

DEPARTMENT OF COMMERCE

BUREAU OF STANDARDS

S. W. STRATTON, Director

CIRCULAR OF THE BUREAU OF STANDARDS NO. 67

[Issued January 17, 1918]

WIRE GAGES

Combined Table of Sizes in the Principal Wire Gages ^a

Diameter		Cross section			Gage numbers					Diameter, inches	Cross section, square inches
Mils	Millimeters	Square mils	Circular mils	Square millimeters	American (B. & S.) wire gage	Steel wire gage ^b	Birmingham (Stubs) wire gage	British standard wire gage	Metric wire gage		
500	12.70	196 300	250 000	126.7	.....	.....	.....	7-0	.....	0.500	0.1963
490.0	12.45	188 600	240 100	121.7	.....	7-0	.....	.....	.....	.490	.1886
464	11.79	169 100	215 300	109.1	.....	.....	.....	6-0	.....	.464	.1691
461.5	11.7	167 300	213 000	107.9	.....	.....	.....	6-0	.....	0.4615	0.1673
460.0	11.68	166 500	211 600	107.2	4-0	.....	.....	.....	.....	.460	.1662
454	11.53	161 900	206 100	104.4	.....	.....	4-0	.....	.....	.454	.1619
432	10.97	146 600	186 600	94.56	.....	.....	.....	5-0	.....	0.432	0.1466
430.5	10.93	145 600	185 300	93.91	.....	5-0	.....	.....	.....	.4305	.1456
425	10.80	141 900	180 600	91.52	.....	.....	.....	3-0	.....	.425	.1419
409.6	10.40	131 800	167 800	85.03	3-0	.....	.....	.....	.....	0.410	0.1318
400	10.16	125 700	160 000	81.07	.....	.....	.....	4-0	.....	.400	.1257
393.8	10.00	121 800	155 100	78.58	.....	4-0	.....	.....	.....	.3938	.1218
393.7	10.0	121 700	155 000	78.54	.....	.....	.....	.....	100	0.3937	0.1217
380	9.652	113 400	144 400	73.17	.....	.....	.....	2-0	.....	.380	.1134
372	9.449	108 700	138 400	70.12	.....	.....	.....	3-0	.....	.372	.1087
364.8	9.266	104 500	133 100	67.43	2-0	.....	.....	.....	.....	0.365	0.1045
362.5	9.208	103 200	131 400	66.58	.....	3-0	.....	.....	.....	.3625	.1032
354.3	9.0	98 610	125 500	63.62	.....	.....	.....	.....	90	.354	.098 61
348	8.839	95 110	121 100	61.36	.....	.....	.....	2-0	.....	0.348	0.095 11
340	8.636	90 790	115 600	58.58	.....	.....	.....	0	.....	.340	.090 79
331.0	8.407	86 050	109 600	55.52	.....	2-0	.....	.....	.....	.3310	.086 05
324.9	8.251	82 890	105 500	53.48	0	.....	.....	.....	.....	0.325	0.082 89
324	8.230	82 450	105 000	53.19	.....	.....	.....	0	.....	.324	.082 45
315.0	8.0	77 910	99 200	50.27	.....	.....	.....	.....	80	.315	.077 91

^a In this table the values printed in boldface type are exact as given; values which are not exact have been rounded off to four significant figures, except that the diameters in *inches* of the American (B. & S.) wire gage and of the metric wire gage in the column headed "Diameter, inches," have been given to 0.001 inch for the larger sizes and to 0.0001 inch for the smaller. This represents the usual degree of accuracy in the measurement of wires.

^b The steel wire gage is the same gage which has been known by the various names: "Washburn and Moen," "Roebing," "American Steel and Wire Co.'s." Its abbreviation should be written "Stl. W. G.," to distinguish it from "S. W. G.," the usual abbreviation for the (British) standard wire gage.

Combined Table of Sizes in the Principal Wire Gages—Continued

Diameter		Cross section			Gage numbers					Diameter, inches	Cross section, square inches
Mils	Millimeters	Square mils	Circular mils	Square millimeters	American (B. & S.) wire gage	Steel wire gage	Birmingham (Stubs') wire gage	British standard wire gage	Metric wire gage		
306.5	7.785	73 780	93 940	47.60	.....	0	.....	.....	.....	0.3065	0.073 78
300	7.620	70 690	90 000	45.60	.....	.....	1	.....	.....	.300	.070 69
289.3	7.348	65 730	83 690	42.41	.....	1	.....	.....	.....	.289	.065 73
284	7.214	63 350	80 660	40.87	.....	.....	2	.....	.....	0.284	0.063 35
283.0	7.188	62 900	80 090	40.58	.....	.....	1	.....	.....	.2830	.062 90
276	7.010	59 830	76 180	38.60	.....	.....	.....	2	.....	.276	.059 83
275.6	7.0	59 650	75 950	38.48	.....	.....	.....	.....	70	0.276	0.059 65
262.5	6.668	54 120	68 910	34.92	.....	2	.....	.....	.....	.2625	.054 12
259	6.579	52 690	67 080	33.99	.....	.....	3	.....	.....	.259	.052 69
257.6	6.544	52 130	66 370	33.63	.....	2	.....	.....	.....	0.258	0.052 13
252	6.401	49 880	63 500	32.18	.....	.....	.....	3	.....	.252	.049 88
243.7	6.190	46 640	59 390	30.09	.....	3	.....	.....	.....	.2437	.046 64
238	6.045	44 490	56 640	28.70	.....	.....	4	.....	.....	0.238	0.044 49
236.2	6.0	43 830	55 800	28.27	.....	.....	.....	.....	60	.236	.043 83
232	5.893	42 270	53 820	27.27	.....	.....	.....	4	.....	.232	.042 27
229.4	5.827	41 340	52 630	26.67	.....	3	.....	.....	.....	0.229	0.041 34
225.3	5.723	39 870	50 760	25.72	.....	4	.....	.....	.....	.2253	.039 87
220	5.588	38 010	48 400	24.52	.....	.....	5	.....	.....	.220	.038 01
212	5.385	35 300	44 940	22.77	.....	.....	.....	5	.....	0.212	0.035 30
207.0	5.258	33 650	42 850	21.71	.....	4	.....	.....	.....	.207	.033 65
204.3	5.189	32 780	41 740	21.15	.....	.....	5	.....	.....	.204	.032 78
203	5.156	32 370	41 210	20.88	.....	.....	.....	6	.....	0.203	0.032 37
196.8	5.0	30 430	38 750	19.63	.....	.....	.....	.....	50	.197	.030 43
192.0	4.877	28 950	36 860	18.68	.....	6	.....	6	.....	.1920	.028 95
181.9	4.621	26 000	33 100	16.77	.....	5	.....	.....	.....	0.182	0.026 00
180	4.572	25 450	32 400	16.42	.....	.....	7	.....	.....	.180	.025 45
177.2	4.5	24 650	31 390	15.90	.....	.....	.....	.....	45	.177	.024 65
177.0	4.496	24 610	31 330	15.87	.....	7	.....	.....	.....	0.1770	0.024 61
176	4.470	24 330	30 980	15.70	.....	.....	.....	7	.....	.176	.024 33
165	4.191	21 380	27 220	13.80	.....	.....	8	.....	.....	.165	.021 38
162.0	4.115	20 620	26 250	13.30	.....	6	8	.....	.....	0.162	0.020 62
160	4.064	20 110	25 600	12.97	.....	.....	.....	8	.....	.160	.020 11
157.5	4.0	19 480	24 810	12.57	.....	.....	.....	.....	40	.157	.019 48
148.3	3.767	17 270	21 990	11.14	.....	.....	9	.....	.....	0.1483	0.017 27
148	3.759	17 200	21 900	11.10	.....	.....	.....	9	.....	.148	.017 20
144.3	3.665	16 350	20 820	10.55	.....	7	.....	.....	.....	.144	.016 35
144	3.658	16 290	20 740	10.51	.....	.....	.....	9	.....	0.144	0.016 29
137.8	3.5	14 910	18 990	9.621	.....	.....	.....	.....	35	.138	.014 91
135.0	3.429	14 310	18 220	9.235	.....	10	.....	.....	.....	.1350	.014 31
134	3.404	14 100	17 960	9.098	.....	.....	10	.....	.....	0.134	0.014 10
128.5	3.264	12 970	16 510	8.366	.....	8	.....	.....	.....	.128	.012 97
128	3.251	12 870	16 380	8.302	.....	.....	.....	10	.....	.128	.012 87
120.5	3.061	11 400	14 520	7.358	.....	.....	11	.....	.....	0.1205	0.011 40
120	3.048	11 310	14 400	7.297	.....	.....	.....	11	.....	.120	.011 31
118.1	3.0	10 960	13 950	7.069	.....	.....	.....	.....	30	.118	.010 96
116	2.946	10 570	13 460	6.818	.....	.....	.....	11	.....	0.116	0.010 57
114.4	2.906	10 280	13 090	6.634	.....	9	.....	.....	.....	.114	.010 28
109	2.769	9331	11 880	6.020	.....	.....	12	.....	.....	.109	.009 331
105.5	2.680	8742	11 130	5.640	.....	12	.....	.....	.....	0.1055	0.008 742
104	2.642	8495	10 820	5.481	.....	.....	.....	12	.....	.104	.008 495
101.9	2.588	8155	10 380	5.261	.....	10	.....	.....	.....	.102	.008 155
98.42	2.5	7609	9687	4.909	.....	.....	.....	.....	25	0.098	0.007 609
95	2.413	7088	9025	4.573	.....	.....	.....	13	.....	.095	.007 088
92	2.337	6648	8464	4.289	.....	.....	.....	13	.....	.092	.006 648

Combined Table of Sizes in the Principal Wire Gages—Continued

Diameter		Cross section			Gage numbers					Diameter, inches	Cross section, square inches
Mils	Millimeters	Square mils	Circular mils	Square millimeters	American (B. & S.) wire gage	Steel wire gage	Birmingham (Stubs') wire gage	British standard wire gage	Metric wire gage		
91.5	2.324	6576	8372	4.242	.....	13	.....	.....	.....	0.0915	0.006 576
90.74	2.305	6467	8234	4.172	.....	11	.....	.....	.....	.091	.006 467
83	2.108	5411	6889	3.491	.....	.....	14	.....	.....	.083	.005 411
80.81	2.053	5129	6530	3.309	.....	12	.....	.....	.....	0.081	0.005 129
80.0	2.032	5027	6400	3.243	.....	.....	14	.....	.....	.0809	.005 027
78.74	2.0	4869	6200	3.142	.....	.....	.....	11	.....	.079	.004 869
72.0	1.829	4072	5184	2.627	.....	15	15	15	.....	0.0720	0.004 072
71.96	1.828	4067	5178	2.624	.....	.....	.....	.....	.....	.072	.004 067
70.87	1.8	3944	5022	2.545	.....	.....	.....	.....	.....	.071	.003 944
65	1.651	3318	4225	2.141	.....	.....	16	.....	.....	0.065	0.003 318
64.08	1.628	3225	4107	2.081	.....	14	.....	.....	.....	.064	.003 225
64	1.626	3217	4096	2.075	.....	.....	.....	16	.....	.064	.003 217
62.99	1.6	3116	3968	2.011	.....	.....	.....	.....	.....	0.063	0.003 116
62.5	1.588	3068	3906	1.979	.....	16	.....	.....	.....	.0625	.003 068
58	1.473	2642	3364	1.705	.....	.....	17	.....	.....	.058	.002 642
57.07	1.450	2558	3257	1.650	.....	15	.....	.....	.....	0.057	0.002 558
56	1.422	2463	3136	1.589	.....	.....	.....	17	.....	.056	.002 463
55.12	1.4	2386	3038	1.539	.....	.....	.....	.....	.....	.055	.002 386
54.0	1.372	2290	2916	1.478	.....	17	.....	.....	.....	0.0540	0.002 290
50.82	1.291	2028	2583	1.309	.....	16	.....	.....	.....	.051	.002 225
49	1.245	1886	2401	1.217	.....	.....	18	.....	.....	.049	.001 886
48	1.219	1810	2304	1.167	.....	.....	.....	18	.....	0.048	0.001 810
47.5	1.207	1772	2256	1.143	.....	.....	18	.....	.....	.0475	.001 772
47.24	1.2	1753	2232	1.131	.....	.....	.....	.....	.....	.047	.001 753
45.26	1.150	1609	2048	1.038	.....	17	.....	.....	.....	0.045	0.001 609
42	1.067	1385	1764	0.8938	.....	.....	19	.....	.....	.042	.001 385
41.0	1.041	1320	1681	0.8518	.....	.....	19	.....	.....	.0410	.001 320
40.30	1.024	1276	1624	0.8231	.....	18	.....	.....	.....	0.040	0.001 276
40	1.016	1257	1600	.8107	.....	.....	.....	19	.....	.040	.001 257
39.37	1.0	1217	1550	.7854	.....	.....	.....	.....	.....	.039	.001 217
36	0.9144	1018	1296	0.6567	.....	.....	.....	20	.....	0.036	0.001 018
35.89	.9116	1012	1288	.6527	.....	19	.....	.....	.....	.036	.001 012
35.43	.90	986.1	1255	.6362	.....	.....	.....	.....	.....	.035	.000 986 1
35	0.8890	962.1	1225	0.6207	.....	.....	.....	.....	.....	0.035	0.000 962 1
34.8	.8839	951.1	1211	.6136	.....	.....	20	.....	.....	.0348	.000 951 1
32	.8128	804.2	1024	.5189	.....	.....	.....	21	21	.032	.000 804 2
31.96	0.8118	802.3	1022	0.5176	.....	20	.....	.....	.....	0.032	0.000 802 3
31.7	.8052	789.2	1005	.5092	.....	.....	21	.....	.....	.0317	.000 789 2
31.50	.80	779.1	992.0	.5027	.....	.....	.....	.....	.....	.031	.000 779 1
28.6	0.7264	642.4	818.0	0.4145	.....	.....	.....	.....	.....	0.0286	0.000 642 4
28.46	.7229	636.3	810.1	.4105	.....	21	.....	.....	.....	.0285	.000 636 3
28	.7112	615.8	784.0	.3973	.....	.....	.....	22	22	.028	.000 615 8
27.56	0.70	596.5	759.5	0.3843	.....	.....	.....	.....	.....	0.0276	0.000 596 5
25.8	.6533	522.8	665.6	.3373	.....	.....	23	.....	.....	.0258	.000 522 8
25.35	.6438	504.6	642.4	.3255	.....	22	.....	.....	.....	.0253	.000 504 6
25	0.6350	490.9	625.0	0.3167	.....	.....	.....	.....	.....	0.025	0.000 490 9
24	.6096	452.4	576.0	.2919	.....	.....	.....	23	.....	.024	.000 452 4
23.62	.60	438.3	558.0	.2827	.....	.....	.....	.....	.....	.0236	.000 438 3
23.0	0.5842	415.5	529.0	0.2675	.....	.....	24	.....	.....	0.0230	0.000 415 5
22.57	.5733	400.1	509.5	.2582	.....	23	.....	.....	.....	.0226	.000 400 1
22	.5588	380.1	484.0	.2452	.....	.....	.....	24	24	.022	.000 380 1
20.4	0.5182	326.9	416.2	0.2109	.....	.....	25	.....	.....	0.0204	0.000 326 9
20.10	.5106	317.3	404.0	.2047	.....	24	.....	.....	.....	.0201	.000 317 3
20	.5080	314.2	400.0	.2027	.....	.....	.....	25	25	.020	.000 314 2

Combined Table of Sizes in the Principal Wire Gages—Continued

Diameter		Cross section			Gage numbers					Diameter, inches	Cross section, square inches
Mils	Millimeters	Square mils	Circular mils	Square millimeters	American (B. & S.) wire gage	Steel wire gage	Birmingham (Stubs') wire gage	British standard wire gage	Metric wire gage		
19.68	0.50	304.3	387.5	0.1963	.....	.....	.....	.....	5	0.0197	0.000 304 3
18.1	.4597	257.3	327.6	.1360	.....	26	.....	.....	.....	.0181	.000 257 3
18	.4572	254.5	324.0	.1642	.....	.....	26	26	.....	.018	.000 254 5
17.90	0.4547	251.7	320.4	0.1624	25	.....	.....	.....	.....	0.0179	0.000 251 7
17.72	.45	246.5	313.9	.1590	.....	.....	.....	.....	4-5	.0177	.000 246 5
17.3	.4394	235.1	299.3	.1517	.....	27	.....	.....	.....	.0173	.000 235 1
16.4	0.4166	211.2	269.0	0.1363	.....	.....	.....	27	.....	0.0164	0.000 211 2
16.2	.4115	206.1	262.4	.1330	.....	28	.....	.....	.....	.0162	.000 206 1
16	.4064	201.1	256.0	.1297	.....	.....	27	.....	.....	.016	.000 201 1
15.04	0.4049	199.6	254.1	0.1288	26	.....	.....	.....	.....	0.0159	0.000 199 6
15.75	.40	194.8	248.0	.1257	.....	.....	.....	.....	4	.0157	.000 194 8
15.0	.3810	176.7	225.0	.1140	.....	29	.....	.....	.....	.0150	.000 176 7
14.8	0.3759	172.0	219.0	0.1110	.....	.....	.....	28	.....	0.0148	0.000 172 0
14.20	.3606	158.3	201.5	.1021	27	.....	.....	.....	.....	.0142	.000 158 3
14.0	.3556	153.9	196.0	.099 32	.....	30	28	.....	.....	.0140	.000 153 9
13.78	0.35	149.1	189.9	0.096 21	.....	.....	.....	.....	.....	0.0138	0.000 149 1
13.6	.3454	145.3	185.0	.093 72	.....	.....	.....	29	.....	.0136	.000 145 3
13.2	.3353	136.8	174.2	.088 29	.....	31	.....	.....	.....	.0132	.000 136 8
13	0.3302	132.7	169.0	0.085 63	.....	.....	29	.....	.....	0.013	0.000 132 7
12.8	.3251	128.7	163.8	.083 02	.....	32	.....	.....	.....	.0123	.000 128 7
12.64	.3211	125.5	159.8	.080 98	28	.....	.....	.....	.....	.0126	.000 125 5
12.4	0.3150	120.8	153.8	0.077 91	.....	.....	.....	30	.....	0.0124	0.000 120 8
12	.3048	113.1	144.0	.072 97	.....	.....	50	.....	.....	.012	.000 113 1
11.81	.30	109.6	139.5	.070 69	.....	.....	.....	.....	3	.0118	.000 109 6
11.8	0.2997	109.4	139.2	0.070 55	.....	33	.....	.....	.....	0.0118	0.000 109 4
11.6	.2946	105.7	134.6	.068 18	.....	.....	.....	51	.....	.0115	.000 105 7
11.26	.2859	99.54	126.7	.064 22	29	.....	.....	.....	.....	.0113	.000 099 54
10.8	0.2743	91.61	116.6	0.059 10	.....	.....	.....	32	.....	0.0108	0.000 091 61
10.4	.2642	84.95	108.2	.054 81	.....	34	.....	.....	.....	.0104	.000 084 95
10.03	.2546	78.94	100.5	.050 93	30	.....	.....	.....	.....	.0100	.000 078 94
10.0	0.2540	78.54	100.0	0.050 67	.....	.....	31	33	.....	0.0100	0.000 078 54
9.812	.25	76.09	96.87	.049 09	.....	.....	.....	.....	2-5	.0098	.000 076 09
9.5	.2413	70.88	90.25	.045 73	.....	35	.....	.....	.....	.0095	.000 070 88
9.2	0.2337	66.48	84.64	0.042 89	.....	.....	.....	34	.....	0.0092	0.000 066 48
9.0	.2286	63.62	81.00	.041 04	.....	36	.....	32	.....	.0090	.000 063 62
8.928	.2268	62.60	79.70	.040 39	31	.....	.....	.....	.....	.0089	.000 062 60
8.5	0.2159	56.75	72.25	0.036 61	.....	37	.....	.....	.....	0.0085	0.000 056 75
8.4	.2134	55.42	70.56	.035 75	.....	.....	.....	35	.....	.0084	.000 055 42
8.0	.2032	50.27	64.00	.032 43	.....	38	33	.....	.....	.0080	.000 050 27
7.950	0.2019	49.64	63.21	0.032 03	32	.....	.....	.....	.....	0.0080	0.000 049 64
7.874	.20	48.69	62.00	.031 42	.....	.....	.....	.....	2	.0079	.000 048 69
7.6	.1930	45.36	57.78	.029 27	.....	.....	.....	33	.....	.0076	.000 045 36
7.5	0.1905	44.18	56.25	0.028 50	.....	39	.....	.....	.....	0.0075	0.000 044 18
7.087	.18	39.44	50.22	.025 45	.....	.....	.....	.....	1-3	.0071	.000 039 44
7.080	.1798	39.37	50.13	.025 40	33	.....	.....	.....	.....	.0071	.000 039 37
7.0	0.1778	38.48	49.00	0.024 83	.....	40	34	.....	.....	0.0070	0.000 038 48
6.3	.1727	36.32	46.24	.023 43	.....	.....	.....	37	.....	.0068	.000 036 32
6.6	.1675	34.21	43.56	.022 07	.....	41	.....	.....	.....	.0066	.000 034 21
6.305	0.1601	31.22	39.75	0.020 14	34	.....	.....	.....	.....	0.0063	0.000 031 22
6.299	.13	31.16	39.68	.020 11	.....	.....	.....	.....	1-6	.0063	.000 031 16
6.2	.1575	30.19	38.44	.019 48	.....	42	.....	.....	.....	.0062	.000 030 19

Combined Table of Sizes in the Principal Wire Gages—Continued

Diameter		Cross section			Gage numbers					Diameter, inches	Cross section, square inches
Mils	Millimeters	Square mils	Circular mils	Square millimeters	American (B. & S.) wire gage	Steel wire gage	Birmingham (Stubs') wire gage	British standard wire gage	Metric wire gage		
6.0	0.1524	28.27	36.00	0.018 24	.....	43	.....	33	.....	0.0060	0.000 028 27
5.906	.15	27.39	34.87	.017 67	.....	.....	.....	.....	1.5	.0059	.000 027 39
5.8	.1473	26.42	33.64	.017 05	.....	44	.....	.....	.....	.0058	.000 026 42
5.615	0.1426	24.76	31.52	0.015 97	35	.....	.....	.....	.....	0.0056	0.000 024 76
5.512	.14	23.86	30.38	.015 39	.....	.....	.....	.....	1.4	.0055	.000 023 86
5.5	.1397	23.76	30.25	.015 33	.....	45	.....	.....	.....	.0055	.000 023 76
5.2	0.1321	21.24	27.04	0.013 70	.....	46	.....	39	.....	0.0052	0.000 021 24
5.000	.1270	19.63	25.00	.012 67	36	47	35	.....	.....	.0050	.000 019 63
4.8	.1219	18.10	23.04	.011 67	.....	48	.....	40	.....	.0048	.000 018 10
4.724	0.12	17.53	22.32	0.011 31	.....	.....	.....	.....	1.2	0.0047	0.000 017 53
4.6	.1168	16.62	21.16	.010 72	.....	49	.....	.....	.....	.0046	.000 016 62
4.453	.1131	15.57	19.83	.010 05	37	.....	.....	.....	.....	.0045	.000 015 57
4.4	0.1118	15.21	19.36	0.009 810	.....	50	.....	41	.....	0.0044	0.000 015 21
4.0	.1016	12.57	16.00	.008 107	.....	.....	36	42	.....	.0040	.000 012 57
3.965	.1007	12.35	15.72	.007 967	38	.....	.....	.....	.....	.0040	.000 012 35
3.937	0.10	12.17	15.50	0.007 854	.....	.....	.....	.....	1	0.0039	0.000 012 17
3.6	.091 44	10.18	12.96	.006 567	.....	.....	.....	43	.....	.0036	.000 010 18
3.531	.089 69	9.793	12.47	.006 318	39	.....	.....	.....	.....	.0035	.000 009 793
3.2	0.081 28	8.042	10.24	0.005 189	.....	.....	.....	44	.....	0.0032	0.000 008 042
3.145	.079 87	7.766	9.888	.005 010	40	.....	.....	.....	.....	.0031	.000 007 766
2.800	.071 13	6.159	7.842	.003 973	41	.....	.....	.....	.....	.0028	.000 006 159
2.8	0.071 12	6.158	7.840	0.003 973	.....	.....	.....	45	.....	0.0028	0.000 006 158
2.494	.063 34	4.884	6.219	.003 151	42	.....	.....	.....	.....	.0025	.000 004 884
2.4	.060 96	4.524	5.760	.002 919	.....	.....	.....	46	.....	.0024	.000 004 524
2.221	0.056 41	3.873	4.932	0.002 499	43	.....	.....	.....	.....	.0022	0.000 003 873
2.0	.050 80	3.142	4.000	.002 027	.....	.....	.....	47	.....	.0020	.000 003 142
1.978	.050 23	3.072	3.911	.001 982	44	.....	.....	.....	.....	.0020	.000 003 072
1.969	0.05	3.044	3.875	0.001 963	.....	.....	.....	.....	0.5	0.0020	0.000 003 044
1.761	.044 73	2.436	3.102	.001 572	45	.....	.....	.....	.....	.0018	.000 002 436
1.6	.040 64	2.011	2.560	.001 297	.....	.....	.....	48	.....	.0016	.000 002 011
1.568	0.039 84	1.932	2.460	0.001 246	46	.....	.....	.....	.....	0.0016	0.000 001 932
1.397	.035 47	1.532	1.951	.000 988 4	47	.....	.....	.....	.....	.0014	.000 001 532
1.243	.031 59	1.215	1.547	.000 783 8	48	.....	.....	.....	.....	.0012	.000 001 215
1.2	0.030 48	1.131	1.440	0.000 729 7	.....	.....	.....	49	.....	0.0012	0.000 001 131
1.107	.028 13	.9635	1.227	.000 621 6	49	.....	.....	.....	.....	.0011	.000 000 963 5
1.0	.025 40	.7854	1.000	.000 506 7	.....	.....	.....	50	.....	.0010	.000 000 785 4
0.9863	0.025 05	0.7641	0.9728	0.000 492 9	50	.....	.....	.....	.....	.0010	0.000 000 764 1

ADDITIONAL COPIES
 OF THIS PUBLICATION MAY BE PROCURED FROM
 THE SUPERINTENDENT OF DOCUMENTS
 GOVERNMENT PRINTING OFFICE
 WASHINGTON, D. C.
 AT
 5 CENTS PER COPY

