional area (mm²), for each wire gauge size. Knowing the diameter of the wire and the type of metal, allows the resistance to be determined along with the current carrying capacity, the weight to length ratios and more.

Standard Wire Gauge (SWG)			
Gauge #	Diameter inches	Diameter mm	Area mm ²
7 x 0's	0.500	12.700	126.6769
6 x 0's	0.464	11.786	109.0995
5 x 0's	0.432	10.973	94.5672
4 x 0's	0.400	10.160	81.0732
3 x 0's	0.372	9.449	70.1232
2 x 0's	0.348	8.839	61.3615
1 x 0	0.324	8.236	53.2749
1	0.300	7.620	45.6037
2	0.276	7.010	38.5945
3	0.252	6.401	32.1800
4	0.232	5.893	27.2749
5	0.212	5.385	22.7752
6	0.192	4.877	18.6808
7	0.176	4.470	15.6930
8	0.160	4.064	12.9717
9	0.144	3.658	10.5094
10	0.128	3.251	8.3009
11	0.116	2.946	6.8164
12	0.104	2.642	5.4822
13	0.092	2.337	4.2895

B&S (Brown & Sharpe) AWG (American Wire Gauge)			
Gauge #	Diameter inches	Diameter mm	Area mm ²
4 x 0's	0.4600	11.684	107.2193
3 x 0's	0.4096	10.405	85.0288
2 x 0's	0.3648	9.266	67.4309
1 x 0	0.3249	8.252	53.4751
1	0.2893	7.348	42.4077
2	0.2576	6.544	33.6308
3	0.2294	5.827	26.6705
4	0.2043	5.189	21.1506
5	0.1819	4.621	16.7732
6	0.1620	4.115	13.3018
7	0.1443	3.665	10.5488
8	0.1285	3.264	8.3656
9	0.1144	2.906	6.6342
10	0.1019	2.588	5.2612
11	0.0907	2.305	4.1723
12	0.0808	2.053	3.3088
13	0.0720	1.828	2.6240

Standard Wire Gauge (SWG)			
Gauge #	Diameter inches	Diameter mm	Area mm ²
14	0.080	2.032	3.2429
15	0.072	1.829	2.6273
16	0.064	1.626	2.0765
17	0.056	1.422	1.5881
18	0.048	1.219	1.1671
19	0.040	1.016	0.8107
20	0.036	0.914	0.6561
21	0.0320	0.813	0.5191
22	0.0280	0.711	0.3970
23	0.0240	0.610	0.2922
24	0.0220	0.559	0.2454
25	0.0200	0.508	0.2027
26	0.0180	0.457	0.1640
27	0.0164	0.417	0.1366
28	0.0148	0.376	0.1110
29	0.0136	0.345	0.0935
30	0.0124	0.315	0.0779
31	0.0116	0.295	0.0683
32	0.0108	0.274	0.0590
33	0.0100	0.254	0.0507
34	0.0092	0.234	0.0430
35	0.0084	0.213	0.0356
36	0.0076	0.193	0.0293
37	0.0068	0.173	0.0235
38	0.0060	0.152	0.0181
39	0.0052	0.132	0.0137
40	0.0048	0.122	0.0117
41	0.0044	0.112	0.0099
42	0.0040	0.102	0.0082
43	0.0036	0.091	0.0065
44	0.0032	0.081	0.0052
45	0.0028	0.071	0.0040
46	0.0024	0.061	0.0029
47	0.0020	0.051	0.0020
48	0.0016	0.041	0.0013
49	0.0012	0.030	0.0007
50	0.0010	0.025	0.0005

B&S (Brund & Sharpe) AWG (American Wire Gauge)			
Gauge #	Diameter inches	Diameter mm	Area mm ²
14	0.0641	1.628	2.0809
15	0.0571	1.450	1.6502
16	0.0508	1.291	1.3087
17	0.0453	1.150	1.0378
18	0.0403	1.024	0.8230
19	0.0359	0.912	0.6527
20	0.0320	0.812	0.5176
21	0.0285	0.723	0.4105
22	0.0253	0.644	0.3255
23	0.0226	0.573	0.2582
24	0.0201	0.511	0.2047
25	0.0179	0.455	0.1624
26	0.0159	0.405	0.1288
27	0.0142	0.361	0.1021
28	0.0126	0.321	0.0810
29	0.0113	0.286	0.0642
30	0.0100	0.255	0.0509
31	0.0089	0.227	0.0404
32	0.0080	0.202	0.0320
33	0.0071	0.180	0.0254
34	0.0063	0.160	0.0201
35	0.0056	0.143	0.0160
36	0.0050	0.127	0.0127
37	0.0045	0.113	0.0100
38	0.0040	0.101	0.0080
39	0.0035	0.090	0.0063
40	0.0031	0.080	0.0050

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