

Resistance/Temperature Table (-199°C to 49°C) 385 Platinum, 100 OHMS, AT 0°C

C	0	-1	-2	-3	-4	-5	-6	-7	-8	-9
-190	22.83	22.40	21.97	21.54	21.11	20.68	20.25	19.82	19.38	18.95
-180	27.10	26.67	26.24	25.82	25.39	24.97	24.54	24.11	23.68	23.25
-170	31.34	30.91	30.49	30.07	29.64	29.22	28.80	28.37	27.95	27.52
-160	35.54	35.12	34.70	34.28	33.86	33.44	33.02	32.60	32.18	31.76
-150	39.72	39.31	38.89	38.47	38.05	37.64	37.22	36.80	36.38	35.96
-140	43.88	43.46	43.05	42.63	42.22	41.80	41.39	40.97	40.56	40.14
-130	48.00	47.59	47.18	46.77	46.36	45.94	45.53	45.12	44.70	44.29
-120	52.11	51.70	51.29	50.88	50.47	50.06	49.65	49.24	48.83	48.42
-110	56.19	55.79	55.38	54.97	54.56	54.15	53.75	53.34	52.93	52.52
-100	60.26	59.85	59.44	59.04	58.63	58.23	57.82	57.41	57.01	56.60
-90	64.30	63.90	63.49	63.09	62.68	62.28	61.88	61.47	61.07	60.66
-80	68.33	67.92	67.52	67.12	66.72	66.31	65.91	65.51	65.11	64.70
-70	72.33	71.93	71.53	71.13	70.73	70.33	69.93	69.53	69.13	68.73
-60	76.33	75.93	75.53	75.13	74.73	74.33	73.93	73.53	73.13	72.73
-50	80.31	79.91	79.51	79.11	78.72	78.32	77.92	77.52	77.12	76.73
-40	84.27	83.87	83.48	83.08	82.69	82.29	81.89	81.50	81.10	80.70
-30	88.22	87.83	87.43	87.04	86.64	86.25	85.85	85.46	85.06	84.67
-20	92.16	91.77	91.37	90.98	90.59	90.19	89.80	89.40	89.01	88.62
-10	96.09	95.69	95.30	94.91	94.52	94.12	93.73	93.34	92.95	92.55
0	100.00	99.61	99.22	98.83	98.44	98.04	97.65	97.26	96.87	96.48
C	0	-1	-2	-3	-4	-5	-6	-7	-8	-9
C	0	1	2	3	4	5	6	7	8	9
0	100.00	100.39	100.78	101.17	101.56	101.95	102.34	102.73	103.12	103.51
10	103.90	104.29	104.68	105.07	105.46	105.85	106.24	106.63	107.02	107.41
20	107.79	108.18	108.57	108.96	109.35	109.74	110.12	110.51	110.90	111.29
30	111.67	112.06	112.45	112.84	113.22	113.61	114.00	114.38	114.77	115.16
40	115.54	115.93	116.31	116.70	117.09	117.47	117.86	118.24	118.63	119.01



Resistance/Temperature Table (50°C to 349°C) 385 Platinum, 100 OHMS, AT 0°C

C	0	1	2	3	4	5	6	7	8	9
50	119.40	119.78	120.17	120.55	120.94	121.32	121.71	122.09	122.47	122.86
60	123.24	123.63	124.01	124.39	124.78	125.16	125.54	125.93	126.31	126.69
70	127.08	127.46	127.84	128.22	128.61	128.99	129.37	129.75	130.13	130.52
80	130.90	131.28	131.66	132.04	132.42	132.80	133.18	133.57	133.95	134.33
90	134.71	135.09	135.47	135.85	136.23	136.61	136.99	137.37	137.75	138.13
100	138.51	138.89	139.26	139.64	140.02	140.40	140.78	141.16	141.54	141.91
110	142.29	142.67	143.05	143.43	143.80	144.18	144.56	144.94	145.31	145.69
120	146.07	146.45	146.82	147.20	147.58	147.95	148.33	148.70	149.08	149.46
130	149.83	150.21	150.58	150.96	151.33	151.71	152.09	152.46	152.84	153.21
140	153.58	153.96	154.33	154.71	155.08	155.46	155.83	156.20	156.58	156.95
150	157.33	157.70	158.07	158.45	158.82	159.19	159.56	159.94	160.31	160.68
160	161.05	161.43	161.80	162.17	162.54	162.92	163.29	163.66	164.03	164.40
170	164.77	165.14	165.51	165.89	166.26	166.63	167.00	167.37	167.74	168.11
180	168.48	168.85	169.22	169.59	169.96	170.33	170.70	171.07	171.44	171.80
190	172.17	172.54	172.91	173.28	173.65	174.02	174.38	174.75	175.12	175.49
200	175.86	176.22	176.59	176.96	177.33	177.69	178.06	178.43	178.79	179.16
210	179.53	179.89	180.26	180.63	180.99	181.36	181.73	182.09	182.46	182.82
220	183.19	183.55	183.92	184.28	184.65	185.01	185.38	185.74	186.11	186.47
230	186.84	187.20	187.56	187.93	188.29	188.66	189.02	189.38	189.75	190.11
240	190.47	190.84	191.20	191.56	191.92	192.29	192.65	193.01	193.37	193.74
250	194.10	194.46	194.82	195.18	195.55	195.91	196.27	196.63	196.99	197.35
260	197.71	198.07	198.43	198.79	199.15	199.51	199.88	200.24	200.60	200.95
270	201.31	201.67	202.03	202.39	202.75	203.11	203.47	203.83	204.19	204.55
280	204.91	205.26	205.62	205.98	206.34	206.70	207.05	207.41	207.77	208.13
290	208.48	208.84	209.20	209.56	209.91	210.27	210.63	210.98	211.34	211.70
300	212.05	212.41	212.76	213.12	213.48	213.83	214.19	214.54	214.90	215.25
310	215.61	215.96	216.32	216.67	217.03	217.38	217.74	218.09	218.44	218.80
320	219.15	219.51	219.86	220.21	220.57	220.92	221.27	221.63	221.98	222.33
330	222.69	223.04	223.39	223.74	224.10	224.45	224.80	225.15	225.50	225.86
340	226.21	226.56	226.91	227.26	227.61	227.96	228.31	228.66	229.02	229.37



Resistance/Temperature Table (350°C to 599°C) 385 Platinum, 100 OHMS, AT 0°C

C	0	1	2	3	4	5	6	7	8	9
350	229.72	230.07	230.42	230.77	231.12	231.47	231.82	232.17	232.52	232.87
360	233.21	233.56	233.91	234.26	234.61	234.96	235.31	235.66	236.01	236.35
370	236.70	237.05	237.40	237.75	238.09	238.44	238.79	239.14	239.48	239.83
380	240.18	240.52	240.87	241.22	241.56	241.91	242.26	242.60	242.95	243.29
390	243.64	243.99	244.33	244.68	245.02	245.37	245.71	246.06	246.40	246.75
400	247.09	247.44	247.78	248.13	248.47	248.81	249.16	249.50	249.85	250.19
410	250.53	250.88	251.22	251.56	251.91	252.25	252.59	252.93	253.28	253.62
420	253.96	254.30	254.65	254.99	255.33	255.67	256.01	256.36	256.70	257.04
430	257.38	257.72	258.06	258.40	258.74	259.08	259.42	259.76	260.11	260.45
440	260.79	261.13	261.47	261.80	262.14	262.48	262.82	263.16	263.50	263.84
450	264.18	264.52	264.86	265.20	265.53	265.87	266.21	266.55	266.89	267.22
460	267.56	267.90	268.24	268.57	268.91	269.25	269.59	269.92	270.26	270.60
470	270.93	271.27	271.61	271.94	272.28	272.61	272.95	273.29	273.62	273.96
480	274.29	274.63	274.96	275.30	275.63	275.97	276.30	276.64	276.97	277.31
490	277.64	277.98	278.31	278.64	278.98	279.31	279.64	279.98	280.31	280.64
500	280.98	281.31	281.64	281.98	282.31	282.64	282.97	283.31	283.64	283.97
510	284.30	284.63	284.97	285.30	285.63	285.96	286.29	286.62	286.95	287.29
520	287.62	287.95	288.28	288.61	288.94	289.27	289.60	289.93	290.26	290.59
530	290.92	291.25	291.58	291.91	292.24	292.57	292.89	293.22	293.55	293.88
540	294.21	294.54	294.87	295.19	295.52	295.85	296.18	296.51	296.83	297.16
550	297.49	297.81	298.14	298.47	298.80	299.12	299.45	299.78	300.10	300.43
560	300.75	301.08	301.41	301.73	302.06	302.38	302.71	303.04	303.36	303.69
570	304.01	304.34	304.66	304.99	305.31	305.63	305.96	306.28	306.61	306.93
580	307.25	307.58	307.90	308.23	308.55	308.87	309.20	309.52	309.84	310.16
590	310.49	310.81	311.13	311.45	311.78	312.10	312.42	312.74	313.07	313.39



Resistance/Temperature Table (600°C to 849°C) 385 Platinum, 100 OHMS, AT 0°C

C	0	1	2	3	4	5	6	7	8	9
600	313.71	314.03	314.35	314.67	314.99	315.31	315.64	315.96	316.28	316.60
610	316.92	317.24	317.56	317.88	318.20	318.52	318.84	319.16	319.48	319.80
620	320.12	320.44	320.75	321.07	321.39	321.71	322.03	322.35	322.67	322.98
630	323.30	323.62	323.94	324.26	324.57	324.89	325.21	325.53	325.84	326.16
640	326.48	326.79	327.11	327.43	327.74	328.06	328.38	328.69	329.01	329.32
650	329.64	329.96	330.27	330.59	330.90	331.22	331.53	331.85	332.16	332.48
660	332.79	333.11	333.42	333.74	334.05	334.36	334.68	334.99	335.31	335.62
670	335.93	336.25	336.56	336.87	337.19	337.50	337.81	338.12	338.44	338.75
680	339.06	339.37	339.69	340.00	340.31	340.62	340.93	341.24	341.56	341.87
690	342.18	342.49	342.80	343.11	343.42	343.73	344.04	344.35	344.66	344.97
700	345.28	345.59	345.90	346.21	346.52	346.83	347.14	347.45	347.76	348.07
710	348.38	348.69	349.00	349.30	349.61	349.92	350.23	350.54	350.84	351.15
720	351.46	351.77	352.08	352.38	352.69	353.00	353.30	353.61	353.92	354.22
730	354.53	354.84	355.14	355.45	355.76	356.06	356.37	356.67	356.98	357.29
740	357.59	357.90	358.20	358.51	358.81	359.12	359.42	359.73	360.03	360.33
750	360.64	360.94	361.25	361.55	361.85	362.16	362.46	362.77	363.07	363.37
760	363.67	363.98	364.28	364.58	364.89	365.19	365.49	365.79	366.10	366.40
770	366.70	367.00	367.30	367.60	367.91	368.21	368.51	368.81	369.11	369.41
780	369.71	370.01	370.31	370.61	370.91	371.22	371.52	371.82	372.12	372.41
790	372.71	373.01	373.31	373.61	373.91	374.21	374.51	374.81	375.11	375.41
800	375.70	376.00	376.30	376.60	376.90	377.20	377.49	377.79	378.09	378.39
810	378.68	378.98	379.28	379.57	379.87	380.17	380.46	380.76	381.06	381.35
820	381.65	381.95	382.24	382.54	382.83	383.13	383.42	383.72	384.02	384.31
830	384.61	384.90	385.20	385.49	385.78	386.08	386.37	386.67	386.96	387.26
840	387.55	387.84	388.14	388.43	388.72	389.02	389.31	389.60	389.90	390.19



Resistance/Temperature Table (-79°C to 260°C)
Nickel, 120 OHMS, AT 0°C

C	0	-1	-2	-3	-4	-5	-6	-7	-8	-9
-70	73.10	72.45	71.80	71.15	70.50	69.85	69.20	68.55	67.90	67.25
-60	79.62	78.97	78.31	77.66	77.01	76.36	75.71	75.06	74.41	73.75
-50	86.16	85.51	84.85	84.20	83.54	82.89	82.23	81.58	80.93	80.27
-40	92.76	92.09	91.43	90.77	90.11	89.45	88.79	88.14	87.48	86.82
-30	99.41	98.74	98.07	97.41	96.74	96.07	95.41	94.74	94.08	93.42
-20	106.15	105.47	104.79	104.12	103.44	102.77	102.09	101.42	100.75	100.08
-10	113.00	112.31	111.62	110.93	110.25	109.56	108.88	108.19	107.51	106.83
0	120.00	119.29	118.59	117.88	117.18	116.48	115.78	115.09	114.39	113.70
C	0	1	2	3	4	5	6	7	8	9
0	120.00	120.71	121.42	122.13	122.85	123.56	124.28	125.00	125.72	126.44
10	127.17	127.90	128.62	129.35	130.09	130.82	131.56	132.29	133.03	133.78
20	134.52	135.26	136.01	136.76	137.51	138.27	139.02	139.78	140.54	141.30
30	142.06	142.83	143.59	144.36	145.13	145.91	146.68	147.46	148.24	149.02
40	149.80	150.59	151.37	152.16	152.95	153.75	154.54	155.34	156.14	156.94
50	157.75	158.55	159.36	160.17	160.98	161.80	162.61	163.43	164.25	165.08
60	165.90	166.73	167.56	168.39	169.22	170.06	170.90	171.74	172.58	173.42
70	174.27	175.12	175.97	176.82	177.68	178.53	179.39	180.25	181.12	181.98
80	182.85	183.72	184.59	185.46	186.34	187.22	188.10	188.98	189.87	190.75
90	191.64	192.53	193.42	194.32	195.21	196.11	197.01	197.92	198.82	199.73
100	200.64	201.55	202.47	203.38	204.30	205.22	206.14	207.07	207.99	208.92
110	209.85	210.79	211.72	212.66	213.60	214.54	215.49	216.44	217.38	218.34
120	219.29	220.25	221.20	222.16	223.13	224.09	225.06	226.03	227.00	227.97
130	228.95	229.93	230.91	231.89	232.88	233.87	234.86	235.85	236.84	237.84
140	238.84	239.84	240.84	241.85	242.86	243.87	244.88	245.89	246.91	247.93
150	248.95	249.97	251.00	252.03	253.06	254.09	255.13	256.17	257.21	258.25
160	259.30	260.34	261.39	262.45	263.50	264.56	265.62	266.69	267.75	268.82
170	269.89	270.97	272.05	273.13	274.21	275.30	276.39	277.48	278.57	279.67
180	280.77	281.87	282.98	284.09	285.20	286.32	287.44	288.56	289.69	290.82
190	291.95	293.09	294.22	295.37	296.51	297.66	298.81	299.97	301.13	302.29
200	303.46	304.62	305.80	306.97	308.15	309.34	310.52	311.72	312.91	314.11
210	315.31	316.52	317.72	318.94	320.15	321.38	322.60	323.83	325.06	326.30
220	327.54	328.78	330.03	331.28	332.53	333.79	335.05	336.32	337.59	338.86
230	340.14	341.43	342.71	344.00	345.29	346.59	347.89	349.20	350.51	351.82
240	353.14	354.46	355.79	357.12	358.45	359.79	361.13	362.47	363.82	365.17
250	366.53	367.89	369.26	370.62	372.00	373.37	374.75	376.14	377.52	378.92
260	380.31									



Resistance/Temperature Table (-100°C to 204°C)
Nickel-Iron, 604 OHMS, AT 0°C

C	0	-1	-2	-3	-4	-5	-6	-7	-8	-9
-100	372.79									
-90	391.24	389.35	387.47	385.60	383.74	381.89	380.05	378.22	376.40	374.59
-80	410.73	408.73	406.75	404.77	402.81	400.86	398.91	396.98	395.06	393.14
-70	431.26	429.16	427.07	424.99	422.92	420.86	418.82	416.78	414.75	412.74
-60	452.82	450.62	448.43	446.24	444.07	441.91	439.76	437.62	435.49	433.37
-50	475.42	473.12	470.82	468.53	466.26	463.99	461.74	459.49	457.26	455.04
-40	499.06	496.65	494.25	491.86	489.48	487.11	484.76	482.41	480.07	477.74
-30	523.74	521.23	518.72	516.23	513.75	511.27	508.81	506.36	503.92	501.49
-20	549.46	546.84	544.23	541.63	539.05	536.47	533.90	531.35	528.80	526.27
-10	576.21	573.49	570.78	568.08	565.38	562.70	560.03	557.37	554.72	552.09
0	604.00	601.17	598.36	595.55	592.76	589.98	587.20	584.44	581.69	578.94
C	0	1	2	3	4	5	6	7	8	9
0	604.00	606.78	609.57	612.36	615.17	617.98	620.79	623.62	626.45	629.28
10	632.13	634.98	637.84	640.71	643.58	646.46	649.35	652.24	655.15	658.05
20	660.97	663.89	666.82	669.76	672.71	675.66	678.62	681.58	684.56	687.54
30	690.52	693.52	696.52	699.53	702.54	705.57	708.60	711.63	714.68	717.73
40	720.79	723.85	726.93	730.01	733.09	736.19	739.29	742.40	745.51	748.64
50	751.77	754.90	758.05	761.20	764.36	767.52	770.69	773.87	777.06	780.25
60	783.45	786.66	789.88	793.10	796.33	799.57	802.81	806.06	809.32	812.58
70	815.86	819.13	822.42	825.71	829.02	832.32	835.64	838.96	842.29	845.63
80	848.97	852.32	855.68	859.04	862.41	865.79	869.18	872.57	875.97	879.38
90	882.79	886.22	889.64	893.08	896.52	899.97	903.43	906.89	910.37	913.84
100	917.33	920.82	924.32	927.83	931.34	934.87	938.39	941.93	945.47	949.02
110	952.58	956.14	959.71	963.29	966.88	970.47	974.07	977.68	981.29	984.91
120	988.54	992.18	995.82	999.47	1003.12	1006.79	1010.46	1014.14	1017.82	1021.51
130	1025.21	1028.92	1032.63	1036.35	1040.08	1043.82	1047.56	1051.31	1055.06	1058.83
140	1062.60	1066.38	1070.16	1073.95	1077.75	1081.56	1085.37	1089.19	1093.02	1096.85
150	1100.70	1104.54	1108.40	1112.26	1116.13	1120.01	1123.90	1127.79	1131.69	1135.59
160	1139.50	1143.42	1147.35	1151.29	1155.23	1159.18	1163.13	1167.09	1171.06	1175.04
170	1179.03	1183.02	1187.01	1191.02	1195.03	1199.05	1203.08	1207.11	1211.15	1215.20
180	1219.26	1223.32	1227.39	1231.47	1235.55	1239.64	1243.74	1247.84	1251.96	1256.08
190	1260.20	1264.34	1268.48	1272.63	1276.78	1280.94	1285.11	1289.29	1293.47	1297.66
200	1301.86	1306.07	1310.28	1314.50	1318.72					



Resistance/Temperature Table (-100°C to 260°C) Copper, 10 OHMS, AT 25°C

C	0	-1	-2	-3	-4	-5	-6	-7	-8	-9
-100	5.13									
-90	5.53	5.49	5.45	5.41	5.37	5.33	5.29	5.25	5.21	5.17
-80	5.92	5.88	5.84	5.80	5.76	5.72	5.69	5.65	5.61	5.57
-70	6.32	6.28	6.24	6.20	6.16	6.12	6.08	6.04	6.00	5.96
-60	6.71	6.67	6.63	6.59	6.55	6.52	6.48	6.44	6.40	6.36
-50	7.10	7.06	7.03	6.99	6.95	6.91	6.87	6.83	6.79	6.75
-40	7.49	7.45	7.41	7.37	7.34	7.30	7.26	7.22	7.18	7.14
-30	7.88	7.84	7.80	7.76	7.72	7.68	7.64	7.61	7.57	7.53
-20	8.26	8.22	8.19	8.15	8.11	8.07	8.03	7.99	7.95	7.92
-10	8.65	8.61	8.57	8.53	8.49	8.46	8.42	8.38	8.34	8.30
0	9.04	9.00	8.96	8.92	8.88	8.84	8.80	8.76	8.73	8.69
C	0	1	2	3	4	5	6	7	8	9
0	9.04	9.07	9.11	9.15	9.19	9.23	9.27	9.31	9.34	9.38
10	9.42	9.46	9.50	9.54	9.58	9.61	9.65	9.69	9.73	9.77
20	9.81	9.85	9.88	9.92	9.96	10.00	10.04	10.08	10.12	10.15
30	10.19	10.23	10.27	10.31	10.35	10.39	10.43	10.46	10.50	10.54
40	10.58	10.62	10.66	10.70	10.73	10.77	10.81	10.85	10.89	10.93
50	10.97	11.00	11.04	11.08	11.12	11.16	11.20	11.24	11.27	11.31
60	11.35	11.39	11.43	11.47	11.51	11.55	11.58	11.62	11.66	11.70
70	11.74	11.78	11.82	11.85	11.89	11.93	11.97	12.01	12.05	12.09
80	12.12	12.16	12.20	12.24	12.28	12.32	12.36	12.39	12.43	12.47
90	12.51	12.55	12.59	12.63	12.67	12.70	12.74	12.78	12.82	12.86
100	12.94	12.97	13.01	13.05	13.09	13.13	13.17	13.21	13.25	13.29
110	13.28	13.32	13.36	13.40	13.44	13.48	13.51	13.55	13.59	13.63
120	13.67	13.71	13.75	13.79	13.82	13.86	13.90	13.94	13.98	14.02
130	14.06	14.09	14.13	14.17	14.21	14.25	14.29	14.33	14.36	14.40
140	14.44	14.48	14.52	14.56	14.60	14.63	14.67	14.71	14.75	14.79
150	14.83	14.87	14.91	14.94	14.98	15.02	15.06	15.10	15.14	15.18
160	15.22	15.26	15.30	15.33	15.37	15.41	15.45	15.49	15.53	15.57
170	15.61	15.65	15.68	15.72	15.76	15.80	15.84	15.88	15.92	15.96
180	16.00	16.04	16.07	16.11	16.15	16.19	16.23	16.27	16.31	16.35
190	16.39	16.43	16.46	16.50	16.54	16.58	16.62	16.66	16.70	16.74
200	16.78	16.81	16.85	16.89	16.93	16.97	17.01	17.05	17.09	17.13
210	17.17	17.20	17.24	17.28	17.32	17.36	17.40	17.44	17.48	17.52
220	17.56	17.59	17.63	17.67	17.71	17.75	17.79	17.83	17.87	17.91
230	17.95	17.98	18.02	18.06	18.10	18.14	18.18	18.22	18.26	18.30
240	18.34	18.37	18.41	18.45	18.49	18.53	18.57	18.61	18.65	18.69
250	18.73	18.76	18.80	18.84	18.88	18.92	18.96	19.00	19.04	19.08
260	19.12									



Resistance/Temperature Table (-200°C to 99°C) 392 Platinum, 100 OHMS, AT 0°C

C	0	-1	-2	-3	-4	-5	-6	-7	-8	-9
-200	17.00									
-190	21.37	20.94	20.50	20.06	19.63	19.19	18.75	18.31	17.87	17.44
-180	25.72	25.29	24.85	24.42	23.98	23.55	23.12	22.68	22.25	21.81
-170	30.03	29.60	29.17	28.74	28.31	27.88	27.45	27.02	26.58	26.15
-160	34.31	33.89	33.46	33.03	32.60	32.18	31.75	31.32	30.89	30.46
-150	38.57	38.15	37.72	37.30	36.87	36.45	36.02	35.59	35.17	34.74
-140	42.80	42.38	41.96	41.53	41.11	40.69	40.26	39.84	39.42	38.99
-130	47.00	46.58	46.16	45.74	45.32	44.90	44.48	44.06	43.64	43.22
-120	51.19	50.77	50.35	49.93	49.52	49.10	48.68	48.26	47.84	47.42
-110	55.35	54.93	54.51	54.10	53.68	53.27	52.85	52.44	52.02	51.60
-100	59.49	59.07	58.66	58.25	57.83	57.42	57.00	56.59	56.17	55.76
-90	63.61	63.19	62.78	62.37	61.96	61.55	61.14	60.72	60.31	59.90
-80	67.71	67.30	66.89	66.48	66.07	65.66	65.25	64.84	64.43	64.02
-70	71.80	71.39	70.98	70.57	70.16	69.75	69.35	68.94	68.53	68.12
-60	75.87	75.46	75.05	74.65	74.24	73.83	73.43	73.02	72.61	72.20
-50	79.92	79.52	79.11	78.71	78.30	77.90	77.49	77.08	76.68	76.27
-40	83.96	83.56	83.16	82.75	82.35	81.94	81.54	81.14	80.73	80.33
-30	87.99	87.59	87.19	86.78	86.38	85.98	85.58	85.17	84.77	84.37
-20	92.01	91.61	91.20	90.80	90.40	90.00	89.60	89.20	88.80	88.39
-10	96.01	95.61	95.21	94.81	94.41	94.01	93.61	93.21	92.81	92.41
0	100.00	99.60	99.20	98.80	98.41	98.01	97.61	97.21	96.81	96.41
C	0	-1	-2	-3	-4	-5	-6	-7	-8	-9
0	100.00	100.40	100.80	101.20	101.59	101.99	102.39	102.79	103.18	103.58
10	103.98	104.38	104.77	105.17	105.57	105.96	106.36	106.76	107.15	107.55
20	107.95	108.34	108.74	109.13	109.53	109.93	110.32	110.72	111.11	111.51
30	111.90	112.30	112.69	113.09	113.48	113.88	114.27	114.66	115.06	115.45
40	115.85	116.24	116.63	117.03	117.42	117.81	118.21	118.60	118.99	119.39
50	119.78	120.17	120.56	120.96	121.35	121.74	122.13	122.52	122.91	123.31
60	123.70	124.09	124.48	124.87	125.26	125.65	126.04	126.44	126.83	127.22
70	127.61	128.00	128.39	128.78	129.17	129.56	129.95	130.34	130.72	131.11
80	131.50	131.89	132.28	132.67	133.06	133.45	133.84	134.22	134.61	135.00
90	135.39	135.78	136.16	136.55	136.94	137.33	137.71	138.10	138.49	138.87



Resistance/Temperature Table (-100°C to 449°C) 392 Platinum, 100 OHMS, AT 0°C

C	0	-1	-2	-3	-4	-5	-6	-7	-8	-9
100	139.26	139.65	140.03	140.42	140.81	141.19	141.58	141.97	142.35	142.74
110	143.12	143.51	143.89	144.28	144.66	145.05	145.43	145.82	146.20	146.59
120	146.97	147.36	147.74	148.13	148.51	148.89	149.28	149.66	150.04	150.43
130	150.81	151.19	151.58	151.96	152.34	152.73	153.11	153.49	153.87	154.26
140	154.64	155.02	155.40	155.78	156.16	156.55	156.93	157.31	157.69	158.07
150	158.45	158.83	159.21	159.59	159.97	160.35	160.73	161.11	161.49	161.87
160	162.25	162.63	163.01	163.39	163.77	164.15	164.53	164.91	165.29	165.67
170	166.05	166.42	166.80	167.18	167.56	167.94	168.31	168.69	169.07	169.45
180	169.83	170.20	170.58	170.96	171.33	171.71	172.09	172.46	172.84	173.22
190	173.59	173.97	174.34	174.72	175.10	175.47	175.85	176.22	176.60	176.97
200	177.35	177.72	178.10	178.47	178.85	179.22	179.60	179.97	180.34	180.72
210	181.09	181.47	181.84	182.21	182.59	182.96	183.33	183.71	184.08	184.45
220	184.83	185.20	185.57	185.94	186.31	186.69	187.06	187.43	187.80	188.17
230	188.55	188.92	189.29	189.66	190.03	190.40	190.77	191.14	191.51	191.88
240	192.25	192.62	192.99	193.36	193.73	194.10	194.47	194.84	195.21	195.58
250	195.95	196.32	196.69	197.06	197.43	197.80	198.16	198.53	198.90	199.27
260	199.64	200.01	200.37	200.74	201.11	201.48	201.84	202.21	202.58	202.94
270	203.31	203.68	204.04	204.41	204.78	205.14	205.51	205.88	206.24	206.61
280	206.97	207.34	207.70	208.07	208.43	208.80	209.16	209.53	209.89	210.26
290	210.62	210.99	211.35	211.72	212.08	212.44	212.81	213.17	213.53	213.90
300	214.26	214.62	214.99	215.35	215.71	216.08	216.44	216.80	217.16	217.53
310	217.89	218.25	218.61	218.97	219.34	219.70	220.06	220.42	220.78	221.14
320	221.50	221.86	222.22	222.59	222.95	223.31	223.67	224.03	224.39	224.75
330	225.11	225.47	225.83	226.19	226.54	226.90	227.26	227.62	227.98	228.34
340	228.70	229.06	229.41	229.77	230.13	230.49	230.85	231.21	231.56	231.92
350	232.28	232.64	232.99	233.35	233.71	234.06	234.42	234.78	235.13	235.49
360	235.85	236.20	236.56	236.91	237.27	237.63	237.98	238.34	238.69	239.05
370	239.40	239.76	240.11	240.47	240.82	241.18	241.53	241.88	242.24	242.59
380	242.95	243.30	243.65	244.01	244.36	244.71	245.07	245.42	245.77	246.13
390	246.48	246.83	247.18	247.54	247.89	248.24	248.59	248.95	249.30	249.65
400	250.00	250.35	250.70	251.05	251.41	251.76	252.11	252.46	252.81	253.16
410	253.51	253.86	254.21	254.56	254.91	255.26	255.61	255.96	256.31	256.66
420	257.01	257.36	257.71	258.05	258.40	258.75	259.10	259.45	259.80	260.15
430	260.49	260.84	261.19	261.54	261.88	262.23	262.58	262.93	263.27	263.62
440	263.97	264.31	264.66	265.01	265.35	265.70	266.05	266.39	266.74	267.08



Resistance/Temperature Table (450°C to 799°C) 392 Platinum, 100 OHMS, AT 0°C

C	0	1	2	3	4	5	6	7	8	9
450	267.43	267.78	268.12	268.47	268.81	269.16	269.50	269.85	270.19	270.54
460	270.88	271.22	271.57	271.91	272.26	272.60	272.95	273.29	273.63	273.98
470	274.32	274.66	275.01	275.35	275.69	276.03	276.38	276.72	277.06	277.40
480	277.75	278.09	278.43	278.77	279.11	279.46	279.80	280.14	280.48	280.82
490	281.16	281.50	281.84	282.18	282.52	282.87	283.21	283.55	283.89	284.23
500	284.57	284.91	285.24	285.58	285.92	286.26	286.60	286.94	287.28	287.62
510	287.96	288.30	288.63	288.97	289.31	289.65	289.99	290.32	290.66	291.00
520	291.34	291.67	292.01	292.35	292.69	293.02	293.36	293.70	294.03	294.37
530	294.71	295.04	295.38	295.71	296.05	296.39	296.72	297.06	297.39	297.73
540	298.06	298.40	298.73	299.07	299.40	299.74	300.07	300.41	300.74	301.07
550	301.41	301.74	302.08	302.41	302.74	303.08	303.41	303.74	304.08	304.41
560	304.74	305.07	305.41	305.74	306.07	306.40	306.74	307.07	307.40	307.73
570	308.06	308.39	308.73	309.06	309.39	309.72	310.05	310.38	310.71	311.04
580	311.37	311.70	312.03	312.36	312.69	313.02	313.35	313.68	314.01	314.34
590	314.67	315.00	315.33	315.66	315.99	316.31	316.64	316.97	317.30	317.63
600	317.96	318.28	318.61	318.94	319.27	319.60	319.92	320.25	320.58	320.90
610	321.23	321.56	321.88	322.21	322.54	322.86	323.19	323.52	323.84	324.17
620	324.49	324.82	325.14	325.47	325.80	326.12	326.45	326.77	327.10	327.42
630	327.74	328.07	328.39	328.72	329.04	329.37	329.69	330.01	330.34	330.66
640	330.98	331.31	331.63	331.95	332.28	332.60	332.92	333.24	333.57	333.89
650	334.21	334.53	334.86	335.18	335.50	335.82	336.14	336.46	336.78	337.11
660	337.43	337.75	338.07	338.39	338.71	339.03	339.35	339.67	339.99	340.31
670	340.63	340.95	341.27	341.59	341.91	342.23	342.55	342.87	343.19	343.50
680	343.82	344.14	344.46	344.78	345.10	345.42	345.73	346.05	346.37	346.69
690	347.00	347.32	347.64	347.96	348.27	348.59	348.91	349.22	349.54	349.86
700	350.17	350.49	350.81	351.12	351.44	351.75	352.07	352.38	352.70	353.01
710	353.33	353.65	353.96	354.27	354.59	354.90	355.22	355.53	355.85	356.16
720	356.48	356.79	357.10	357.42	357.73	358.04	358.36	358.67	358.98	359.30
730	359.61	359.92	360.23	360.55	360.86	361.17	361.48	361.80	362.11	362.42
740	362.73	363.04	363.35	363.67	363.98	364.29	364.60	364.91	365.22	365.53
750	365.84	366.15	366.46	366.77	367.08	367.39	367.70	368.01	368.32	368.63
760	368.94	369.25	369.56	369.87	370.18	370.48	370.79	371.10	371.41	371.72
770	372.03	372.33	372.64	372.95	373.26	373.57	373.87	374.18	374.49	374.79
780	375.10	375.41	375.71	376.02	376.33	376.63	376.94	377.25	377.55	377.86
790	378.16	378.47	378.78	379.08	379.39	379.69	380.00	380.30	380.61	380.91



Resistance/Temperature Table (800°C to 879°C) 392 Platinum, 100 OHMS, AT 0°C

C	0	1	2	3	4	5	6	7	8	9
800	381.22	381.52	381.82	382.13	382.43	382.74	383.04	383.35	383.65	383.95
810	384.26	384.56	384.86	385.17	385.47	385.77	386.07	386.38	386.68	386.98
820	387.28	387.59	387.89	388.19	388.49	388.79	389.09	389.40	389.70	390.00
830	390.30	390.60	390.90	391.20	391.50	391.80	392.10	392.40	392.70	393.00
840	393.30	393.60	393.90	394.20	394.50	394.80	395.10	395.40	395.70	396.00
850	396.30	396.60	396.89	397.19	397.49	379.79	398.09	398.39	398.68	398.98
860	399.28	399.58	399.87	400.17	400.47	400.76	401.60	401.36	401.65	401.95
870	402.25	402.54	402.84	403.14	403.43	403.73	404.20	404.32	404.61	404.91



Resistance/Temperature Table (450°C to 799°C) 391 Platinum, 100 OHMS, AT 0°C

C	0	-1	-2	-3	-4	-5	-6	-7	-8	-9
-200	17.26									
-190	21.63	21.20	20.76	20.32	19.89	19.45	19.01	18.58	18.14	17.70
-180	25.97	25.54	25.10	24.67	24.24	23.80	23.37	22.94	22.50	22.07
-170	30.27	29.84	29.41	28.98	28.55	28.12	27.69	27.26	26.83	26.40
-160	34.54	34.12	33.69	33.27	32.84	32.41	31.98	31.56	31.13	30.70
-150	38.79	38.37	37.94	37.52	37.09	36.67	36.25	35.82	35.40	34.97
-140	43.01	42.59	42.16	41.74	41.32	40.90	40.48	40.06	39.63	39.21
-130	47.20	46.78	46.36	45.94	45.52	45.11	44.69	44.27	43.85	43.43
-120	51.37	50.95	50.53	50.12	49.70	49.29	48.87	48.45	48.03	47.62
-110	55.51	55.10	54.69	54.27	53.86	53.44	53.03	52.61	52.20	51.78
-100	59.64	59.23	58.81	58.40	57.99	57.58	57.17	56.75	56.34	55.93
-90	63.74	63.34	62.93	62.51	62.10	61.69	61.28	60.87	60.46	60.05
-80	67.83	67.43	67.02	66.61	66.20	65.79	65.38	64.97	64.56	64.15
-70	71.90	71.50	71.09	70.68	70.28	69.87	69.46	69.06	68.65	68.24
-60	75.96	75.55	75.15	74.74	74.34	73.93	73.53	73.12	72.72	72.31
-50	80.00	79.60	79.19	78.79	78.39	77.98	77.58	77.17	76.77	76.36
-40	84.03	83.62	83.22	82.82	82.42	82.01	81.61	81.21	80.81	80.40
-30	88.04	87.64	87.24	86.84	86.43	86.03	85.63	85.23	84.83	84.43
-20	92.04	91.64	91.24	90.84	90.44	90.04	89.64	89.24	88.84	88.44
-10	96.02	95.63	95.23	94.83	94.43	94.03	93.63	93.24	92.84	92.44
0	100.00	99.60	99.21	98.81	98.41	98.01	97.62	97.22	96.82	96.42
C	0	-1	-2	-3	-4	-5	-6	-7	-8	-9

C	0	1	2	3	4	5	6	7	8	9
0	100.00	100.40	100.79	101.19	101.59	101.98	102.38	102.78	103.17	103.57
10	103.96	104.36	104.76	105.15	105.55	105.94	106.34	106.73	107.13	107.52
20	107.92	108.31	108.70	109.10	109.49	109.89	110.28	110.67	111.07	111.46
30	111.86	112.25	112.64	113.04	113.43	113.82	114.21	114.61	115.00	115.39
40	115.78	116.18	116.57	116.96	117.35	117.74	118.14	118.53	118.92	119.31
50	119.70	120.09	120.48	120.87	121.26	121.65	122.04	122.43	122.83	123.22
60	123.61	123.99	124.38	124.77	125.16	125.55	125.94	126.33	126.72	127.11
70	127.50	127.89	128.28	128.66	129.05	129.44	129.83	130.22	130.60	130.99
80	131.38	131.77	132.15	132.54	132.93	133.32	133.70	134.09	134.48	134.86
90	135.25	135.64	136.02	136.41	136.79	137.18	137.57	137.95	138.34	138.72



Resistance/Temperature Table (100°C to 449°C) 391 Platinum, 100 OHMS, AT 0°C

C	0	1	2	3	4	5	6	7	8	9
100	139.11	139.49	139.88	140.26	140.65	141.03	141.42	141.80	142.19	142.57
110	142.95	143.34	143.72	144.11	144.49	144.87	145.26	145.64	146.02	146.41
120	146.79	147.17	147.55	147.94	148.32	148.70	149.08	149.47	149.85	150.23
130	150.61	150.99	151.37	151.76	152.14	152.52	152.90	153.28	153.66	154.04
140	154.42	154.80	155.18	155.56	155.94	156.32	156.70	157.08	157.46	157.84
150	158.22	158.60	158.98	159.36	159.74	160.12	160.50	160.88	161.25	161.63
160	162.01	162.39	162.77	163.14	163.52	163.90	164.28	164.65	165.03	165.41
170	165.79	166.16	166.54	166.92	167.29	167.67	168.05	168.42	168.80	169.17
180	169.55	169.93	170.30	170.68	171.05	171.43	171.80	172.18	172.55	172.93
190	173.30	173.68	174.05	174.43	174.80	175.18	175.55	175.92	176.30	176.67
200	177.04	177.42	177.79	178.16	178.54	178.91	179.28	179.66	180.03	180.40
210	180.77	181.15	181.52	181.89	182.26	182.63	183.01	183.38	183.75	184.12
220	184.49	184.86	185.23	185.60	185.98	186.35	186.72	187.09	187.46	187.83
230	188.20	188.57	188.94	189.31	189.68	190.05	190.42	190.78	191.15	191.52
240	191.89	192.26	192.63	193.00	193.37	193.73	194.10	194.47	194.84	195.21
250	195.57	195.94	196.31	196.68	197.04	197.41	197.78	198.15	198.51	198.88
260	199.25	199.61	199.98	200.34	200.71	201.08	201.44	201.81	202.17	202.54
270	202.90	203.27	203.64	204.00	204.37	204.73	205.09	205.46	205.82	206.19
280	206.55	206.92	207.28	207.64	208.01	208.37	208.73	209.10	209.46	209.82
290	210.19	210.55	210.91	211.28	211.64	212.00	212.36	212.73	213.09	213.45
300	213.81	214.17	214.54	214.90	215.26	215.62	215.98	216.34	216.70	217.06
310	217.42	217.78	218.15	218.51	218.87	219.23	219.59	219.95	220.31	220.67
320	221.03	221.38	221.74	222.10	222.46	222.82	223.18	223.54	223.90	224.26
330	224.61	224.97	225.33	225.69	226.05	226.40	226.76	227.12	227.48	227.83
340	228.19	228.55	228.91	229.26	229.62	229.98	230.33	230.69	231.04	231.40
350	231.76	232.11	232.47	232.82	233.18	233.54	233.89	234.25	234.60	234.96
360	235.31	235.67	236.02	236.37	236.73	237.08	237.44	237.79	238.15	238.50
370	238.85	239.21	239.56	239.91	240.27	240.62	240.97	241.33	241.68	242.03
380	242.38	242.74	243.09	243.44	243.79	244.14	244.50	244.85	245.20	245.55
390	245.90	246.25	246.60	246.96	247.31	247.66	248.01	248.36	248.71	249.06
400	249.41	249.76	250.11	250.46	250.81	251.16	251.51	251.86	252.21	252.56
410	252.90	253.25	253.60	253.95	254.30	254.65	255.00	255.34	255.69	256.04
420	256.39	256.74	257.08	257.43	257.78	258.13	258.47	258.82	259.17	259.51
430	259.86	260.21	260.55	260.90	261.25	261.59	261.94	262.28	262.63	262.98
440	263.32	263.67	264.01	264.36	264.70	265.05	265.39	265.74	266.08	266.42



Resistance/Temperature Table (450°C to 799°C) 391 Platinum, 100 OHMS, AT 0°C

C	0	1	2	3	4	5	6	7	8	9
450	266.77	267.11	267.46	267.80	268.15	268.49	268.83	269.18	269.52	269.86
460	270.21	270.55	270.89	271.23	271.58	271.92	272.26	272.61	272.95	273.29
470	273.63	273.97	274.31	274.66	275.00	275.34	275.68	276.02	276.36	276.70
480	277.04	277.39	277.73	278.07	278.41	278.75	279.09	279.43	279.77	280.11
490	280.45	280.79	281.13	281.46	281.80	282.14	282.48	282.82	283.16	283.50
500	283.84	284.18	284.51	284.85	285.19	285.53	285.87	286.20	286.54	286.88
510	287.22	287.55	287.89	288.23	288.56	288.90	289.24	289.57	289.91	290.25
520	290.58	290.92	291.25	291.59	291.93	292.26	292.60	292.93	293.27	293.60
530	293.94	294.27	294.61	294.94	295.28	295.61	295.94	296.28	296.61	296.95
540	297.28	297.61	297.95	298.28	298.61	298.95	299.28	299.61	299.95	300.28
550	300.61	300.94	301.28	301.61	301.94	302.27	302.61	302.94	303.27	303.60
560	303.93	304.26	304.59	304.93	305.26	305.59	305.92	306.25	306.58	306.91
570	307.24	307.57	307.90	308.23	308.56	308.89	309.22	309.55	309.88	310.21
580	310.54	310.87	311.19	311.52	311.85	312.18	312.51	312.84	313.17	313.49
590	313.82	314.15	314.48	314.80	315.13	315.46	315.79	316.11	316.44	316.77
600	317.09	317.42	317.75	318.07	318.40	318.73	319.05	319.38	319.70	320.03
610	320.36	320.68	321.01	321.33	321.66	321.98	322.31	322.63	322.96	323.28
620	323.61	323.93	324.25	324.58	324.90	325.23	325.55	325.87	326.20	326.52
630	326.84	327.17	327.49	327.81	328.14	328.46	328.78	329.10	329.43	329.75
640	330.07	330.39	330.71	331.04	331.36	331.68	332.00	332.32	332.64	332.96
650	333.28	333.61	333.93	334.25	334.57	334.89	335.21	335.53	335.85	336.17
660	336.49	336.81	337.16	337.45	337.77	338.08	338.40	338.72	339.04	339.36
670	339.68	340.00	340.32	340.63	340.95	341.27	341.59	341.91	342.22	342.54
680	342.86	343.18	343.49	343.81	344.13	344.44	344.76	345.08	345.39	345.71
690	346.03	346.34	346.66	346.95	347.29	347.61	347.92	348.24	348.55	348.87
700	349.18	349.50	349.81	350.13	350.44	350.79	351.07	351.38	351.70	352.01
710	352.33	352.64	352.96	353.27	353.58	353.90	354.21	354.52	354.83	355.15
720	355.46	355.77	356.08	356.40	356.71	357.02	357.33	357.65	357.98	358.27
730	358.58	358.89	359.20	359.52	359.83	360.14	360.45	360.76	361.07	361.38
740	361.69	362.00	362.31	362.62	362.93	363.24	363.55	363.86	364.17	364.48
750	364.79	365.10	365.41	365.72	366.02	366.33	366.64	366.95	367.26	367.57
760	367.87	368.18	368.49	368.80	369.10	369.41	369.72	370.03	370.33	370.64
770	370.95	371.26	371.56	371.87	372.18	372.48	372.79	373.09	373.40	373.70
780	374.01	374.32	374.62	374.93	375.23	375.54	375.84	376.15	376.45	376.76
790	377.06	377.37	377.67	377.97	378.28	378.58	378.89	379.19	379.49	379.80



**Resistance/Temperature Table (800°C to 879°C)
391 Platinum, 100 OHMS, AT 0°C**

C	0	1	2	3	4	5	6	7	8	9
800	380.10	380.40	380.71	381.01	381.31	381.62	381.92	382.22	382.52	382.82
810	383.13	383.43	383.73	384.03	384.34	385.64	384.94	385.24	385.54	385.84
820	386.14	386.44	386.75	387.05	378.35	387.65	387.95	388.25	388.55	388.85
830	389.15	389.45	389.75	390.05	390.35	390.65	390.94	391.24	391.54	391.84
840	392.14	392.44	392.74	393.04	393.33	393.63	393.93	394.23	394.53	394.82
850	395.12	395.42	395.72	396.01	396.31	396.61	396.90	397.20	397.50	397.79
860	398.09	398.39	398.68	398.98	399.27	399.57	399.87	400.16	400.46	400.75
870	401.05	401.34	401.64	401.93	402.23	402.52	402.82	403.11	403.40	403.70



Type T ^{°C}

(-270°C to 59°C)

COPPER vs. CONSTANTAN

EMF IN MILLIVOLTS - REFERENCE JUNCTION 0

C	0	-1	-2	-3	-4	-5	-6	-7	-8	-9
-270	-6.258									
-260	-6.232	-6.236	-6.239	-6.242	-6.245	-6.248	-6.251	-6.253	-6.255	-6.256
-250	-6.180	-6.187	-6.193	-6.198	-6.204	-6.209	-6.214	-6.219	-6.223	-6.228
-240	-6.105	-6.114	-6.122	-6.130	-6.138	-6.146	-6.153	-6.160	-6.167	-6.174
-230	-6.007	-6.017	-6.028	-6.038	-6.049	-6.059	-6.068	-6.078	-6.087	-6.096
-220	-5.888	-5.901	-5.914	-5.926	-5.938	-5.950	-5.962	-5.973	-5.985	-5.996
-210	-5.753	-5.767	-5.782	-5.795	-5.809	-5.823	-5.836	-5.850	-5.863	-5.876
-200	-5.603	-5.619	-5.634	-5.650	-5.665	-5.680	-5.695	-5.710	-5.724	-5.739
-190	-5.439	-5.456	-5.473	-5.489	-5.506	-5.523	-5.539	-5.555	-5.571	-5.587
-180	-5.261	-5.279	-5.297	-5.316	-5.334	-5.351	-5.369	-5.387	-5.404	-5.421
-170	-5.070	-5.089	-5.109	-5.128	-5.148	-5.167	-5.186	-5.205	-5.224	-5.242
-160	-4.865	-4.886	-4.907	-4.928	-4.949	-4.969	-4.989	-5.010	-5.030	-5.050
-150	-4.648	-4.671	-4.693	-4.715	-4.737	-4.759	-4.780	-4.802	-4.823	-4.844
-140	-4.419	-4.443	-4.466	-4.489	-4.512	-4.535	-4.558	-4.581	-4.604	-4.626
-130	-4.177	-4.202	-4.226	-4.251	-4.275	-4.300	-4.324	-4.348	-4.372	-4.395
-120	-3.923	-3.949	-3.975	-4.000	-4.026	-4.052	-4.077	-4.102	-4.127	-4.152
-110	-3.657	-3.684	-3.711	-3.738	-3.765	-3.791	-3.818	-3.844	-3.871	-3.897
-100	-3.379	-3.407	-3.435	-3.463	-3.491	-3.519	-3.547	-3.574	-3.602	-3.629
-90	-3.089	-3.118	-3.148	-3.177	-3.206	-3.235	-3.264	-3.293	-3.322	-3.350
-80	-2.788	-2.818	-2.849	-2.879	-2.910	-2.940	-2.970	-3.000	-3.030	-3.059
-70	-2.476	-2.507	-2.539	-2.571	-2.602	-2.633	-2.664	-2.695	-2.726	-2.757
-60	-2.153	-2.186	-2.218	-2.251	-2.283	-2.316	-2.348	-2.380	-2.412	-2.444
-50	-1.819	-1.853	-1.887	-1.920	-1.954	-1.987	-2.021	-2.054	-2.087	-2.120
-40	-1.475	-1.510	-1.545	-1.579	-1.614	-1.648	-1.683	-1.717	-1.751	-1.785
-30	-1.121	-1.157	-1.192	-1.228	-1.264	-1.299	-1.335	-1.370	-1.405	-1.440
-20	-0.757	-0.794	-0.830	-0.867	-0.904	-0.940	-0.976	-1.013	-1.049	-1.085
-10	-0.383	-0.421	-0.459	-0.496	-0.534	-0.571	-0.608	-0.646	-0.683	-0.720
0	0.000	-0.039	-0.077	-0.116	-0.154	-0.193	-0.231	-0.269	-0.307	-0.345
C	0	1	2	3	4	5	6	7	8	9
0	0.000	0.039	0.078	0.117	0.156	0.195	0.234	0.273	0.312	0.352
10	0.391	0.431	0.470	0.510	0.549	0.589	0.629	0.669	0.709	0.749
20	0.790	0.830	0.870	0.911	0.951	0.992	1.033	1.074	1.114	1.155
30	1.196	1.238	1.279	1.320	1.362	1.403	1.445	1.486	1.528	1.570
40	1.612	1.654	1.696	1.738	1.780	1.823	1.865	1.908	1.950	1.993
50	2.036	2.079	2.122	2.165	2.208	2.251	2.294	2.338	2.381	2.425



Type T ^{°C}

(60°C to 400°C)

COPPER vs. CONSTANTAN

EMF IN MILLIVOLTS - REFERENCE JUNCTION 0

C	0	1	2	3	4	5	6	7	8	9
60	2.468	2.512	2.556	2.600	2.643	2.687	2.732	2.776	2.820	2.864
70	2.909	2.953	2.998	3.043	3.087	3.132	3.177	3.222	3.267	3.312
80	3.358	3.403	3.448	3.494	3.539	3.585	3.631	3.677	3.722	3.768
90	3.814	3.860	3.907	3.953	3.999	4.046	4.092	4.138	4.185	4.232
100	4.279	4.325	4.372	4.419	4.466	4.513	4.561	4.608	4.655	4.702
110	4.750	4.798	4.845	4.893	4.941	4.988	5.036	5.084	5.132	5.180
120	5.228	5.277	5.325	5.373	5.422	5.470	5.519	5.567	5.616	5.665
130	5.714	5.763	5.812	5.861	5.910	5.959	6.008	6.057	6.107	6.156
140	6.206	6.255	6.305	6.355	6.404	6.454	6.504	6.554	6.604	6.654
150	6.704	6.754	6.805	6.855	6.905	6.956	7.006	7.057	7.107	7.158
160	7.209	7.260	7.310	7.361	7.412	7.463	7.515	7.566	7.617	7.668
170	7.720	7.771	7.823	7.874	7.926	7.977	8.029	8.081	8.133	8.185
180	8.237	8.289	8.341	8.393	8.445	8.497	8.550	8.602	8.654	8.707
190	8.759	8.812	8.865	8.917	8.970	9.023	9.076	9.129	9.182	9.235
200	9.288	9.341	9.395	9.448	9.501	9.555	9.608	9.662	9.715	9.769
210	9.822	9.876	9.930	9.984	10.038	10.092	10.146	10.200	10.254	10.308
220	10.362	10.417	10.471	10.525	10.580	10.634	10.689	10.743	10.798	10.853
230	10.907	10.962	11.017	11.072	11.127	11.182	11.237	11.292	11.347	11.403
240	11.458	11.513	11.569	11.624	11.680	11.735	11.791	11.846	11.902	11.958
250	12.013	12.069	12.125	12.181	12.237	12.293	12.349	12.405	12.461	12.518
260	12.574	12.630	12.687	12.743	12.799	12.856	12.912	12.969	13.026	13.082
270	13.139	13.196	13.253	13.310	13.366	13.423	13.480	13.537	13.595	13.652
280	13.709	13.766	13.823	13.881	13.938	13.995	14.053	14.110	14.168	14.226
290	14.283	14.341	14.399	14.456	14.514	14.572	14.630	14.688	14.746	14.804
300	14.862	14.920	14.978	15.036	15.095	15.153	15.211	15.270	15.328	15.386
310	15.445	15.503	15.562	15.621	15.679	15.738	15.797	15.856	15.914	15.973
320	16.032	16.091	16.150	16.209	16.268	16.327	16.387	16.446	16.505	16.564
330	16.624	16.683	16.742	16.802	16.861	16.921	16.980	17.040	17.100	17.159
340	17.219	17.279	17.339	17.399	17.458	17.518	17.578	17.638	17.698	17.759
350	17.819	17.879	17.939	17.999	18.060	18.120	18.180	18.241	18.301	18.362
360	18.422	18.483	18.543	18.604	18.665	18.725	18.786	18.847	18.908	18.969
370	19.030	19.091	19.152	19.213	19.274	19.335	19.396	19.457	19.518	19.579
380	19.641	19.702	19.763	19.825	19.886	19.947	20.009	20.070	20.132	20.193
390	20.255	20.317	20.378	20.440	20.502	20.563	20.625	20.687	20.748	20.810
400	20.872									



Type J ^{°C}

(-210°C to 99°C)

IRON vs. CONSTANTAN

EMF IN MILLIVOLTS - REFERENCE JUNCTION 0

C	0	-1	-2	-3	-4	-5	-6	-7	-8	-9
-210	-8.095									
-200	-7.890	-7.912	-7.934	-7.955	-7.976	-7.996	-8.017	-8.037	-8.057	-8.076
-190	-7.659	-7.683	-7.707	-7.731	-7.755	-7.778	-7.801	-7.824	-7.846	-7.868
-180	-7.403	-7.429	-7.456	-7.482	-7.508	-7.534	-7.559	-7.585	-7.610	-7.634
-170	-7.123	-7.152	-7.181	-7.209	-7.237	-7.265	-7.293	-7.321	-7.348	-7.376
-160	-6.821	-6.853	-6.883	-6.914	-6.944	-6.975	-7.005	-7.035	-7.064	-7.094
-150	-6.500	-6.533	-6.566	-6.598	-6.631	-6.663	-6.695	-6.727	-6.759	-6.790
-140	-6.159	-6.194	-6.229	-6.263	-6.298	-6.332	-6.366	-6.400	-6.433	-6.467
-130	-5.801	-5.838	-5.874	-5.910	-5.946	-5.982	-6.018	-6.054	-6.089	-6.124
-120	-5.426	-5.465	-5.503	-5.541	-5.578	-5.616	-5.653	-5.690	-5.727	-5.764
-110	-5.037	-5.076	-5.116	-5.155	-5.194	-5.233	-5.272	-5.311	-5.350	-5.388
-100	-4.633	-4.674	-4.714	-4.755	-4.796	-4.836	-4.877	-4.917	-4.957	-4.997
-90	-4.215	-4.257	-4.300	-4.342	-4.384	-4.425	-4.467	-4.509	-4.550	-4.591
-80	-3.786	-3.829	-3.872	-3.916	-3.959	-4.002	-4.045	-4.088	-4.130	-4.173
-70	-3.344	-3.389	-3.434	-3.478	-3.522	-3.566	-3.610	-3.654	-3.698	-3.742
-60	-2.893	-2.938	-2.984	-3.029	-3.075	-3.120	-3.165	-3.210	-3.255	-3.300
-50	-2.431	-2.478	-2.524	-2.571	-2.617	-2.663	-2.709	-2.755	-2.801	-2.847
-40	-1.961	-2.008	-2.055	-2.103	-2.150	-2.197	-2.244	-2.291	-2.338	-2.385
-30	-1.482	-1.530	-1.578	-1.626	-1.674	-1.722	-1.770	-1.818	-1.865	-1.913
-20	-0.995	-1.044	-1.093	-1.142	-1.190	-1.239	-1.288	-1.336	-1.385	-1.433
-10	-0.501	-0.550	-0.600	-0.650	-0.699	-0.749	-0.798	-0.847	-0.896	-0.946
0	0.000	-0.050	-0.101	-0.151	-0.201	-0.251	-0.301	-0.351	-0.401	-0.451
C	0	-1	-2	-3	-4	-5	-6	-7	-8	-9
C	0	1	2	3	4	5	6	7	8	9
10	0.507	0.558	0.609	0.660	0.711	0.762	0.814	0.865	0.916	0.968
20	1.019	1.071	1.122	1.174	1.226	1.277	1.329	1.381	1.433	1.485
30	1.537	1.589	1.641	1.693	1.745	1.797	1.849	1.902	1.954	2.006
40	2.059	2.111	2.164	2.216	2.269	2.322	2.374	2.427	2.480	2.532
50	2.585	2.638	2.691	2.744	2.797	2.850	2.903	2.956	3.009	3.062
60	3.116	3.169	3.222	3.275	3.329	3.382	3.436	3.489	3.543	3.596
70	3.650	3.703	3.757	3.810	3.864	3.918	3.971	4.025	4.079	4.133
80	4.187	4.240	4.294	4.348	4.402	4.456	4.510	4.564	4.618	4.672
90	4.726	4.781	4.835	4.889	4.943	4.997	5.052	5.106	5.160	5.215



Type J ^{°C}

(100°C to 449°C)

IRON vs. CONSTANTAN

EMF IN MILLIVOLTS - REFERENCE JUNCTION 0

C	0	-1	-2	-3	-4	-5	-6	-7	-8	-9
100	5.269	5.323	5.378	5.432	5.487	5.541	5.595	5.650	5.705	5.759
110	5.814	5.868	5.923	5.977	6.032	6.087	6.141	6.196	6.251	6.306
120	6.360	6.415	6.470	6.525	6.579	6.634	6.689	6.744	6.799	6.854
130	6.909	6.964	7.019	7.074	7.129	7.184	7.239	7.294	7.349	7.404
140	7.459	7.514	7.569	7.624	7.679	7.734	7.789	7.844	7.900	7.955
150	8.010	8.065	8.120	8.175	8.231	8.286	8.341	8.396	8.452	8.507
160	8.562	8.618	8.673	8.728	8.783	8.839	8.894	8.949	9.005	9.060
170	9.115	9.171	9.226	9.282	9.337	9.392	9.448	9.503	9.559	9.614
180	9.669	9.725	9.780	9.836	9.891	9.947	10.002	10.057	10.113	10.168
190	10.224	10.279	10.335	10.390	10.446	10.501	10.557	10.612	10.668	10.723
200	10.779	10.834	10.890	10.945	11.001	11.056	11.112	11.167	11.223	11.278
210	11.334	11.389	11.445	11.501	11.556	11.612	11.667	11.723	11.778	11.834
220	11.889	11.945	12.000	12.056	12.111	12.167	12.222	12.278	12.334	12.389
230	12.445	12.500	12.556	12.611	12.667	12.722	12.778	12.833	12.889	12.944
240	13.000	13.056	13.111	13.167	13.222	13.278	13.333	13.389	13.444	13.500
250	13.555	13.611	13.666	13.722	13.777	13.833	13.888	13.944	13.999	14.055
260	14.110	14.166	14.221	14.277	14.332	14.388	14.443	14.499	14.554	14.609
270	14.665	14.720	14.776	14.831	14.887	14.942	14.998	15.053	15.109	15.164
280	15.219	15.275	15.330	15.386	15.441	15.496	15.552	15.607	15.663	15.718
290	15.773	15.829	15.884	15.940	15.995	16.050	16.106	16.161	16.216	16.272
300	16.327	16.383	16.438	16.493	16.549	16.604	16.659	16.715	16.770	16.825
310	16.881	16.936	16.991	17.046	17.102	17.157	17.212	17.268	17.323	17.378
320	17.434	17.489	17.544	17.599	17.655	17.710	17.765	17.820	17.876	17.931
330	17.986	18.041	18.097	18.152	18.207	18.262	18.318	18.373	18.428	18.483
340	18.538	18.594	18.649	18.704	18.759	18.814	18.870	18.925	18.980	19.035
350	19.090	19.146	19.201	19.256	19.311	19.366	19.422	19.477	19.532	19.587
360	19.642	19.697	19.753	19.808	19.863	19.918	19.973	20.028	20.083	20.139
370	20.194	20.249	20.304	20.359	20.414	20.469	20.525	20.580	20.635	20.690
380	20.745	20.800	20.855	20.911	20.966	21.021	21.076	21.131	21.186	21.241
390	21.297	21.352	21.407	21.462	21.517	21.572	21.627	21.683	21.738	21.793
400	21.848	21.903	21.958	22.014	22.069	22.124	22.179	22.234	22.289	22.345
410	22.400	22.455	22.510	22.565	22.620	22.676	22.731	22.786	22.841	22.896
420	22.952	23.007	23.062	23.117	23.172	23.228	23.283	23.338	23.393	23.449
430	23.504	23.559	23.614	23.670	23.725	23.780	23.835	23.891	23.946	24.001
440	24.057	24.112	24.167	24.223	24.278	24.333	24.389	24.444	24.499	24.555



Type J (450°C to 849°C)

IRON vs. CONSTANTAN

EMF IN MILLIVOLTS - REFERENCE JUNCTION 0

450	24.610	24.665	24.721	24.776	24.832	24.887	24.943	24.998	25.053	25.109
460	25.164	25.220	25.275	25.331	25.386	25.442	25.497	25.553	25.608	25.664
470	25.720	25.775	25.831	25.886	25.942	25.998	26.053	26.109	26.165	26.220
480	26.276	26.332	26.387	26.443	26.499	26.555	26.610	26.666	26.722	26.778
490	26.834	26.889	26.945	27.001	27.057	27.113	27.169	27.225	27.281	27.337
500	27.393	27.449	27.505	27.561	27.617	27.673	27.729	27.785	27.841	27.897
510	27.953	28.010	28.066	28.122	28.178	28.234	28.291	28.347	28.403	28.460
520	28.516	28.572	28.629	28.685	28.741	28.798	28.854	28.911	28.967	29.024
530	29.080	29.137	29.194	29.250	29.307	29.363	29.420	29.477	29.534	29.590
540	29.647	29.704	29.761	29.818	29.874	29.931	29.988	30.045	30.102	30.159
550	30.216	30.273	30.330	30.387	30.444	30.502	30.559	30.616	30.673	30.730
560	30.788	30.845	30.902	30.960	31.017	31.074	31.132	31.189	31.247	31.304
570	31.362	31.419	31.477	31.535	31.592	31.650	31.708	31.766	31.823	31.881
580	31.939	31.997	32.055	32.113	32.171	32.229	32.287	32.345	32.403	32.461
590	32.519	32.577	32.636	32.694	32.752	32.810	32.869	32.927	32.985	33.044
600	33.102	33.161	33.219	33.278	33.337	33.395	33.454	33.513	33.571	33.630
610	33.689	33.748	33.807	33.866	33.925	33.984	34.043	34.102	34.161	34.220
620	34.279	34.338	34.397	34.456	34.515	34.575	34.635	34.694	34.754	34.813
630	34.873	34.932	34.992	35.051	35.111	35.171	35.230	35.290	35.350	35.410
640	35.470	35.530	35.590	35.650	35.710	35.770	35.830	35.890	35.950	36.010
650	36.071	36.131	36.191	36.252	36.312	36.373	36.433	36.494	36.554	36.615
660	36.675	36.736	36.797	36.858	36.918	36.979	37.040	37.101	37.162	37.223
670	37.284	37.345	37.406	37.467	37.528	37.590	37.651	37.712	37.773	37.835
680	37.896	37.958	38.019	38.081	38.142	38.204	38.265	38.327	38.389	38.450
690	38.512	38.574	38.636	38.698	38.760	38.822	38.884	38.946	39.008	39.070
700	39.132	39.194	39.256	39.318	39.381	39.443	39.505	39.568	39.630	39.693
710	39.755	39.818	39.880	39.943	40.005	40.068	40.131	40.193	40.256	40.319
720	40.382	40.445	40.508	40.570	40.633	40.696	40.759	40.822	40.886	40.949
730	41.012	41.075	41.138	41.201	41.265	41.328	41.391	41.455	41.518	41.581
740	41.645	41.708	41.772	41.835	41.899	41.962	42.026	42.090	42.153	42.217
750	42.281	42.344	42.408	42.472	42.536	42.599	42.663	42.727	42.791	42.855
760	42.919	42.983	43.047	43.111	43.175	43.239	43.303	43.367	43.431	43.495
770	43.559	43.624	43.688	43.752	43.817	43.881	43.945	44.010	44.074	44.139
780	44.203	44.267	44.332	44.396	44.461	44.525	44.590	44.655	44.719	44.784
790	44.848	44.913	44.977	45.042	45.107	45.171	45.236	45.301	45.365	45.430
800	45.494	45.559	45.624	45.688	45.753	45.818	45.882	45.947	46.011	46.076
810	46.141	46.205	46.270	46.334	46.399	46.464	46.528	46.593	46.657	46.722
820	46.786	46.851	46.915	46.980	47.044	47.109	47.173	47.238	47.302	47.367
830	47.431	47.495	47.560	47.624	47.688	47.753	47.817	47.881	47.946	48.010
840	48.074	48.138	48.202	48.267	48.331	48.395	48.459	48.523	48.587	48.651



Type J (850°C to 1200°C)

IRON vs. CONSTANTAN

EMF IN MILLIVOLTS - REFERENCE JUNCTION 0

850	48.715	48.779	48.843	48.907	48.971	49.034	49.098	49.162	49.226	49.290
860	49.353	49.417	49.481	49.544	49.608	49.672	49.735	49.799	49.862	49.926
870	49.989	50.052	50.116	50.179	50.243	50.306	50.369	50.432	50.495	50.559
880	50.622	50.685	50.748	50.811	50.874	50.937	51.000	51.063	51.126	51.188
890	51.251	51.314	51.377	51.439	51.502	51.565	51.627	51.690	51.752	51.815
900	51.877	51.940	52.002	52.064	52.127	52.189	52.251	52.314	52.376	52.438
910	52.500	52.562	52.624	52.686	52.748	52.810	52.872	52.934	52.996	53.057
920	53.119	53.181	53.243	53.304	53.366	53.427	53.489	53.550	53.612	53.673
930	53.735	53.796	53.857	53.919	53.980	54.041	54.102	54.164	54.225	54.286
940	54.347	54.408	54.469	54.530	54.591	54.652	54.713	54.773	54.834	54.895
950	54.956	55.016	55.077	55.138	55.198	55.259	55.319	55.380	55.440	55.501
960	55.561	55.622	55.682	55.742	55.803	55.863	55.923	55.983	56.043	56.104
970	56.164	56.224	56.284	56.344	56.404	56.464	56.524	56.584	56.643	56.703
980	56.763	56.823	56.883	56.942	57.002	57.062	57.121	57.181	57.240	57.300
990	57.360	57.419	57.479	57.538	57.597	57.657	57.716	57.776	57.835	57.894
1000	57.953	58.013	58.072	58.131	58.190	58.249	58.309	58.368	58.427	58.486
1010	58.545	58.604	58.663	58.722	58.781	58.840	58.899	58.957	59.016	59.075
1020	59.134	59.193	59.252	59.310	59.369	59.428	59.487	59.545	59.604	59.663
1030	59.721	59.780	59.838	59.897	59.956	60.014	60.073	60.131	60.190	60.248
1040	60.307	60.365	60.423	60.482	60.540	60.599	60.657	60.715	60.774	60.832
1050	60.890	60.949	61.007	61.065	61.123	61.182	61.240	61.298	61.356	61.415
1060	61.473	61.531	61.589	61.647	61.705	61.763	61.822	61.880	61.938	61.996
1070	62.054	62.112	62.170	62.228	62.286	62.344	62.402	62.460	62.518	62.576
1080	62.634	62.692	62.750	62.808	62.866	62.924	62.982	63.040	63.098	63.156
1090	63.214	63.271	63.329	63.387	63.445	63.503	63.561	63.619	63.677	63.734
1100	63.792	63.850	63.908	63.966	64.024	64.081	64.139	64.197	64.255	64.313
1110	64.370	64.428	64.486	64.544	64.602	64.659	64.717	64.775	64.833	64.890
1120	64.948	65.006	65.064	65.121	65.179	65.237	65.295	65.352	65.410	65.468
1130	65.525	65.583	65.641	65.699	65.756	65.814	65.872	65.929	65.987	66.045
1140	66.102	66.160	66.218	66.275	66.333	66.391	66.448	66.506	66.564	66.621
1150	66.679	66.737	66.794	66.852	66.910	66.967	67.025	67.082	67.140	67.198
1160	67.255	67.313	67.370	67.428	67.486	67.543	67.601	67.658	67.716	67.773
1170	67.831	67.888	67.946	68.003	68.061	68.119	68.176	68.234	68.291	68.348
1180	68.406	68.463	68.521	68.578	68.635	68.693	68.751	68.808	68.865	68.923
1190	68.980	69.037	69.095	69.152	69.209	69.267	69.324	69.381	69.439	69.496
1200	69.553									



Type E ^{°C}

(-270°C to 49°C)

CHROMEL vs. CONSTANTAN

EMF IN MILLIVOLTS - REFERENCE JUNCTION 0

C	0	-1	-2	-3	-4	-5	-6	-7	-8	-9
-270	-9.835									
-260	-9.797	-9.802	-9.808	-9.813	-9.817	-9.821	-9.825	-9.828	-9.831	-9.833
-250	-9.718	-9.728	-9.737	-9.746	-9.754	-9.762	-9.770	-9.777	-9.784	-9.790
-240	-9.604	-9.617	-9.630	-9.642	-9.654	-9.666	-9.677	-9.688	-9.698	-9.709
-230	-9.455	-9.471	-9.487	-9.503	-9.519	-9.534	-9.548	-9.563	-9.577	-9.591
-220	-9.274	-9.293	-9.313	-9.331	-9.350	-9.368	-9.386	-9.404	-9.421	-9.438
-210	-9.063	-9.085	-9.107	-9.129	-9.151	-9.172	-9.193	-9.214	-9.234	-9.254
-200	-8.825	-8.850	-8.874	-8.899	-8.923	-8.947	-8.971	-8.994	-9.017	-9.040
-190	-8.561	-8.588	-8.616	-8.643	-8.669	-8.696	-8.722	-8.748	-8.774	-8.799
-180	-8.273	-8.303	-8.333	-8.362	-8.391	-8.420	-8.449	-8.477	-8.505	-8.533
-170	-7.963	-7.995	-8.027	-8.059	-8.090	-8.121	-8.152	-8.183	-8.213	-8.243
-160	-7.632	-7.666	-7.700	-7.733	-7.767	-7.800	-7.833	-7.866	-7.899	-7.931
-150	-7.279	-7.315	-7.351	-7.387	-7.423	-7.458	-7.493	-7.528	-7.563	-7.597
-140	-6.907	-6.945	-6.983	-7.021	-7.058	-7.096	-7.133	-7.170	-7.206	-7.243
-130	-6.516	-6.556	-6.596	-6.636	-6.675	-6.714	-6.753	-6.792	-6.831	-6.869
-120	-6.107	-6.149	-6.191	-6.232	-6.273	-6.314	-6.355	-6.396	-6.436	-6.476
-110	-5.681	-5.724	-5.767	-5.810	-5.853	-5.896	-5.939	-5.981	-6.023	-6.065
-100	-5.237	-5.282	-5.327	-5.372	-5.417	-5.461	-5.505	-5.549	-5.593	-5.637
-90	-4.777	-4.824	-4.871	-4.917	-4.963	-5.009	-5.055	-5.101	-5.147	-5.192
-80	-4.302	-4.350	-4.398	-4.446	-4.494	-4.542	-4.589	-4.636	-4.684	-4.731
-70	-3.811	-3.861	-3.911	-3.960	-4.009	-4.058	-4.107	-4.156	-4.205	-4.254
-60	-3.306	-3.357	-3.408	-3.459	-3.510	-3.561	-3.611	-3.661	-3.711	-3.761
-50	-2.787	-2.840	-2.892	-2.944	-2.996	-3.048	-3.100	-3.152	-3.204	-3.255
-40	-2.255	-2.309	-2.362	-2.416	-2.469	-2.523	-2.576	-2.629	-2.682	-2.735
-30	-1.709	-1.765	-1.820	-1.874	-1.929	-1.984	-2.038	-2.093	-2.147	-2.201
-20	-1.152	-1.208	-1.264	-1.320	-1.376	-1.432	-1.488	-1.543	-1.599	-1.654
-10	-0.582	-0.639	-0.697	-0.754	-0.811	-0.868	-0.925	-0.982	-1.039	-1.095
C	0	-1	-2	-3	-4	-5	-6	-7	-8	-9
C	0	1	2	3	4	5	6	7	8	9
0	0.000	0.059	0.118	0.176	0.235	0.294	0.354	0.413	0.472	0.532
10	0.591	0.651	0.711	0.770	0.830	0.890	0.950	1.010	1.071	1.131
20	1.192	1.252	1.313	1.373	1.434	1.495	1.556	1.617	1.678	1.740
30	1.801	1.862	1.924	1.986	2.047	2.109	2.171	2.233	2.295	2.357
40	2.420	2.482	2.545	2.607	2.670	2.733	2.795	2.858	2.921	2.984



Type E ^{°C}

(50°C to 399°C)

CHROMEL vs. CONSTANTAN

EMF IN MILLIVOLTS - REFERENCE JUNCTION 0

C	0	-1	-2	-3	-4	-5	-6	-7	-8	-9
50	3.048	3.111	3.174	3.238	3.301	3.365	3.429	3.492	3.556	3.620
60	3.685	3.749	3.813	3.877	3.942	4.006	4.071	4.136	4.200	4.265
70	4.330	4.395	4.460	4.526	4.591	4.656	4.722	4.788	4.853	4.919
80	4.985	5.051	5.117	5.183	5.249	5.315	5.382	5.448	5.514	5.581
90	5.648	5.714	5.781	5.848	5.915	5.982	6.049	6.117	6.184	6.251
100	6.319	6.386	6.454	6.522	6.590	6.658	6.725	6.794	6.862	6.930
110	6.998	7.066	7.135	7.203	7.272	7.341	7.409	7.478	7.547	7.616
120	7.685	7.754	7.823	7.892	7.962	8.031	8.101	8.170	8.240	8.309
130	8.379	8.449	8.519	8.589	8.659	8.729	8.799	8.869	8.940	9.010
140	9.081	9.151	9.222	9.292	9.363	9.434	9.505	9.576	9.647	9.718
150	9.789	9.860	9.931	10.003	10.074	10.145	10.217	10.288	10.360	10.432
160	10.503	10.575	10.647	10.719	10.791	10.863	10.935	11.007	11.080	11.152
170	11.224	11.297	11.369	11.442	11.514	11.587	11.660	11.733	11.805	11.878
180	11.951	12.024	12.097	12.170	12.243	12.317	12.390	12.463	12.537	12.610
190	12.684	12.757	12.831	12.904	12.978	13.052	13.126	13.199	13.273	13.347
200	13.421	13.495	13.569	13.644	13.718	13.792	13.866	13.941	14.015	14.090
210	14.164	14.239	14.313	14.388	14.463	14.537	14.612	14.687	14.762	14.837
220	14.912	14.987	15.062	15.137	15.212	15.287	15.362	15.438	15.513	15.588
230	15.664	15.739	15.815	15.890	15.966	16.041	16.117	16.193	16.269	16.344
240	16.420	16.496	16.572	16.648	16.724	16.800	16.876	16.952	17.028	17.104
250	17.181	17.257	17.333	17.409	17.486	17.562	17.639	17.715	17.792	17.868
260	17.945	18.021	18.098	18.175	18.252	18.328	18.405	18.482	18.559	18.636
270	18.713	18.790	18.867	18.944	19.021	19.098	19.175	19.252	19.330	19.407
280	19.484	19.561	19.639	19.716	19.794	19.871	19.948	20.026	20.103	20.181
290	20.259	20.336	20.414	20.492	20.569	20.647	20.725	20.803	20.880	20.958
300	21.036	21.114	21.192	21.270	21.348	21.426	21.504	21.582	21.660	21.739
310	21.817	21.895	21.973	22.051	22.130	22.208	22.286	22.365	22.443	22.522
320	22.600	22.678	22.757	22.835	22.914	22.993	23.071	23.150	23.228	23.307
330	23.386	23.464	23.543	23.622	23.701	23.780	23.858	23.937	24.016	24.095
340	24.174	24.253	24.332	24.411	24.490	24.569	24.648	24.727	24.806	24.885
350	24.964	25.044	25.123	25.202	25.281	25.360	25.440	25.519	25.598	25.678
360	25.757	25.836	25.916	25.995	26.075	26.154	26.233	26.313	26.392	26.472
370	26.552	26.631	26.711	26.790	26.870	26.950	27.029	27.109	27.189	27.268
380	27.348	27.428	27.507	27.587	27.667	27.747	27.827	27.907	27.986	28.066
390	28.146	28.226	28.306	28.386	28.466	28.546	28.626	28.706	28.786	28.866



Type E (400°C to 699°C)

CHROMEL vs. CONSTANTAN
EMF IN MILLIVOLTS - REFERENCE JUNCTION 0

C	0	1	2	3	4	5	6	7	8	9
400	28.946	29.026	29.106	29.186	29.266	29.346	29.427	29.507	29.587	29.667
410	29.747	29.827	29.908	29.988	30.068	30.148	30.229	30.309	30.389	30.470
420	30.550	30.630	30.711	30.791	30.871	30.952	31.032	31.112	31.193	31.273
430	31.354	31.434	31.515	31.595	31.676	31.756	31.837	31.917	31.998	32.078
440	32.159	32.239	32.320	32.400	32.481	32.562	32.642	32.723	32.803	32.884
450	32.965	33.045	33.126	33.207	33.287	33.368	33.449	33.529	33.610	33.691
460	33.772	33.852	33.933	34.014	34.095	34.175	34.256	34.337	34.418	34.498
470	34.579	34.660	34.741	34.822	34.902	34.983	35.064	35.145	35.226	35.307
480	35.387	35.468	35.549	35.630	35.711	35.792	35.873	35.954	36.034	36.115
490	36.196	36.277	36.358	36.439	36.520	36.601	36.682	36.763	36.843	36.924
500	37.005	37.086	37.167	37.248	37.329	37.410	37.491	37.572	37.653	37.734
510	37.815	37.896	37.977	38.058	38.139	38.220	38.300	38.381	38.462	38.543
520	38.624	38.705	38.786	38.867	38.948	39.029	39.110	39.191	39.272	39.353
530	39.434	39.515	39.596	39.677	39.758	39.839	39.920	40.001	40.082	40.163
540	40.243	40.324	40.405	40.486	40.567	40.648	40.729	40.810	40.891	40.972
550	41.053	41.134	41.215	41.296	41.377	41.457	41.538	41.619	41.700	41.781
560	41.862	41.943	42.024	42.105	42.185	42.266	42.347	42.428	42.509	42.590
570	42.671	42.751	42.832	42.913	42.994	43.075	43.156	43.236	43.317	43.398
580	43.479	43.560	43.640	43.721	43.802	43.883	43.963	44.044	44.125	44.206
590	44.286	44.367	44.448	44.529	44.609	44.690	44.771	44.851	44.932	45.013
600	45.093	45.174	45.255	45.335	45.416	45.497	45.577	45.658	45.738	45.819
610	45.900	45.980	46.061	46.141	46.222	46.302	46.383	46.463	46.544	46.624
620	46.705	46.785	46.866	46.946	47.027	47.107	47.188	47.268	47.349	47.429
630	47.509	47.590	47.670	47.751	47.831	47.911	47.992	48.072	48.152	48.233
640	48.313	48.393	48.474	48.554	48.634	48.715	48.795	48.875	48.955	49.035
650	49.116	49.196	49.276	49.356	49.436	49.517	49.597	49.677	49.757	49.837
660	49.917	49.997	50.077	50.157	50.238	50.318	50.398	50.478	50.558	50.638
670	50.718	50.798	50.878	50.958	51.038	51.118	51.197	51.277	51.357	51.437
680	51.517	51.597	51.677	51.757	51.837	51.917	51.996	52.076	52.156	52.236
690	52.315	52.395	52.475	52.555	52.634	52.714	52.794	52.873	52.953	53.033



Type E (700°C to 1000°C)

CHROMEL vs. CONSTANTAN
EMF IN MILLIVOLTS - REFERENCE JUNCTION 0

C	0	1	2	3	4	5	6	7	8	9
700	53.112	53.192	53.272	53.351	53.431	53.510	53.590	53.670	53.749	53.829
710	53.908	53.988	54.067	54.147	54.226	54.306	54.385	54.465	54.544	54.624
720	54.703	54.782	54.862	54.941	55.021	55.100	55.179	55.259	55.338	55.417
730	55.497	55.576	55.655	55.734	55.814	55.893	55.972	56.051	56.131	56.210
740	56.289	56.368	56.447	56.526	56.606	56.685	56.764	56.843	56.922	57.001
750	57.080	57.159	57.238	57.317	57.396	57.475	57.554	57.633	57.712	57.791
760	57.870	57.949	58.028	58.107	58.186	58.265	58.343	58.422	58.501	58.580
770	58.659	58.738	58.816	58.895	58.974	59.053	59.131	59.210	59.289	59.367
780	59.446	59.525	59.604	59.682	59.761	59.839	59.918	59.997	60.075	60.154
790	60.232	60.311	60.390	60.468	60.547	60.625	60.704	60.782	60.860	60.939
800	61.017	61.096	61.174	61.253	61.331	61.409	61.488	61.566	61.644	61.723
810	61.801	61.879	61.958	62.036	62.114	62.192	62.271	62.349	62.427	62.505
820	62.583	62.662	62.740	62.818	62.896	62.974	63.052	63.130	63.208	63.286
830	63.364	63.442	63.520	63.598	63.676	63.754	63.832	63.910	63.988	64.066
840	64.144	64.222	64.300	64.377	64.455	64.533	64.611	64.689	64.766	64.844
850	64.922	65.000	65.077	65.155	65.233	65.310	65.388	65.465	65.543	65.621
860	65.698	65.776	65.853	65.931	66.008	66.086	66.163	66.241	66.318	66.396
870	66.473	66.550	66.628	66.705	66.782	66.860	66.937	67.014	67.092	67.169
880	67.246	67.323	67.400	67.478	67.555	67.632	67.709	67.786	67.863	67.940
890	68.017	68.094	68.171	68.248	68.325	68.402	68.479	68.556	68.633	68.710
900	68.787	68.863	68.940	69.017	69.094	69.171	69.247	69.324	69.401	69.477
910	69.554	69.631	69.707	69.784	69.860	69.937	70.013	70.090	70.166	70.243
920	70.319	70.396	70.472	70.548	70.625	70.701	70.777	70.854	70.930	71.006
930	71.082	71.159	71.235	71.311	71.387	71.463	71.539	71.615	71.692	71.768
940	71.844	71.920	71.996	72.072	72.147	72.223	72.299	72.375	72.451	72.527
950	72.603	72.678	72.754	72.830	72.906	72.981	73.057	73.133	73.208	73.284
960	73.360	73.435	73.511	73.586	73.662	73.738	73.813	73.889	73.964	74.040
970	74.115	74.190	74.266	74.341	74.417	74.492	74.567	74.643	74.718	74.793
980	74.869	74.944	75.019	75.095	75.170	75.245	75.320	75.395	75.471	75.546
990	75.621	75.696	75.771	75.847	75.922	75.997	76.072	76.147	76.223	76.298
1000	76.373									



Type K $^{\circ}\text{C}$ (0 $^{\circ}\text{C}$ to 349 $^{\circ}\text{C}$)

CHROMEL vs. ALUMEL

EMF IN MILLIVOLTS - REFERENCE JUNCTION 0

C	0	1	2	3	4	5	6	7	8	9
0	0.000	0.039	0.079	0.119	0.158	0.198	0.238	0.277	0.317	0.357
10	0.397	0.437	0.477	0.517	0.557	0.597	0.637	0.677	0.718	0.758
20	0.798	0.838	0.879	0.919	0.960	1.000	1.041	1.081	1.122	1.163
30	1.203	1.244	1.285	1.326	1.366	1.407	1.448	1.489	1.530	1.571
40	1.612	1.653	1.694	1.735	1.776	1.817	1.858	1.899	1.941	1.982
50	2.023	2.064	2.106	2.147	2.188	2.230	2.271	2.312	2.354	2.395
60	2.436	2.478	2.519	2.561	2.602	2.644	2.685	2.727	2.768	2.810
70	2.851	2.893	2.934	2.976	3.017	3.059	3.100	3.142	3.184	3.225
80	3.267	3.308	3.350	3.391	3.433	3.474	3.516	3.557	3.599	3.640
90	3.682	3.723	3.765	3.806	3.848	3.889	3.931	3.972	4.013	4.055
100	4.096	4.138	4.179	4.220	4.262	4.303	4.344	4.385	4.427	4.468
110	4.509	4.550	4.591	4.633	4.674	4.715	4.756	4.797	4.838	4.879
120	4.920	4.961	5.002	5.043	5.084	5.124	5.165	5.206	5.247	5.288
130	5.328	5.369	5.410	5.450	5.491	5.532	5.572	5.613	5.653	5.694
140	5.735	5.775	5.815	5.856	5.896	5.937	5.977	6.017	6.058	6.098
150	6.138	6.179	6.219	6.259	6.299	6.339	6.380	6.420	6.460	6.500
160	6.540	6.580	6.620	6.660	6.701	6.741	6.781	6.821	6.861	6.901
170	6.941	6.981	7.021	7.060	7.100	7.140	7.180	7.220	7.260	7.300
180	7.340	7.380	7.420	7.460	7.500	7.540	7.579	7.619	7.659	7.699
190	7.739	7.779	7.819	7.859	7.899	7.939	7.979	8.019	8.059	8.099
200	8.138	8.178	8.218	8.258	8.298	8.338	8.378	8.418	8.458	8.499
210	8.539	8.579	8.619	8.659	8.699	8.739	8.779	8.819	8.860	8.900
220	8.940	8.980	9.020	9.061	9.101	9.141	9.181	9.222	9.262	9.302
230	9.343	9.383	9.423	9.464	9.504	9.545	9.585	9.626	9.666	9.707
240	9.747	9.788	9.828	9.869	9.909	9.950	9.991	10.031	10.072	10.113
250	10.153	10.194	10.235	10.276	10.316	10.357	10.398	10.439	10.480	10.520
260	10.561	10.602	10.643	10.684	10.725	10.766	10.807	10.848	10.889	10.930
270	10.971	11.012	11.053	11.094	11.135	11.176	11.217	11.259	11.300	11.341
280	11.382	11.423	11.465	11.506	11.547	11.588	11.630	11.671	11.712	11.753
290	11.795	11.836	11.877	11.919	11.960	12.001	12.043	12.084	12.126	12.167
300	12.209	12.250	12.291	12.333	12.374	12.416	12.457	12.499	12.540	12.582
310	12.624	12.665	12.707	12.748	12.790	12.831	12.873	12.915	12.956	12.998
320	13.040	13.081	13.123	13.165	13.206	13.248	13.290	13.331	13.373	13.415
330	13.457	13.498	13.540	13.582	13.624	13.665	13.707	13.749	13.791	13.833
340	13.874	13.916	13.958	14.000	14.042	14.084	14.126	14.167	14.209	14.251



Type K $^{\circ}\text{C}$ (350 $^{\circ}\text{C}$ to 699 $^{\circ}\text{C}$)

CHROMEL vs. ALUMEL

EMF IN MILLIVOLTS - REFERENCE JUNCTION 0

C	0	1	2	3	4	5	6	7	8	9
350	14.293	14.335	14.377	14.419	14.461	14.503	14.545	14.587	14.629	14.671
360	14.713	14.755	14.797	14.839	14.881	14.923	14.965	15.007	15.049	15.091
370	15.133	15.175	15.217	15.259	15.301	15.343	15.385	15.427	15.469	15.511
380	15.554	15.596	15.638	15.680	15.722	15.764	15.806	15.849	15.891	15.933
390	15.975	16.017	16.059	16.102	16.144	16.186	16.228	16.270	16.313	16.355
400	16.397	16.439	16.482	16.524	16.566	16.608	16.651	16.693	16.735	16.778
410	16.820	16.862	16.904	16.947	16.989	17.031	17.074	17.116	17.158	17.201
420	17.243	17.285	17.328	17.370	17.413	17.455	17.497	17.540	17.582	17.624
430	17.667	17.709	17.752	17.794	17.837	17.879	17.921	17.964	18.006	18.049
440	18.091	18.134	18.176	18.218	18.261	18.303	18.346	18.388	18.431	18.473
450	18.516	18.558	18.601	18.643	18.686	18.728	18.771	18.813	18.856	18.898
460	18.941	18.983	19.026	19.068	19.111	19.154	19.196	19.239	19.281	19.324
470	19.366	19.409	19.451	19.494	19.537	19.579	19.622	19.664	19.707	19.750
480	19.792	19.835	19.877	19.920	19.962	20.005	20.048	20.090	20.133	20.175
490	20.218	20.261	20.303	20.346	20.389	20.431	20.474	20.516	20.559	20.602
500	20.644	20.687	20.730	20.772	20.815	20.857	20.900	20.943	20.985	21.028
510	21.071	21.113	21.156	21.199	21.241	21.284	21.326	21.369	21.412	21.454
520	21.497	21.540	21.582	21.625	21.668	21.710	21.753	21.796	21.838	21.881
530	21.924	21.966	22.009	22.052	22.094	22.137	22.179	22.222	22.265	22.307
540	22.350	22.393	22.435	22.478	22.521	22.563	22.606	22.649	22.691	22.734
550	22.776	22.819	22.862	22.904	22.947	22.990	23.032	23.075	23.117	23.160
560	23.203	23.245	23.288	23.331	23.373	23.416	23.458	23.501	23.544	23.586
570	23.629	23.671	23.714	23.757	23.799	23.842	23.884	23.927	23.970	24.012
580	24.055	24.097	24.140	24.182	24.225	24.267	24.310	24.353	24.395	24.438
590	24.480	24.523	24.565	24.608	24.650	24.693	24.735	24.778	24.820	24.863
600	24.905	24.948	24.990	25.033	25.075	25.118	25.160	25.203	25.245	25.288
610	25.330	25.373	25.415	25.458	25.500	25.543	25.585	25.627	25.670	25.712
620	25.755	25.797	25.840	25.882	25.924	25.967	26.009	26.052	26.094	26.136
630	26.179	26.221	26.263	26.306	26.348	26.390	26.433	26.475	26.517	26.560
640	26.602	26.644	26.687	26.729	26.771	26.814	26.856	26.898	26.940	26.983
650	27.025	27.067	27.109	27.152	27.194	27.236	27.278	27.320	27.363	27.405
660	27.447	27.489	27.531	27.574	27.616	27.658	27.700	27.742	27.784	27.826
670	27.869	27.911	27.953	27.995	28.037	28.079	28.121	28.163	28.205	28.247
680	28.289	28.332	28.374	28.416	28.458	28.500	28.542	28.584	28.626	28.668
690	28.710	28.752	28.794	28.835	28.877	28.919	28.961	29.003	29.045	29.087



Type K (700°C to 1049°C)

Type K (1050°C to 1372°C)

CHROMEL vs. ALUMEL

CHROMEL vs. ALUMEL

EMF IN MILLIVOLTS - REFERENCE JUNCTION 0

EMF IN MILLIVOLTS - REFERENCE JUNCTION 0

C	0	1	2	3	4	5	6	7	8	9
700	29.129	29.171	29.213	29.255	29.297	29.338	29.380	29.422	29.464	29.506
710	29.548	29.589	29.631	29.673	29.715	29.757	29.798	29.840	29.882	29.924
720	29.965	30.007	30.049	30.090	30.132	30.174	30.216	30.257	30.299	30.341
730	30.382	30.424	30.466	30.507	30.549	30.590	30.632	30.674	30.715	30.757
740	30.798	30.840	30.881	30.923	30.964	31.006	31.047	31.089	31.130	31.172
750	31.213	31.255	31.296	31.338	31.379	31.421	31.462	31.504	31.545	31.586
760	31.628	31.669	31.710	31.752	31.793	31.834	31.876	31.917	31.958	32.000
770	32.041	32.082	32.124	32.165	32.206	32.247	32.289	32.330	32.371	32.412
780	32.453	32.495	32.536	32.577	32.618	32.659	32.700	32.742	32.783	32.824
790	32.865	32.906	32.947	32.988	33.029	33.070	33.111	33.152	33.193	33.234
800	33.275	33.316	33.357	33.398	33.439	33.480	33.521	33.562	33.603	33.644
810	33.685	33.726	33.767	33.808	33.848	33.889	33.930	33.971	34.012	34.053
820	34.093	34.134	34.175	34.216	34.257	34.297	34.338	34.379	34.420	34.460
830	34.501	34.542	34.582	34.623	34.664	34.704	34.745	34.786	34.826	34.867
840	34.908	34.948	34.989	35.029	35.070	35.110	35.151	35.192	35.232	35.273
850	35.313	35.354	35.394	35.435	35.475	35.516	35.556	35.596	35.637	35.677
860	35.718	35.758	35.798	35.839	35.879	35.920	35.960	36.000	36.041	36.081
870	36.121	36.162	36.202	36.242	36.282	36.323	36.363	36.403	36.443	36.484
880	36.524	36.564	36.604	36.644	36.685	36.725	36.765	36.805	36.845	36.885
890	36.925	36.965	37.006	37.046	37.086	37.126	37.166	37.206	37.246	37.286
900	37.326	37.366	37.406	37.446	37.486	37.526	37.566	37.606	37.646	37.686
910	37.725	37.765	37.805	37.845	37.885	37.925	37.965	38.005	38.044	38.084
920	38.124	38.164	38.204	38.243	38.283	38.323	38.363	38.402	38.442	38.482
930	38.522	38.561	38.601	38.641	38.680	38.720	38.760	38.799	38.839	38.878
940	38.918	38.958	38.997	39.037	39.076	39.116	39.155	39.195	39.235	39.274
950	39.314	39.353	39.393	39.432	39.471	39.511	39.550	39.590	39.629	39.669
960	39.708	39.747	39.787	39.826	39.866	39.905	39.944	39.984	40.023	40.062
970	40.101	40.141	40.180	40.219	40.259	40.298	40.337	40.376	40.415	40.455
980	40.494	40.533	40.572	40.611	40.651	40.690	40.729	40.768	40.807	40.846
990	40.885	40.924	40.963	41.002	41.042	41.081	41.120	41.159	41.198	41.237
1000	41.276	41.315	41.354	41.393	41.431	41.470	41.509	41.548	41.587	41.626
1010	41.665	41.704	41.743	41.781	41.820	41.859	41.898	41.937	41.976	42.014
1020	42.053	42.092	42.131	42.169	42.208	42.247	42.286	42.324	42.363	42.402
1030	42.440	42.479	42.518	42.556	42.595	42.633	42.672	42.711	42.749	42.788
1040	42.826	42.865	42.903	42.942	42.980	43.019	43.057	43.096	43.134	43.173



Type *N °C

(0°C to 349°C)

NICROSIL vs. NISIL

EMF IN MILLIVOLTS - REFERENCE JUNCTION 0

*Letter Code Not ANSI Standard

C	0	1	2	3	4	5	6	7	8	9
0	0.000	0.026	0.052	0.078	0.104	0.130	0.156	0.182	0.208	0.235
10	0.261	0.287	0.313	0.340	0.366	0.393	0.419	0.446	0.472	0.499
20	0.525	0.552	0.578	0.605	0.632	0.659	0.685	0.712	0.739	0.766
30	0.793	0.820	0.847	0.874	0.901	0.928	0.955	0.983	1.010	1.037
40	1.065	1.092	1.119	1.147	1.174	1.202	1.229	1.257	1.284	1.312
50	1.340	1.368	1.395	1.423	1.451	1.479	1.507	1.535	1.563	1.591
60	1.619	1.647	1.675	1.703	1.732	1.760	1.788	1.817	1.845	1.873
70	1.902	1.930	1.959	1.988	2.016	2.045	2.074	2.102	2.131	2.160
80	2.189	2.218	2.247	2.276	2.305	2.334	2.363	2.392	2.421	2.450
90	2.480	2.509	2.538	2.568	2.597	2.626	2.656	2.685	2.715	2.744
100	2.774	2.804	2.833	2.863	2.893	2.923	2.953	2.983	3.012	3.042
110	3.072	3.102	3.133	3.163	3.193	3.223	3.253	3.283	3.314	3.344
120	3.374	3.405	3.435	3.466	3.496	3.527	3.557	3.588	3.619	3.649
130	3.680	3.711	3.742	3.772	3.803	3.834	3.865	3.896	3.927	3.958
140	3.989	4.020	4.051	4.083	4.114	4.145	4.176	4.208	4.239	4.270
150	4.302	4.333	4.365	4.396	4.428	4.459	4.491	4.523	4.554	4.586
160	4.618	4.650	4.681	4.713	4.745	4.777	4.809	4.841	4.873	4.905
170	4.937	4.969	5.001	5.033	5.066	5.098	5.130	5.162	5.195	5.227
180	5.259	5.292	5.324	5.357	5.389	5.422	5.454	5.487	5.520	5.552
190	5.585	5.618	5.650	5.683	5.716	5.749	5.782	5.815	5.847	5.880
200	5.913	5.946	5.979	6.013	6.046	6.079	6.112	6.145	6.178	6.211
210	6.245	6.278	6.311	6.345	6.378	6.411	6.445	6.478	6.512	6.545
220	6.579	6.612	6.646	6.680	6.713	6.747	6.781	6.814	6.848	6.882
230	6.916	6.949	6.983	7.017	7.051	7.085	7.119	7.153	7.187	7.221
240	7.255	7.289	7.323	7.357	7.392	7.426	7.460	7.494	7.528	7.563
250	7.597	7.631	7.666	7.700	7.734	7.769	7.803	7.838	7.872	7.907
260	7.941	7.976	8.010	8.045	8.080	8.114	8.149	8.184	8.218	8.253
270	8.288	8.323	8.358	8.392	8.427	8.462	8.497	8.532	8.567	8.602
280	8.637	8.672	8.707	8.742	8.777	8.812	8.847	8.882	8.918	8.953
290	8.988	9.023	9.058	9.094	9.129	9.164	9.200	9.235	9.270	9.306
300	9.341	9.377	9.412	9.448	9.483	9.519	9.554	9.590	9.625	9.661
310	9.696	9.732	9.768	9.803	9.839	9.875	9.910	9.946	9.982	10.018
320	10.054	10.089	10.125	10.161	10.197	10.233	10.269	10.305	10.341	10.377
330	10.413	10.449	10.485	10.521	10.557	10.593	10.629	10.665	10.701	10.737
340	10.774	10.810	10.846	10.882	10.918	10.955	10.991	11.027	11.064	11.100



Type *N °C

(350°C to 699°C)

NICROSIL vs. NISIL

EMF IN MILLIVOLTS - REFERENCE JUNCTION 0

*Letter Code Not ANSI Standard

C	0	1	2	3	4	5	6	7	8	9
350	11.136	11.173	11.209	11.245	11.282	11.318	11.355	11.391	11.428	11.464
360	11.501	11.537	11.574	11.610	11.647	11.683	11.720	11.757	11.793	11.830
370	11.867	11.903	11.940	11.977	12.013	12.050	12.087	12.124	12.160	12.197
380	12.234	12.271	12.308	12.345	12.382	12.418	12.455	12.492	12.529	12.566
390	12.603	12.640	12.677	12.714	12.751	12.788	12.825	12.862	12.899	12.937
400	12.974	13.011	13.048	13.085	13.122	13.159	13.197	13.234	13.271	13.308
410	13.346	13.383	13.420	13.457	13.495	13.532	13.569	13.607	13.644	13.682
420	13.719	13.756	13.794	13.831	13.869	13.906	13.944	13.981	14.019	14.056
430	14.094	14.131	14.169	14.206	14.244	14.281	14.319	14.356	14.394	14.432
440	14.469	14.507	14.545	14.582	14.620	14.658	14.695	14.733	14.771	14.809
450	14.846	14.884	14.922	14.960	14.998	15.035	15.073	15.111	15.149	15.187
460	15.225	15.262	15.300	15.338	15.376	15.414	15.452	15.490	15.528	15.566
470	15.604	15.642	15.680	15.718	15.756	15.794	15.832	15.870	15.908	15.946
480	15.984	16.022	16.060	16.099	16.137	16.175	16.213	16.251	16.289	16.327
490	16.366	16.404	16.442	16.480	16.518	16.557	16.595	16.633	16.671	16.710
500	16.748	16.786	16.824	16.863	16.901	16.939	16.978	17.016	17.054	17.093
510	17.131	17.169	17.208	17.246	17.285	17.323	17.361	17.400	17.438	17.477
520	17.515	17.554	17.592	17.630	17.669	17.707	17.746	17.784	17.823	17.861
530	17.900	17.938	17.977	18.016	18.054	18.093	18.131	18.170	18.208	18.247
540	18.286	18.324	18.363	18.401	18.440	18.479	18.517	18.556	18.595	18.633
550	18.672	18.711	18.749	18.788	18.827	18.865	18.904	18.943	18.982	19.020
560	19.059	19.098	19.136	19.175	19.214	19.253	19.292	19.330	19.369	19.408
570	19.447	19.485	19.524	19.563	19.602	19.641	19.680	19.718	19.757	19.796
580	19.835	19.874	19.913	19.952	19.990	20.029	20.068	20.107	20.146	20.185
590	20.224	20.263	20.302	20.341	20.379	20.418	20.457	20.496	20.535	20.574
600	20.613	20.652	20.691	20.730	20.769	20.808	20.847	20.886	20.925	20.964
610	21.003	21.042	21.081	21.120	21.159	21.198	21.237	21.276	21.315	21.354
620	21.393	21.432	21.471	21.510	21.549	21.588	21.628	21.667	21.706	21.745
630	21.784	21.823	21.862	21.901	21.940	21.979	22.018	22.058	22.097	22.136
640	22.175	22.214	22.253	22.292	22.331	22.370	22.410	22.449	22.488	22.527
650	22.566	22.605	22.644	22.684	22.723	22.762	22.801	22.840	22.879	22.919
660	22.958	22.997	23.036	23.075	23.115	23.154	23.193	23.232	23.271	23.311
670	23.350	23.389	23.428	23.467	23.507	23.546	23.585	23.624	23.663	23.703
680	23.742	23.781	23.820	23.860	23.899	23.938	23.977	24.016	24.056	24.095
690	24.134	24.173	24.213	24.252	24.291	24.330	24.370	24.409	24.448	24.487



Type *N (700°C to 999°C)

NICROSIL vs. NISIL

EMF IN MILLIVOLTS - REFERENCE JUNCTION 0

*Letter Code Not ANSI Standard

C	0	1	2	3	4	5	6	7	8	9
700	24.527	24.566	24.605	24.644	24.684	24.723	24.762	24.801	24.841	24.880
710	24.919	24.959	24.998	25.037	25.076	25.116	25.155	25.194	25.233	25.273
720	25.312	25.351	25.391	25.430	25.469	25.508	25.548	25.587	25.626	25.666
730	25.705	25.744	25.783	25.823	25.862	25.901	25.941	25.980	26.019	26.058
740	26.098	26.137	26.176	26.216	26.255	26.294	26.333	26.373	26.412	26.451
750	26.491	26.530	26.569	26.608	26.648	26.687	26.726	26.766	26.805	26.844
760	26.883	26.923	26.962	27.001	27.041	27.080	27.119	27.158	27.198	27.237
770	27.276	27.316	27.355	27.394	27.433	27.473	27.512	27.551	27.591	27.630
780	27.669	27.708	27.748	27.787	27.826	27.866	27.905	27.944	27.983	28.023
790	28.062	28.101	28.140	28.180	28.219	28.258	28.297	28.337	28.376	28.415
800	28.455	28.494	28.533	28.572	28.612	28.651	28.690	28.729	28.769	28.808
810	28.847	28.886	28.926	28.965	29.004	29.043	29.083	29.122	29.161	29.200
820	29.239	29.279	29.318	29.357	29.396	29.436	29.475	29.514	29.553	29.592
830	29.632	29.671	29.710	29.749	29.789	29.828	29.867	29.906	29.945	29.985
840	30.024	30.063	30.102	30.141	30.181	30.220	30.259	30.298	30.337	30.376
850	30.416	30.455	30.494	30.533	30.572	30.611	30.651	30.690	30.729	30.768
860	30.807	30.846	30.886	30.925	30.964	31.003	31.042	31.081	31.120	31.160
870	31.199	31.238	31.277	31.316	31.355	31.394	31.433	31.473	31.512	31.551
880	31.590	31.629	31.668	31.707	31.746	31.785	31.824	31.863	31.903	31.942
890	31.981	32.020	32.059	32.098	32.137	32.176	32.215	32.254	32.293	32.332
900	32.371	32.410	32.449	32.488	32.527	32.566	32.605	32.644	32.683	32.722
910	32.761	32.800	32.839	32.878	32.917	32.956	32.995	33.034	33.073	33.112
920	33.151	33.190	33.229	33.268	33.307	33.346	33.385	33.424	33.463	33.502
930	33.541	33.580	33.619	33.658	33.697	33.736	33.774	33.813	33.852	33.891
940	33.930	33.969	34.008	34.047	34.086	34.124	34.163	34.202	34.241	34.280
950	34.319	34.358	34.396	34.435	34.474	34.513	34.552	34.591	34.629	34.668
960	34.707	34.746	34.785	34.823	34.862	34.901	34.940	34.979	35.017	35.056
970	35.095	35.134	35.172	35.211	35.250	35.289	35.327	35.366	35.405	35.444
980	35.482	35.521	35.560	35.598	35.637	35.676	35.714	35.753	35.792	35.831
990	35.869	35.908	35.946	35.985	36.024	36.062	36.101	36.140	36.178	36.217



Type *N (1000°C to 1300°C)

NICROSIL vs. NISIL

EMF IN MILLIVOLTS - REFERENCE JUNCTION 0

*Letter Code Not ANSI Standard

C	0	1	2	3	4	5	6	7	8	9
1000	36.256	36.294	36.333	36.371	36.410	36.449	36.487	36.526	36.564	36.603
1010	36.641	36.680	36.718	36.757	36.796	36.834	36.873	36.911	36.950	36.988
1020	37.027	37.065	37.104	37.142	37.181	37.219	37.258	37.296	37.334	37.373
1030	37.411	37.450	37.488	37.527	37.565	37.603	37.642	37.680	37.719	37.757
1040	37.795	37.834	37.872	37.911	37.949	37.987	38.026	38.064	38.102	38.141
1050	38.179	38.217	38.256	38.294	38.332	38.370	38.409	38.447	38.485	38.524
1060	38.562	38.600	38.638	38.677	38.715	38.753	38.791	38.829	38.868	38.906
1070	38.944	38.982	39.020	39.059	39.097	39.135	39.173	39.211	39.249	39.287
1080	39.326	39.364	39.402	39.440	39.478	39.516	39.554	39.592	39.630	39.668
1090	39.706	39.744	39.783	39.821	39.859	39.897	39.935	39.973	40.011	40.049
1100	40.087	40.125	40.163	40.201	40.238	40.276	40.314	40.352	40.390	40.428
1110	40.466	40.504	40.542	40.580	40.618	40.655	40.693	40.731	40.769	40.807
1120	40.845	40.883	40.920	40.958	40.996	41.034	41.072	41.109	41.147	41.185
1130	41.223	41.260	41.298	41.336	41.374	41.411	41.449	41.487	41.525	41.562
1140	41.600	41.638	41.675	41.713	41.751	41.788	41.826	41.864	41.901	41.939
1150	41.976	42.014	42.052	42.089	42.127	42.164	42.202	42.239	42.277	42.314
1160	42.352	42.390	42.427	42.465	42.502	42.540	42.577	42.614	42.652	42.689
1170	42.727	42.764	42.802	42.839	42.877	42.914	42.951	42.989	43.026	43.064
1180	43.101	43.138	43.176	43.213	43.250	43.288	43.325	43.362	43.399	43.437
1190	43.474	43.511	43.549	43.586	43.623	43.660	43.698	43.735	43.772	43.809
1200	43.846	43.884	43.921	43.958	43.995	44.032	44.069	44.106	44.144	44.181
1210	44.218	44.255	44.292	44.329	44.366	44.403	44.440	44.477	44.514	44.551
1220	44.588	44.625	44.662	44.699	44.736	44.773	44.810	44.847	44.884	44.921
1230	44.958	44.995	45.032	45.069	45.105	45.142	45.179	45.216	45.253	45.290
1240	45.326	45.363	45.400	45.437	45.474	45.510	45.547	45.584	45.621	45.657
1250	45.694	45.731	45.767	45.804	45.841	45.877	45.914	45.951	45.987	46.024
1260	46.060	46.097	46.133	46.170	46.207	46.243	46.280	46.317	46.353	46.389
1270	46.425	46.462	46.498	46.535	46.571	46.608	46.644	46.680	46.717	46.753
1280	46.789	46.826	46.862	46.898	46.935	46.971	47.007	47.043	47.079	47.116
1290	47.152	47.188	47.224	47.260	47.296	47.333	47.369	47.405	47.441	47.477
1300	47.513									



Type R (0°C to 349°C) °C

PT 13%RH vs. PLATINUM

EMF IN MILLIVOLTS - REFERENCE JUNCTION 0

C	0	1	2	3	4	5	6	7	8	9
0	0.000	0.005	0.011	0.016	0.021	0.027	0.032	0.038	0.043	0.049
10	0.054	0.060	0.065	0.071	0.077	0.082	0.088	0.094	0.100	0.105
20	0.111	0.117	0.123	0.129	0.135	0.141	0.147	0.153	0.159	0.165
30	0.171	0.177	0.183	0.189	0.195	0.201	0.207	0.214	0.220	0.226
40	0.232	0.239	0.245	0.251	0.258	0.264	0.271	0.277	0.284	0.290
50	0.296	0.303	0.310	0.316	0.323	0.329	0.336	0.343	0.349	0.356
60	0.363	0.369	0.376	0.383	0.390	0.397	0.403	0.410	0.417	0.424
70	0.431	0.438	0.445	0.452	0.459	0.466	0.473	0.480	0.487	0.494
80	0.501	0.508	0.516	0.523	0.530	0.537	0.544	0.552	0.559	0.566
90	0.573	0.581	0.588	0.595	0.603	0.610	0.618	0.625	0.632	0.640
100	0.647	0.655	0.662	0.670	0.677	0.685	0.693	0.700	0.708	0.715
110	0.723	0.731	0.738	0.746	0.754	0.761	0.769	0.777	0.785	0.792
120	0.800	0.808	0.816	0.824	0.832	0.839	0.847	0.855	0.863	0.871
130	0.879	0.887	0.895	0.903	0.911	0.919	0.927	0.935	0.943	0.951
140	0.959	0.967	0.976	0.984	0.992	1.000	1.008	1.016	1.025	1.033
150	1.041	1.049	1.058	1.066	1.074	1.082	1.091	1.099	1.107	1.116
160	1.124	1.132	1.141	1.149	1.158	1.166	1.175	1.183	1.191	1.200
170	1.208	1.217	1.225	1.234	1.242	1.251	1.260	1.268	1.277	1.285
180	1.294	1.303	1.311	1.320	1.329	1.337	1.346	1.355	1.363	1.372
190	1.381	1.389	1.398	1.407	1.416	1.425	1.433	1.442	1.451	1.460
200	1.469	1.477	1.486	1.495	1.504	1.513	1.522	1.531	1.540	1.549
210	1.558	1.567	1.575	1.584	1.593	1.602	1.611	1.620	1.629	1.639
220	1.648	1.657	1.666	1.675	1.684	1.693	1.702	1.711	1.720	1.729
230	1.739	1.748	1.757	1.766	1.775	1.784	1.794	1.803	1.812	1.821
240	1.831	1.840	1.849	1.858	1.868	1.877	1.886	1.895	1.905	1.914
250	1.923	1.933	1.942	1.951	1.961	1.970	1.980	1.989	1.998	2.008
260	2.017	2.027	2.036	2.046	2.055	2.064	2.074	2.083	2.093	2.102
270	2.112	2.121	2.131	2.140	2.150	2.159	2.169	2.179	2.188	2.198
280	2.207	2.217	2.226	2.236	2.246	2.255	2.265	2.275	2.284	2.294
290	2.304	2.313	2.323	2.333	2.342	2.352	2.362	2.371	2.381	2.391
300	2.401	2.410	2.420	2.430	2.440	2.449	2.459	2.469	2.479	2.488
310	2.498	2.508	2.518	2.528	2.538	2.547	2.557	2.567	2.577	2.587
320	2.597	2.607	2.617	2.626	2.636	2.646	2.656	2.666	2.676	2.686
330	2.696	2.706	2.716	2.726	2.736	2.746	2.756	2.766	2.776	2.786
340	2.796	2.806	2.816	2.826	2.836	2.846	2.856	2.866	2.876	2.886



Type R (350°C to 699°C) °C

PT 13%RH vs. PLATINUM

EMF IN MILLIVOLTS - REFERENCE JUNCTION 0

C	0	1	2	3	4	5	6	7	8	9
350	2.896	2.906	2.916	2.926	2.937	2.947	2.957	2.967	2.977	2.987
360	2.997	3.007	3.018	3.028	3.038	3.048	3.058	3.068	3.079	3.089
370	3.099	3.109	3.119	3.130	3.140	3.150	3.160	3.171	3.181	3.191
380	3.201	3.212	3.222	3.232	3.242	3.253	3.263	3.273	3.284	3.294
390	3.304	3.315	3.325	3.335	3.346	3.356	3.366	3.377	3.387	3.397
400	3.408	3.418	3.428	3.439	3.449	3.460	3.470	3.480	3.491	3.501
410	3.512	3.522	3.533	3.543	3.553	3.564	3.574	3.585	3.595	3.606
420	3.616	3.627	3.637	3.648	3.658	3.669	3.679	3.690	3.701	3.711
430	3.721	3.732	3.742	3.753	3.764	3.774	3.785	3.795	3.806	3.816
440	3.827	3.838	3.848	3.859	3.869	3.880	3.891	3.901	3.912	3.922
450	3.933	3.944	3.954	3.965	3.976	3.986	3.997	4.008	4.018	4.029
460	4.040	4.050	4.061	4.072	4.083	4.093	4.104	4.115	4.125	4.136
470	4.147	4.158	4.168	4.179	4.190	4.201	4.211	4.222	4.233	4.244
480	4.255	4.265	4.276	4.287	4.298	4.309	4.319	4.330	4.341	4.352
490	4.363	4.373	4.384	4.395	4.406	4.417	4.428	4.439	4.449	4.460
500	4.471	4.482	4.493	4.504	4.515	4.526	4.537	4.548	4.558	4.569
510	4.580	4.591	4.602	4.613	4.624	4.635	4.646	4.657	4.668	4.679
520	4.690	4.701	4.712	4.723	4.734	4.745	4.756	4.767	4.778	4.789
530	4.800	4.811	4.822	4.833	4.844	4.855	4.866	4.877	4.888	4.899
540	4.910	4.922	4.933	4.944	4.955	4.966	4.977	4.988	4.999	5.010
550	5.021	5.033	5.044	5.055	5.066	5.077	5.088	5.099	5.111	5.122
560	5.133	5.144	5.155	5.166	5.178	5.189	5.200	5.211	5.222	5.234
570	5.245	5.256	5.267	5.279	5.290	5.301	5.312	5.323	5.335	5.346
580	5.357	5.369	5.380	5.391	5.402	5.414	5.425	5.436	5.448	5.459
590	5.470	5.481	5.493	5.504	5.515	5.527	5.538	5.549	5.561	5.572
600	5.583	5.595	5.606	5.618	5.629	5.640	5.652	5.663	5.674	5.686
610	5.697	5.709	5.720	5.731	5.743	5.754	5.766	5.777	5.789	5.800
620	5.812	5.823	5.834	5.846	5.857	5.869	5.880	5.892	5.903	5.915
630	5.926	5.938	5.949	5.961	5.972	5.984	5.995	6.007	6.018	6.030
640	6.041	6.053	6.065	6.076	6.088	6.099	6.111	6.122	6.134	6.146
650	6.157	6.169	6.180	6.192	6.204	6.215	6.227	6.238	6.250	6.262
660	6.273	6.285	6.297	6.308	6.320	6.332	6.343	6.355	6.367	6.378
670	6.390	6.402	6.413	6.425	6.437	6.448	6.460	6.472	6.484	6.495
680	6.507	6.519	6.531	6.542	6.554	6.566	6.578	6.589	6.601	6.613
690	6.625	6.636	6.648	6.660	6.672	6.684	6.695	6.707	6.719	6.731



Type R (700°C to 1049°C) °C

PT 13%RH vs. PLATINUM

EMF IN MILLIVOLTS - REFERENCE JUNCTION 0

C	0	1	2	3	4	5	6	7	8	9
700	6.743	6.755	6.766	6.778	6.790	6.802	6.814	6.826	6.838	6.849
710	6.861	6.873	6.885	6.897	6.909	6.921	6.933	6.945	6.956	6.968
720	6.980	6.992	7.004	7.016	7.028	7.040	7.052	7.064	7.076	7.088
730	7.100	7.112	7.124	7.136	7.148	7.160	7.172	7.184	7.196	7.208
740	7.220	7.232	7.244	7.256	7.268	7.280	7.292	7.304	7.316	7.328
750	7.340	7.352	7.364	7.376	7.388	7.401	7.413	7.425	7.437	7.449
760	7.461	7.473	7.485	7.498	7.510	7.522	7.534	7.546	7.558	7.570
770	7.583	7.595	7.607	7.619	7.631	7.644	7.656	7.668	7.680	7.692
780	7.705	7.717	7.729	7.741	7.753	7.766	7.778	7.790	7.802	7.815
790	7.827	7.839	7.851	7.864	7.876	7.888	7.901	7.913	7.925	7.938
800	7.950	7.962	7.974	7.987	7.999	8.011	8.024	8.036	8.048	8.061
810	8.073	8.086	8.098	8.110	8.123	8.135	8.147	8.160	8.172	8.185
820	8.197	8.209	8.222	8.234	8.247	8.259	8.272	8.284	8.296	8.309
830	8.321	8.334	8.346	8.359	8.371	8.384	8.396	8.409	8.421	8.434
840	8.446	8.459	8.471	8.484	8.496	8.509	8.521	8.534	8.546	8.559
850	8.571	8.584	8.597	8.609	8.622	8.634	8.647	8.659	8.672	8.685
860	8.697	8.710	8.722	8.735	8.748	8.760	8.773	8.785	8.798	8.811
870	8.823	8.836	8.849	8.861	8.874	8.887	8.899	8.912	8.925	8.937
880	8.950	8.963	8.975	8.988	9.001	9.014	9.026	9.039	9.052	9.065
890	9.077	9.090	9.103	9.115	9.128	9.141	9.154	9.167	9.179	9.192
900	9.205	9.218	9.230	9.243	9.256	9.269	9.282	9.294	9.307	9.320
910	9.333	9.346	9.359	9.371	9.384	9.397	9.410	9.423	9.436	9.449
920	9.461	9.474	9.487	9.500	9.513	9.526	9.539	9.552	9.565	9.578
930	9.590	9.603	9.616	9.629	9.642	9.655	9.668	9.681	9.694	9.707
940	9.720	9.733	9.746	9.759	9.772	9.785	9.798	9.811	9.824	9.837
950	9.850	9.863	9.876	9.889	9.902	9.915	9.928	9.941	9.954	9.967
960	9.980	9.993	10.006	10.019	10.032	10.046	10.059	10.072	10.085	10.098
970	10.111	10.124	10.137	10.150	10.163	10.177	10.190	10.203	10.216	10.229
980	10.242	10.255	10.268	10.282	10.295	10.308	10.321	10.334	10.347	10.361
990	10.374	10.387	10.400	10.413	10.427	10.440	10.453	10.466	10.480	10.493
1000	10.506	10.519	10.532	10.546	10.559	10.572	10.585	10.599	10.612	10.625
1010	10.638	10.652	10.665	10.678	10.692	10.705	10.718	10.731	10.745	10.758
1020	10.771	10.785	10.798	10.811	10.825	10.838	10.851	10.865	10.878	10.891
1030	10.905	10.918	10.932	10.945	10.958	10.972	10.985	10.998	11.012	11.025
1040	11.039	11.052	11.065	11.079	11.092	11.106	11.119	11.132	11.146	11.159



Type R (1050°C to 1399°C) °C

PT 13%RH vs. PLATINUM

EMF IN MILLIVOLTS - REFERENCE JUNCTION 0

C	0	1	2	3	4	5	6	7	8	9
1050	11.173	11.186	11.200	11.213	11.227	11.240	11.253	11.267	11.280	11.294
1060	11.307	11.321	11.334	11.348	11.361	11.375	11.388	11.402	11.415	11.429
1070	11.442	11.456	11.469	11.483	11.496	11.510	11.524	11.537	11.551	11.564
1080	11.578	11.591	11.605	11.618	11.632	11.646	11.659	11.673	11.686	11.700
1090	11.714	11.727	11.741	11.754	11.768	11.782	11.795	11.809	11.822	11.836
1100	11.850	11.863	11.877	11.891	11.904	11.918	11.931	11.945	11.959	11.972
1110	11.986	12.000	12.013	12.027	12.041	12.054	12.068	12.082	12.096	12.109
1120	12.123	12.137	12.150	12.164	12.178	12.191	12.205	12.219	12.233	12.246
1130	12.260	12.274	12.288	12.301	12.315	12.329	12.342	12.356	12.370	12.384
1140	12.397	12.411	12.425	12.439	12.453	12.466	12.480	12.494	12.508	12.521
1150	12.535	12.549	12.563	12.577	12.590	12.604	12.618	12.632	12.646	12.659
1160	12.673	12.687	12.701	12.715	12.729	12.742	12.756	12.770	12.784	12.798
1170	12.812	12.825	12.839	12.853	12.867	12.881	12.895	12.909	12.922	12.936
1180	12.950	12.964	12.978	12.992	13.006	13.019	13.033	13.047	13.061	13.075
1190	13.089	13.103	13.117	13.131	13.145	13.158	13.172	13.186	13.200	13.214
1200	13.228	13.242	13.256	13.270	13.284	13.298	13.311	13.325	13.339	13.353
1210	13.367	13.381	13.395	13.409	13.423	13.437	13.451	13.465	13.479	13.493
1220	13.507	13.521	13.535	13.549	13.563	13.577	13.590	13.604	13.618	13.632
1230	13.646	13.660	13.674	13.688	13.702	13.716	13.730	13.744	13.758	13.772
1240	13.786	13.800	13.814	13.828	13.842	13.856	13.870	13.884	13.898	13.912
1250	13.926	13.940	13.954	13.968	13.982	13.996	14.010	14.024	14.038	14.052
1260	14.066	14.081	14.095	14.109	14.123	14.137	14.151	14.165	14.179	14.193
1270	14.207	14.221	14.235	14.249	14.263	14.277	14.291	14.305	14.319	14.333
1280	14.347	14.361	14.375	14.390	14.404	14.418	14.432	14.446	14.460	14.474
1290	14.488	14.502	14.516	14.530	14.544	14.558	14.572	14.586	14.601	14.615
1300	14.629	14.643	14.657	14.671	14.685	14.699	14.713	14.727	14.741	14.755
1310	14.770	14.784	14.798	14.812	14.826	14.840	14.854	14.868	14.882	14.896
1320	14.911	14.925	14.939	14.953	14.967	14.981	14.995	15.009	15.023	15.037
1330	15.052	15.066	15.080	15.094	15.108	15.122	15.136	15.150	15.164	15.179
1340	15.193	15.207	15.221	15.235	15.249	15.263	15.277	15.291	15.306	15.320
1350	15.334	15.348	15.362	15.376	15.390	15.404	15.419	15.433	15.447	15.461
1360	15.475	15.489	15.503	15.517	15.531	15.546	15.560	15.574	15.588	15.602
1370	15.616	15.630	15.645	15.659	15.673	15.687	15.701	15.715	15.729	15.743
1380	15.758	15.772	15.786	15.800	15.814	15.828	15.842	15.856	15.871	15.885
1390	15.899	15.913	15.927	15.941	15.955	15.969	15.984	15.998	16.012	16.026



Type R (1400°C to 1768°C)

PT 13%RH vs. PLATINUM

EMF IN MILLIVOLTS - REFERENCE JUNCTION 0

C	0	1	2	3	4	5	6	7	8	9
1400	16.040	16.054	16.068	16.082	16.097	16.111	16.125	16.139	16.153	16.167
1410	16.181	16.196	16.210	16.224	16.238	16.252	16.266	16.280	16.294	16.309
1420	16.323	16.337	16.351	16.365	16.379	16.393	16.407	16.422	16.436	16.450
1430	16.464	16.478	16.492	16.506	16.520	16.534	16.549	16.563	16.577	16.591
1440	16.605	16.619	16.633	16.647	16.662	16.676	16.690	16.704	16.718	16.732
1450	16.746	16.760	16.774	16.789	16.803	16.817	16.831	16.845	16.859	16.873
1460	16.887	16.901	16.915	16.930	16.944	16.958	16.972	16.986	17.000	17.014
1470	17.028	17.042	17.056	17.071	17.085	17.099	17.113	17.127	17.141	17.155
1480	17.169	17.183	17.197	17.211	17.225	17.240	17.254	17.268	17.282	17.296
1490	17.310	17.324	17.338	17.352	17.366	17.380	17.394	17.408	17.423	17.437
1500	17.451	17.465	17.479	17.493	17.507	17.521	17.535	17.549	17.563	17.577
1510	17.591	17.605	17.619	17.633	17.647	17.661	17.676	17.690	17.704	17.718
1520	17.732	17.746	17.760	17.774	17.788	17.802	17.816	17.830	17.844	17.858
1530	17.872	17.886	17.900	17.914	17.928	17.942	17.956	17.970	17.984	17.998
1540	18.012	18.026	18.040	18.054	18.068	18.082	18.096	18.110	18.124	18.138
1550	18.152	18.166	18.180	18.194	18.208	18.222	18.236	18.250	18.264	18.278
1560	18.292	18.306	18.320	18.334	18.348	18.362	18.376	18.390	18.404	18.417
1570	18.431	18.445	18.459	18.473	18.487	18.501	18.515	18.529	18.543	18.557
1580	18.571	18.585	18.599	18.613	18.627	18.640	18.654	18.668	18.682	18.696
1590	18.710	18.724	18.738	18.752	18.766	18.779	18.793	18.807	18.821	18.835
1600	18.849	18.863	18.877	18.891	18.904	18.918	18.932	18.946	18.960	18.974
1610	18.988	19.002	19.015	19.029	19.043	19.057	19.071	19.085	19.098	19.112
1620	19.126	19.140	19.154	19.168	19.181	19.195	19.209	19.223	19.237	19.250
1630	19.264	19.278	19.292	19.306	19.319	19.333	19.347	19.361	19.375	19.388
1640	19.402	19.416	19.430	19.444	19.457	19.471	19.485	19.499	19.512	19.526
1650	19.540	19.554	19.567	19.581	19.595	19.609	19.622	19.636	19.650	19.663
1660	19.677	19.691	19.705	19.718	19.732	19.746	19.759	19.773	19.787	19.800
1670	19.814	19.828	19.841	19.855	19.869	19.882	19.896	19.910	19.923	19.937
1680	19.951	19.964	19.978	19.992	20.005	20.019	20.032	20.046	20.060	20.073
1690	20.087	20.100	20.114	20.127	20.141	20.154	20.168	20.181	20.195	20.208
1700	20.222	20.235	20.249	20.262	20.275	20.289	20.302	20.316	20.329	20.342
1710	20.356	20.369	20.382	20.396	20.409	20.422	20.436	20.449	20.462	20.475
1720	20.488	20.502	20.515	20.528	20.541	20.554	20.567	20.581	20.594	20.607
1730	20.620	20.633	20.646	20.659	20.672	20.685	20.698	20.711	20.724	20.736
1740	20.749	20.762	20.775	20.788	20.801	20.813	20.826	20.839	20.852	20.864
1750	20.877	20.890	20.902	20.915	20.928	20.940	20.953	20.965	20.978	20.990
1760	21.003	21.015	21.027	21.040	21.052	21.065	21.077	21.089	21.101	



Type S (0°C to 349°C)

PT 10%RH vs. PLATINUM

EMF IN MILLIVOLTS - REFERENCE JUNCTION 0

C	0	1	2	3	4	5	6	7	8	9
0	0.000	0.005	0.011	0.016	0.022	0.027	0.033	0.038	0.044	0.050
10	0.055	0.061	0.067	0.072	0.078	0.084	0.090	0.095	0.101	0.107
20	0.113	0.119	0.125	0.131	0.137	0.143	0.149	0.155	0.161	0.167
30	0.173	0.179	0.185	0.191	0.197	0.204	0.210	0.216	0.222	0.229
40	0.235	0.241	0.248	0.254	0.260	0.267	0.273	0.280	0.286	0.292
50	0.299	0.305	0.312	0.319	0.325	0.332	0.338	0.345	0.352	0.358
60	0.365	0.372	0.378	0.385	0.392	0.399	0.405	0.412	0.419	0.426
70	0.433	0.440	0.446	0.453	0.460	0.467	0.474	0.481	0.488	0.495
80	0.502	0.509	0.516	0.523	0.530	0.538	0.545	0.552	0.559	0.566
90	0.573	0.580	0.588	0.595	0.602	0.609	0.617	0.624	0.631	0.639
100	0.646	0.653	0.661	0.668	0.675	0.683	0.690	0.698	0.705	0.713
110	0.720	0.727	0.735	0.743	0.750	0.758	0.765	0.773	0.780	0.788
120	0.795	0.803	0.811	0.818	0.826	0.834	0.841	0.849	0.857	0.865
130	0.872	0.880	0.888	0.896	0.903	0.911	0.919	0.927	0.935	0.942
140	0.950	0.958	0.966	0.974	0.982	0.990	0.998	1.006	1.013	1.021
150	1.029	1.037	1.045	1.053	1.061	1.069	1.077	1.085	1.094	1.102
160	1.110	1.118	1.126	1.134	1.142	1.150	1.158	1.167	1.175	1.183
170	1.191	1.199	1.207	1.216	1.224	1.232	1.240	1.249	1.257	1.265
180	1.273	1.282	1.290	1.298	1.307	1.315	1.323	1.332	1.340	1.348
190	1.357	1.365	1.373	1.382	1.390	1.399	1.407	1.415	1.424	1.432
200	1.441	1.449	1.458	1.466	1.475	1.483	1.492	1.500	1.509	1.517
210	1.526	1.534	1.543	1.551	1.560	1.569	1.577	1.586	1.594	1.603
220	1.612	1.620	1.629	1.638	1.646	1.655	1.663	1.672	1.681	1.690
230	1.698	1.707	1.716	1.724	1.733	1.742	1.751	1.759	1.768	1.777
240	1.786	1.794	1.803	1.812	1.821	1.829	1.838	1.847	1.856	1.865
250	1.874	1.882	1.891	1.900	1.909	1.918	1.927	1.936	1.944	1.953
260	1.962	1.971	1.980	1.989	1.998	2.007	2.016	2.025	2.034	2.043
270	2.052	2.061	2.070	2.078	2.087	2.096	2.105	2.114	2.123	2.132
280	2.141	2.151	2.160	2.169	2.178	2.187	2.196	2.205	2.214	2.223
290	2.232	2.241	2.250	2.259	2.268	2.277	2.287	2.296	2.305	2.314
300	2.323	2.332	2.341	2.350	2.360	2.369	2.378	2.387	2.396	2.405
310	2.415	2.424	2.433	2.442	2.451	2.461	2.470	2.479	2.488	2.497
320	2.507	2.516	2.525	2.534	2.544	2.553	2.562	2.571	2.581	2.590
330	2.599	2.609	2.618	2.627	2.636	2.646	2.655	2.664	2.674	2.683
340	2.692	2.702	2.711	2.720	2.730	2.739	2.748	2.758	2.767	2.776



Type S (350°C to 699°C)

PT 10%RH vs. PLATINUM

EMF IN MILLIVOLTS - REFERENCE JUNCTION 0

C	0	1	2	3	4	5	6	7	8	9
350	2.786	2.795	2.805	2.814	2.823	2.833	2.842	2.851	2.861	2.870
360	2.880	2.889	2.899	2.908	2.917	2.927	2.936	2.946	2.955	2.965
370	2.974	2.983	2.993	3.002	3.012	3.021	3.031	3.040	3.050	3.059
380	3.069	3.078	3.088	3.097	3.107	3.116	3.126	3.135	3.145	3.154
390	3.164	3.173	3.183	3.192	3.202	3.212	3.221	3.231	3.240	3.250
400	3.259	3.269	3.279	3.288	3.298	3.307	3.317	3.326	3.336	3.346
410	3.355	3.365	3.374	3.384	3.394	3.403	3.413	3.423	3.432	3.442
420	3.451	3.461	3.471	3.480	3.490	3.500	3.509	3.519	3.529	3.538
430	3.548	3.558	3.567	3.577	3.587	3.596	3.606	3.616	3.626	3.635
440	3.645	3.655	3.664	3.674	3.684	3.694	3.703	3.713	3.723	3.732
450	3.742	3.752	3.762	3.771	3.781	3.791	3.801	3.810	3.820	3.830
460	3.840	3.850	3.859	3.869	3.879	3.889	3.898	3.908	3.918	3.928
470	3.938	3.947	3.957	3.967	3.977	3.987	3.997	4.006	4.016	4.026
480	4.036	4.046	4.056	4.065	4.075	4.085	4.095	4.105	4.115	4.125
490	4.134	4.144	4.154	4.164	4.174	4.184	4.194	4.204	4.213	4.223
500	4.233	4.243	4.253	4.263	4.273	4.283	4.293	4.303	4.313	4.323
510	4.332	4.342	4.352	4.362	4.372	4.382	4.392	4.402	4.412	4.422
520	4.432	4.442	4.452	4.462	4.472	4.482	4.492	4.502	4.512	4.522
530	4.532	4.542	4.552	4.562	4.572	4.582	4.592	4.602	4.612	4.622
540	4.632	4.642	4.652	4.662	4.672	4.682	4.692	4.702	4.712	4.722
550	4.732	4.742	4.752	4.762	4.772	4.782	4.793	4.803	4.813	4.823
560	4.833	4.843	4.853	4.863	4.873	4.883	4.893	4.904	4.914	4.924
570	4.934	4.944	4.954	4.964	4.974	4.984	4.995	5.005	5.015	5.025
580	5.035	5.045	5.055	5.066	5.076	5.086	5.096	5.106	5.116	5.127
590	5.137	5.147	5.157	5.167	5.178	5.188	5.198	5.208	5.218	5.228
600	5.239	5.249	5.259	5.269	5.280	5.290	5.300	5.310	5.320	5.331
610	5.341	5.351	5.361	5.372	5.382	5.392	5.402	5.413	5.423	5.433
620	5.443	5.454	5.464	5.474	5.485	5.495	5.505	5.515	5.526	5.536
630	5.546	5.557	5.567	5.577	5.588	5.598	5.608	5.618	5.629	5.639
640	5.649	5.660	5.670	5.680	5.691	5.701	5.712	5.722	5.732	5.743
650	5.753	5.763	5.774	5.784	5.794	5.805	5.815	5.826	5.836	5.846
660	5.857	5.867	5.878	5.888	5.898	5.909	5.919	5.930	5.940	5.950
670	5.961	5.971	5.982	5.992	6.003	6.013	6.024	6.034	6.044	6.055
680	6.065	6.076	6.086	6.097	6.107	6.118	6.128	6.139	6.149	6.160
690	6.170	6.181	6.191	6.202	6.212	6.223	6.233	6.244	6.254	6.265



Type S (700°C to 1049°C)

PT 10%RH vs. PLATINUM

EMF IN MILLIVOLTS - REFERENCE JUNCTION 0

C	0	1	2	3	4	5	6	7	8	9
700	6.275	6.286	6.296	6.307	6.317	6.328	6.338	6.349	6.360	6.370
710	6.381	6.391	6.402	6.412	6.423	6.434	6.444	6.455	6.465	6.476
720	6.486	6.497	6.508	6.518	6.529	6.539	6.550	6.561	6.571	6.582
730	6.593	6.603	6.614	6.624	6.635	6.646	6.656	6.667	6.678	6.688
740	6.699	6.710	6.720	6.731	6.742	6.752	6.763	6.774	6.784	6.795
750	6.806	6.817	6.827	6.838	6.849	6.859	6.870	6.881	6.892	6.902
760	6.913	6.924	6.934	6.945	6.956	6.967	6.977	6.988	6.999	7.010
770	7.020	7.031	7.042	7.053	7.064	7.074	7.085	7.096	7.107	7.117
780	7.128	7.139	7.150	7.161	7.172	7.182	7.193	7.204	7.215	7.226
790	7.236	7.247	7.258	7.269	7.280	7.291	7.302	7.312	7.323	7.334
800	7.345	7.356	7.367	7.378	7.388	7.399	7.410	7.421	7.432	7.443
810	7.454	7.465	7.476	7.487	7.497	7.508	7.519	7.530	7.541	7.552
820	7.563	7.574	7.585	7.596	7.607	7.618	7.629	7.640	7.651	7.662
830	7.673	7.684	7.695	7.706	7.717	7.728	7.739	7.750	7.761	7.772
840	7.783	7.794	7.805	7.816	7.827	7.838	7.849	7.860	7.871	7.882
850	7.893	7.904	7.915	7.926	7.937	7.948	7.959	7.970	7.981	7.992
860	8.003	8.014	8.026	8.037	8.048	8.059	8.070	8.081	8.092	8.103
870	8.114	8.125	8.137	8.148	8.159	8.170	8.181	8.192	8.203	8.214
880	8.226	8.237	8.248	8.259	8.270	8.281	8.293	8.304	8.315	8.326
890	8.337	8.348	8.360	8.371	8.382	8.393	8.404	8.416	8.427	8.438
900	8.449	8.460	8.472	8.483	8.494	8.505	8.517	8.528	8.539	8.550
910	8.562	8.573	8.584	8.595	8.607	8.618	8.629	8.640	8.652	8.663
920	8.674	8.685	8.697	8.708	8.719	8.731	8.742	8.753	8.765	8.776
930	8.787	8.798	8.810	8.821	8.832	8.844	8.855	8.866	8.878	8.889
940	8.900	8.912	8.923	8.935	8.946	8.957	8.969	8.980	8.991	9.003
950	9.014	9.025	9.037	9.048	9.060	9.071	9.082	9.094	9.105	9.117
960	9.128	9.139	9.151	9.162	9.174	9.185	9.197	9.208	9.219	9.231
970	9.242	9.254	9.265	9.277	9.288	9.300	9.311	9.323	9.334	9.345
980	9.357	9.368	9.380	9.391	9.403	9.414	9.426	9.437	9.449	9.460
990	9.472	9.483	9.495	9.506	9.518	9.529	9.541	9.552	9.564	9.576
1000	9.587	9.599	9.610	9.622	9.633	9.645	9.656	9.668	9.680	9.691
1010	9.703	9.714	9.726	9.737	9.749	9.761	9.772	9.784	9.795	9.807
1020	9.819	9.830	9.842	9.853	9.865	9.877	9.888	9.900	9.911	9.923
1030	9.935	9.946	9.958	9.970	9.981	9.993	10.005	10.016	10.028	10.040
1040	10.051	10.063	10.075	10.086	10.098	10.110	10.121	10.133	10.145	10.156



Type S^(1050°C to 1399°C)

PT 10%RH vs. PLATINUM

EMF IN MILLIVOLTS - REFERENCE JUNCTION 0

C	0	1	2	3	4	5	6	7	8	9
1050	10.168	10.180	10.191	10.203	10.215	10.227	10.238	10.250	10.262	10.273
1060	10.285	10.297	10.309	10.320	10.332	10.344	10.356	10.367	10.379	10.391
1070	10.403	10.414	10.426	10.438	10.450	10.461	10.473	10.485	10.497	10.509
1080	10.520	10.532	10.544	10.556	10.567	10.579	10.591	10.603	10.615	10.626
1090	10.638	10.650	10.662	10.674	10.686	10.697	10.709	10.721	10.733	10.745
1100	10.757	10.768	10.780	10.792	10.804	10.816	10.828	10.839	10.851	10.863
1110	10.875	10.887	10.899	10.911	10.922	10.934	10.946	10.958	10.970	10.982
1120	10.994	11.006	11.017	11.029	11.041	11.053	11.065	11.077	11.089	11.101
1130	11.113	11.125	11.136	11.148	11.160	11.172	11.184	11.196	11.208	11.220
1140	11.232	11.244	11.256	11.268	11.280	11.291	11.303	11.315	11.327	11.339
1150	11.351	11.363	11.375	11.387	11.399	11.411	11.423	11.435	11.447	11.459
1160	11.471	11.483	11.495	11.507	11.519	11.531	11.542	11.554	11.566	11.578
1170	11.590	11.602	11.614	11.626	11.638	11.650	11.662	11.674	11.686	11.698
1180	11.710	11.722	11.734	11.746	11.758	11.770	11.782	11.794	11.806	11.818
1190	11.830	11.842	11.854	11.866	11.878	11.890	11.902	11.914	11.926	11.939
1200	11.951	11.963	11.975	11.987	11.999	12.011	12.023	12.035	12.047	12.059
1210	12.071	12.083	12.095	12.107	12.119	12.131	12.143	12.155	12.167	12.179
1220	12.191	12.203	12.216	12.228	12.240	12.252	12.264	12.276	12.288	12.300
1230	12.312	12.324	12.336	12.348	12.360	12.372	12.384	12.397	12.409	12.421
1240	12.433	12.445	12.457	12.469	12.481	12.493	12.505	12.517	12.529	12.542
1250	12.554	12.566	12.578	12.590	12.602	12.614	12.626	12.638	12.650	12.662
1260	12.675	12.687	12.699	12.711	12.723	12.735	12.747	12.759	12.771	12.783
1270	12.796	12.808	12.820	12.832	12.844	12.856	12.868	12.880	12.892	12.905
1280	12.917	12.929	12.941	12.953	12.965	12.977	12.989	13.001	13.014	13.026
1290	13.038	13.050	13.062	13.074	13.086	13.098	13.111	13.123	13.135	13.147
1300	13.159	13.171	13.183	13.195	13.208	13.220	13.232	13.244	13.256	13.268
1310	13.280	13.292	13.305	13.317	13.329	13.341	13.353	13.365	13.377	13.390
1320	13.402	13.414	13.426	13.438	13.450	13.462	13.474	13.487	13.499	13.511
1330	13.523	13.535	13.547	13.559	13.572	13.584	13.596	13.608	13.620	13.632
1340	13.644	13.657	13.669	13.681	13.693	13.705	13.717	13.729	13.742	13.754
1350	13.766	13.778	13.790	13.802	13.814	13.826	13.839	13.851	13.863	13.875
1360	13.887	13.899	13.911	13.924	13.936	13.948	13.960	13.972	13.984	13.996
1370	14.009	14.021	14.033	14.045	14.057	14.069	14.081	14.094	14.106	14.118
1380	14.130	14.142	14.154	14.166	14.178	14.191	14.203	14.215	14.227	14.239
1390	14.251	14.263	14.276	14.288	14.300	14.312	14.324	14.336	14.348	14.360



Type S^(1400°C to 1768°C)

PT 10%RH vs. PLATINUM

EMF IN MILLIVOLTS - REFERENCE JUNCTION 0

C	0	1	2	3	4	5	6	7	8	9
1400	14.373	14.385	14.397	14.409	14.421	14.433	14.445	14.457	14.470	14.482
1410	14.494	14.506	14.518	14.530	14.542	14.554	14.567	14.579	14.591	14.603
1420	14.615	14.627	14.639	14.651	14.664	14.676	14.688	14.700	14.712	14.724
1430	14.736	14.748	14.760	14.773	14.785	14.797	14.809	14.821	14.833	14.845
1440	14.857	14.869	14.881	14.894	14.906	14.918	14.930	14.942	14.954	14.966
1450	14.978	14.990	15.002	15.015	15.027	15.039	15.051	15.063	15.075	15.087
1460	15.099	15.111	15.123	15.135	15.148	15.160	15.172	15.184	15.196	15.208
1470	15.220	15.232	15.244	15.256	15.268	15.280	15.292	15.304	15.317	15.329
1480	15.341	15.353	15.365	15.377	15.389	15.401	15.413	15.425	15.437	15.449
1490	15.461	15.473	15.485	15.497	15.509	15.521	15.534	15.546	15.558	15.570
1500	15.582	15.594	15.606	15.618	15.630	15.642	15.654	15.666	15.678	15.690
1510	15.702	15.714	15.726	15.738	15.750	15.762	15.774	15.786	15.798	15.810
1520	15.822	15.834	15.846	15.858	15.870	15.882	15.894	15.906	15.918	15.930
1530	15.942	15.954	15.966	15.978	15.990	16.002	16.014	16.026	16.038	16.050
1540	16.062	16.074	16.086	16.098	16.110	16.122	16.134	16.146	16.158	16.170
1550	16.182	16.194	16.205	16.217	16.229	16.241	16.253	16.265	16.277	16.289
1560	16.301	16.313	16.325	16.337	16.349	16.361	16.373	16.385	16.396	16.408
1570	16.420	16.432	16.444	16.456	16.468	16.480	16.492	16.504	16.516	16.527
1580	16.539	16.551	16.563	16.575	16.587	16.599	16.611	16.623	16.634	16.646
1590	16.658	16.670	16.682	16.694	16.706	16.718	16.729	16.741	16.753	16.765
1600	16.777	16.789	16.801	16.812	16.824	16.836	16.848	16.860	16.872	16.883
1610	16.895	16.907	16.919	16.931	16.943	16.954	16.966	16.978	16.990	17.002
1620	17.013	17.025	17.037	17.049	17.061	17.072	17.084	17.096	17.108	17.120
1630	17.131	17.143	17.155	17.167	17.178	17.190	17.202	17.214	17.225	17.237
1640	17.249	17.261	17.272	17.284	17.296	17.308	17.319	17.331	17.343	17.355
1650	17.366	17.378	17.390	17.401	17.413	17.425	17.437	17.448	17.460	17.472
1660	17.483	17.495	17.507	17.518	17.530	17.542	17.553	17.565	17.577	17.588
1670	17.600	17.612	17.623	17.635	17.647	17.658	17.670	17.682	17.693	17.705
1680	17.717	17.728	17.740	17.751	17.763	17.775	17.786	17.798	17.809	17.821
1690	17.832	17.844	17.855	17.867	17.878	17.890	17.901	17.913	17.924	17.936
1700	17.947	17.959	17.970	17.982	17.993	18.004	18.016	18.027	18.039	18.050
1710	18.061	18.073	18.084	18.095	18.107	18.118	18.129	18.140	18.152	18.163
1720	18.174	18.185	18.196	18.208	18.219	18.230	18.241	18.252	18.263	18.274
1730	18.285	18.297	18.308	18.319	18.330	18.341	18.352	18.362	18.373	18.384
1740	18.395	18.406	18.417	18.428	18.439	18.449	18.460	18.471	18.482	18.493
1750	18.503	18.514	18.525	18.535	18.546	18.557	18.567	18.578	18.588	18.599
1760	18.609	18.620	18.630	18.641	18.651	18.661	18.672	18.682	18.693	



Type B

(0°C to 349°C)

Type B

(350°C to 699°C)

PT 30%RH vs. PT 6% RH

EMF IN MILLIVOLTS - REFERENCE JUNCTION 0

C	0	1	2	3	4	5	6	7	8	9
0	0.000	0.000	0.000	-0.001	-0.001	-0.001	-0.001	-0.001	-0.001	-0.002
10	-0.002	-0.002	-0.002	-0.002	-0.002	-0.002	-0.002	-0.002	-0.003	-0.003
20	-0.003	-0.003	-0.003	-0.003	-0.002	-0.002	-0.002	-0.002	-0.002	-0.002
30	-0.002	-0.002	-0.002	-0.002	-0.001	-0.001	-0.001	-0.001	-0.001	-0.001
40	0.000	0.000	0.000	0.000	0.000	0.001	0.001	0.001	0.002	0.002
50	0.002	0.003	0.003	0.003	0.004	0.004	0.004	0.005	0.005	0.006
60	0.006	0.007	0.007	0.008	0.008	0.009	0.009	0.010	0.010	0.011
70	0.011	0.012	0.012	0.013	0.014	0.014	0.015	0.015	0.016	0.017
80	0.017	0.018	0.019	0.020	0.020	0.021	0.022	0.022	0.023	0.024
90	0.025	0.026	0.026	0.027	0.028	0.029	0.030	0.031	0.031	0.032
100	0.033	0.034	0.035	0.036	0.037	0.038	0.039	0.040	0.041	0.042
110	0.043	0.044	0.045	0.046	0.047	0.048	0.049	0.050	0.051	0.052
120	0.053	0.055	0.056	0.057	0.058	0.059	0.060	0.062	0.063	0.064
130	0.065	0.066	0.068	0.069	0.070	0.072	0.073	0.074	0.075	0.077
140	0.078	0.079	0.081	0.082	0.084	0.085	0.086	0.088	0.089	0.091
150	0.092	0.094	0.095	0.096	0.098	0.099	0.101	0.102	0.104	0.106
160	0.107	0.109	0.110	0.112	0.113	0.115	0.117	0.118	0.120	0.122
170	0.123	0.125	0.127	0.128	0.130	0.132	0.134	0.135	0.137	0.139
180	0.141	0.142	0.144	0.146	0.148	0.150	0.151	0.153	0.155	0.157
190	0.159	0.161	0.163	0.165	0.166	0.168	0.170	0.172	0.174	0.176
200	0.178	0.180	0.182	0.184	0.186	0.188	0.190	0.192	0.195	0.197
210	0.199	0.201	0.203	0.205	0.207	0.209	0.212	0.214	0.216	0.218
220	0.220	0.222	0.225	0.227	0.229	0.231	0.234	0.236	0.238	0.241
230	0.243	0.245	0.248	0.250	0.252	0.255	0.257	0.259	0.262	0.264
240	0.267	0.269	0.271	0.274	0.276	0.279	0.281	0.284	0.286	0.289
250	0.291	0.294	0.296	0.299	0.301	0.304	0.307	0.309	0.312	0.314
260	0.317	0.320	0.322	0.325	0.328	0.330	0.333	0.336	0.338	0.341
270	0.344	0.347	0.349	0.352	0.355	0.358	0.360	0.363	0.366	0.369
280	0.372	0.375	0.377	0.380	0.383	0.386	0.389	0.392	0.395	0.398
290	0.401	0.404	0.407	0.410	0.413	0.416	0.419	0.422	0.425	0.428
300	0.431	0.434	0.437	0.440	0.443	0.446	0.449	0.452	0.455	0.458
310	0.462	0.465	0.468	0.471	0.474	0.478	0.481	0.484	0.487	0.490
320	0.494	0.497	0.500	0.503	0.507	0.510	0.513	0.517	0.520	0.523
330	0.527	0.530	0.533	0.537	0.540	0.544	0.547	0.550	0.554	0.557
340	0.561	0.564	0.568	0.571	0.575	0.578	0.582	0.585	0.589	0.592



PT 30%RH vs. PT 6% RH

EMF IN MILLIVOLTS - REFERENCE JUNCTION 0

C	0	1	2	3	4	5	6	7	8	9
350	0.596	0.599	0.603	0.607	0.610	0.614	0.617	0.621	0.625	0.628
360	0.632	0.636	0.639	0.643	0.647	0.650	0.654	0.658	0.662	0.665
370	0.669	0.673	0.677	0.680	0.684	0.688	0.692	0.696	0.700	0.703
380	0.707	0.711	0.715	0.719	0.723	0.727	0.731	0.735	0.738	0.742
390	0.746	0.750	0.754	0.758	0.762	0.766	0.770	0.774	0.778	0.782
400	0.787	0.791	0.795	0.799	0.803	0.807	0.811	0.815	0.819	0.824
410	0.828	0.832	0.836	0.840	0.844	0.849	0.853	0.857	0.861	0.866
420	0.870	0.874	0.878	0.883	0.887	0.891	0.896	0.900	0.904	0.909
430	0.913	0.917	0.922	0.926	0.930	0.935	0.939	0.944	0.948	0.953
440	0.957	0.961	0.966	0.970	0.975	0.979	0.984	0.988	0.993	0.997
450	1.002	1.007	1.011	1.016	1.020	1.025	1.030	1.034	1.039	1.043
460	1.048	1.053	1.057	1.062	1.067	1.071	1.076	1.081	1.086	1.090
470	1.095	1.100	1.105	1.109	1.114	1.119	1.124	1.129	1.133	1.138
480	1.143	1.148	1.153	1.158	1.163	1.167	1.172	1.177	1.182	1.187
490	1.192	1.197	1.202	1.207	1.212	1.217	1.222	1.227	1.232	1.237
500	1.242	1.247	1.252	1.257	1.262	1.267	1.272	1.277	1.282	1.288
510	1.293	1.298	1.303	1.308	1.313	1.318	1.324	1.329	1.334	1.339
520	1.344	1.350	1.355	1.360	1.365	1.371	1.376	1.381	1.387	1.392
530	1.397	1.402	1.408	1.413	1.418	1.424	1.429	1.435	1.440	1.445
540	1.451	1.456	1.462	1.467	1.472	1.478	1.483	1.489	1.494	1.500
550	1.505	1.511	1.516	1.522	1.527	1.533	1.539	1.544	1.550	1.555
560	1.561	1.566	1.572	1.578	1.583	1.589	1.595	1.600	1.606	1.612
570	1.617	1.623	1.629	1.634	1.640	1.646	1.652	1.657	1.663	1.669
580	1.675	1.680	1.686	1.692	1.698	1.704	1.709	1.715	1.721	1.727
590	1.733	1.739	1.745	1.750	1.756	1.762	1.768	1.774	1.780	1.786
600	1.792	1.798	1.804	1.810	1.816	1.822	1.828	1.834	1.840	1.846
610	1.852	1.858	1.864	1.870	1.876	1.882	1.888	1.894	1.901	1.907
620	1.913	1.919	1.925	1.931	1.937	1.944	1.950	1.956	1.962	1.968
630	1.975	1.981	1.987	1.993	1.999	2.006	2.012	2.018	2.025	2.031
640	2.037	2.043	2.050	2.056	2.062	2.069	2.075	2.082	2.088	2.094
650	2.101	2.107	2.113	2.120	2.126	2.133	2.139	2.146	2.152	2.158
660	2.165	2.171	2.178	2.184	2.191	2.197	2.204	2.210	2.217	2.224
670	2.230	2.237	2.243	2.250	2.256	2.263	2.270	2.276	2.283	2.289
680	2.296	2.303	2.309	2.316	2.323	2.329	2.336	2.343	2.350	2.356
690	2.363	2.370	2.376	2.383	2.390	2.397	2.403	2.410	2.417	2.424



Type B (700°C to 1049°C) °C

PT 30%RH vs. PT 6% RH

EMF IN MILLIVOLTS - REFERENCE JUNCTION 0

C	0	1	2	3	4	5	6	7	8	9
700	2.431	2.437	2.444	2.451	2.458	2.465	2.472	2.479	2.485	2.492
710	2.499	2.506	2.513	2.520	2.527	2.534	2.541	2.548	2.555	2.562
720	2.569	2.576	2.583	2.590	2.597	2.604	2.611	2.618	2.625	2.632
730	2.639	2.646	2.653	2.660	2.667	2.674	2.681	2.688	2.696	2.703
740	2.710	2.717	2.724	2.731	2.738	2.746	2.753	2.760	2.767	2.775
750	2.782	2.789	2.796	2.803	2.811	2.818	2.825	2.833	2.840	2.847
760	2.854	2.862	2.869	2.876	2.884	2.891	2.898	2.906	2.913	2.921
770	2.928	2.935	2.943	2.950	2.958	2.965	2.973	2.980	2.987	2.995
780	3.002	3.010	3.017	3.025	3.032	3.040	3.047	3.055	3.062	3.070
790	3.078	3.085	3.093	3.100	3.108	3.116	3.123	3.131	3.138	3.146
800	3.154	3.161	3.169	3.177	3.184	3.192	3.200	3.207	3.215	3.223
810	3.230	3.238	3.246	3.254	3.261	3.269	3.277	3.285	3.292	3.300
820	3.308	3.316	3.324	3.331	3.339	3.347	3.355	3.363	3.371	3.379
830	3.386	3.394	3.402	3.410	3.418	3.426	3.434	3.442	3.450	3.458
840	3.466	3.474	3.482	3.490	3.498	3.506	3.514	3.522	3.530	3.538
850	3.546	3.554	3.562	3.570	3.578	3.586	3.594	3.602	3.610	3.618
860	3.626	3.634	3.643	3.651	3.659	3.667	3.675	3.683	3.692	3.700
870	3.708	3.716	3.724	3.732	3.741	3.749	3.757	3.765	3.774	3.782
880	3.790	3.798	3.807	3.815	3.823	3.832	3.840	3.848	3.857	3.865
890	3.873	3.882	3.890	3.898	3.907	3.915	3.923	3.932	3.940	3.949
900	3.957	3.965	3.974	3.982	3.991	3.999	4.008	4.016	4.024	4.033
910	4.041	4.050	4.058	4.067	4.075	4.084	4.093	4.101	4.110	4.118
920	4.127	4.135	4.144	4.152	4.161	4.170	4.178	4.187	4.195	4.204
930	4.213	4.221	4.230	4.239	4.247	4.256	4.265	4.273	4.282	4.291
940	4.299	4.308	4.317	4.326	4.334	4.343	4.352	4.360	4.369	4.378
950	4.387	4.396	4.404	4.413	4.422	4.431	4.440	4.448	4.457	4.466
960	4.475	4.484	4.493	4.501	4.510	4.519	4.528	4.537	4.546	4.555
970	4.564	4.573	4.582	4.591	4.599	4.608	4.617	4.626	4.635	4.644
980	4.653	4.662	4.671	4.680	4.689	4.698	4.707	4.716	4.725	4.734
990	4.743	4.753	4.762	4.771	4.780	4.789	4.798	4.807	4.816	4.825
1000	4.834	4.843	4.853	4.862	4.871	4.880	4.889	4.898	4.908	4.917
1010	4.926	4.935	4.944	4.954	4.963	4.972	4.981	4.990	5.000	5.009
1020	5.018	5.027	5.037	5.046	5.055	5.065	5.074	5.083	5.092	5.102
1030	5.111	5.120	5.130	5.139	5.148	5.158	5.167	5.176	5.186	5.195
1040	5.205	5.214	5.223	5.233	5.242	5.252	5.261	5.270	5.280	5.289



Type B (1050°C to 1399°C) °C

PT 30%RH vs. PT 6% RH

EMF IN MILLIVOLTS - REFERENCE JUNCTION 0

C	0	1	2	3	4	5	6	7	8	9
1050	5.299	5.308	5.318	5.327	5.337	5.346	5.356	5.365	5.375	5.384
1060	5.394	5.403	5.413	5.422	5.432	5.441	5.451	5.460	5.470	5.480
1070	5.489	5.499	5.508	5.518	5.528	5.537	5.547	5.556	5.566	5.576
1080	5.585	5.595	5.605	5.614	5.624	5.634	5.643	5.653	5.663	5.672
1090	5.682	5.692	5.702	5.711	5.721	5.731	5.740	5.750	5.760	5.770
1100	5.780	5.789	5.799	5.809	5.819	5.828	5.838	5.848	5.858	5.868
1110	5.878	5.887	5.897	5.907	5.917	5.927	5.937	5.947	5.956	5.966
1120	5.976	5.986	5.996	6.006	6.016	6.026	6.036	6.046	6.055	6.065
1130	6.075	6.085	6.095	6.105	6.115	6.125	6.135	6.145	6.155	6.165
1140	6.175	6.185	6.195	6.205	6.215	6.225	6.235	6.245	6.256	6.266
1150	6.276	6.286	6.296	6.306	6.316	6.326	6.336	6.346	6.356	6.367
1160	6.377	6.387	6.397	6.407	6.417	6.427	6.438	6.448	6.458	6.468
1170	6.478	6.488	6.499	6.509	6.519	6.529	6.539	6.550	6.560	6.570
1180	6.580	6.591	6.601	6.611	6.621	6.632	6.642	6.652	6.663	6.673
1190	6.683	6.693	6.704	6.714	6.724	6.735	6.745	6.755	6.766	6.776
1200	6.786	6.797	6.807	6.818	6.828	6.838	6.849	6.859	6.869	6.880
1210	6.890	6.901	6.911	6.922	6.932	6.942	6.953	6.963	6.974	6.984
1220	6.995	7.005	7.016	7.026	7.037	7.047	7.058	7.068	7.079	7.089
1230	7.100	7.110	7.121	7.131	7.142	7.152	7.163	7.173	7.184	7.194
1240	7.205	7.216	7.226	7.237	7.247	7.258	7.269	7.279	7.290	7.300
1250	7.311	7.322	7.332	7.343	7.353	7.364	7.375	7.385	7.396	7.407
1260	7.417	7.428	7.439	7.449	7.460	7.471	7.482	7.492	7.503	7.514
1270	7.524	7.535	7.546	7.557	7.567	7.578	7.589	7.600	7.610	7.621
1280	7.632	7.643	7.653	7.664	7.675	7.686	7.697	7.707	7.718	7.729
1290	7.740	7.751	7.761	7.772	7.783	7.794	7.805	7.816	7.827	7.837
1300	7.848	7.859	7.870	7.881	7.892	7.903	7.914	7.924	7.935	7.946
1310	7.957	7.968	7.979	7.990	8.001	8.012	8.023	8.034	8.045	8.056
1320	8.066	8.077	8.088	8.099	8.110	8.121	8.132	8.143	8.154	8.165
1330	8.176	8.187	8.198	8.209	8.220	8.231	8.242	8.253	8.264	8.275
1340	8.286	8.298	8.309	8.320	8.331	8.342	8.353	8.364	8.375	8.386
1350	8.397	8.408	8.419	8.430	8.441	8.453	8.464	8.475	8.486	8.497
1360	8.508	8.519	8.530	8.542	8.553	8.564	8.575	8.586	8.597	8.608
1370	8.620	8.631	8.642	8.653	8.664	8.675	8.687	8.698	8.709	8.720
1380	8.731	8.743	8.754	8.765	8.776	8.787	8.799	8.810	8.821	8.832
1390	8.844	8.855	8.866	8.877	8.889	8.900	8.911	8.922	8.934	8.945



Type B (1400°C to 1749°C) °C

PT 30%RH vs. PT 6% RH

EMF IN MILLIVOLTS - REFERENCE JUNCTION 0

C	0	1	2	3	4	5	6	7	8	9
1400	8.956	8.967	8.979	8.990	9.001	9.013	9.024	9.035	9.047	9.058
1410	9.069	9.080	9.092	9.103	9.114	9.126	9.137	9.148	9.160	9.171
1420	9.182	9.194	9.205	9.216	9.228	9.239	9.251	9.262	9.273	9.285
1430	9.296	9.307	9.319	9.330	9.342	9.353	9.364	9.376	9.387	9.398
1440	9.410	9.421	9.433	9.444	9.456	9.467	9.478	9.490	9.501	9.513
1450	9.524	9.536	9.547	9.558	9.570	9.581	9.593	9.604	9.616	9.627
1460	9.639	9.650	9.662	9.673	9.684	9.696	9.707	9.719	9.730	9.742
1470	9.753	9.765	9.776	9.788	9.799	9.811	9.822	9.834	9.845	9.857
1480	9.868	9.880	9.891	9.903	9.914	9.926	9.937	9.949	9.961	9.972
1490	9.984	9.995	10.007	10.018	10.030	10.041	10.053	10.064	10.076	10.088
1500	10.099	10.111	10.122	10.134	10.145	10.157	10.168	10.180	10.192	10.203
1510	10.215	10.226	10.238	10.249	10.261	10.273	10.284	10.296	10.307	10.319
1520	10.331	10.342	10.354	10.365	10.377	10.389	10.400	10.412	10.423	10.435
1530	10.447	10.458	10.470	10.482	10.493	10.505	10.516	10.528	10.540	10.551
1540	10.563	10.575	10.586	10.598	10.609	10.621	10.633	10.644	10.656	10.668
1550	10.679	10.691	10.703	10.714	10.726	10.738	10.749	10.761	10.773	10.784
1560	10.796	10.808	10.819	10.831	10.843	10.854	10.866	10.877	10.889	10.901
1570	10.913	10.924	10.936	10.948	10.959	10.971	10.983	10.994	11.006	11.018
1580	11.029	11.041	11.053	11.064	11.076	11.088	11.099	11.111	11.123	11.134
1590	11.146	11.158	11.169	11.181	11.193	11.205	11.216	11.228	11.240	11.251
1600	11.263	11.275	11.286	11.298	11.310	11.321	11.333	11.345	11.357	11.368
1610	11.380	11.392	11.403	11.415	11.427	11.438	11.450	11.462	11.474	11.485
1620	11.497	11.509	11.520	11.532	11.544	11.555	11.567	11.579	11.591	11.602
1630	11.614	11.626	11.637	11.649	11.661	11.673	11.684	11.696	11.708	11.719
1640	11.731	11.743	11.754	11.766	11.778	11.790	11.801	11.813	11.825	11.836
1650	11.848	11.860	11.871	11.883	11.895	11.907	11.918	11.930	11.942	11.953
1660	11.965	11.977	11.988	12.000	12.012	12.024	12.035	12.047	12.059	12.070
1670	12.082	12.094	12.105	12.117	12.129	12.141	12.152	12.164	12.176	12.187
1680	12.199	12.211	12.222	12.234	12.246	12.257	12.269	12.281	12.292	12.304
1690	12.316	12.327	12.339	12.351	12.363	12.374	12.386	12.398	12.409	12.421
1700	12.433	12.444	12.456	12.468	12.479	12.491	12.503	12.514	12.526	12.538
1710	12.549	12.561	12.572	12.584	12.596	12.607	12.619	12.631	12.642	12.654
1720	12.666	12.677	12.689	12.701	12.712	12.724	12.736	12.747	12.759	12.770
1730	12.782	12.794	12.805	12.817	12.829	12.840	12.852	12.863	12.875	12.887
1740	12.898	12.910	12.921	12.933	12.945	12.956	12.968	12.980	12.991	13.003



Type B (1750°C to 1820°C) °C

PT 30%RH vs. PT 6% RH

EMF IN MILLIVOLTS - REFERENCE JUNCTION 0

C	0	1	2	3	4	5	6	7	8	9
1750	13.014	13.026	13.037	13.049	13.061	13.072	13.084	13.095	13.107	13.119
1760	13.130	13.142	13.153	13.165	13.176	13.188	13.200	13.211	13.223	13.234
1770	13.246	13.257	13.269	13.280	13.292	13.304	13.315	13.327	13.338	13.350
1780	13.361	13.373	13.384	13.396	13.407	13.419	13.430	13.442	13.453	13.465
1790	13.476	13.488	13.499	13.511	13.522	13.534	13.545	13.557	13.568	13.580
1800	13.591	13.603	13.614	13.626	13.637	13.649	13.660	13.672	13.683	13.694
1810	13.706	13.717	13.729	13.740	13.752	13.763	13.775	13.786	13.797	13.809
1820	13.820									



Type *W (0°C to 2310°C)

TUNGSTEN vs. TUNGSTEN 26% RHENIUM
EMF IN MILLIVOLTS - REFERENCE JUNCTION 0

*Letter Code not ANSI Standard

C	0	10	20	30	40	50	60	70	80	90
0	0.000	0.015	0.035	0.058	0.086	0.117	0.153	0.192	0.235	0.283
100	0.334	0.388	0.446	0.508	0.573	0.642	0.714	0.790	0.869	0.951
200	1.036	1.125	1.216	1.311	1.409	1.509	1.613	1.719	1.828	1.940
300	2.055	2.172	2.292	2.414	2.539	2.666	2.796	2.928	3.063	3.200
400	3.339	3.480	3.623	3.769	3.917	4.066	4.218	4.371	4.527	4.684
500	4.844	5.005	5.167	5.332	5.498	5.666	5.836	6.007	6.179	6.353
600	6.529	6.706	6.884	7.064	7.245	7.427	7.611	7.796	7.982	8.169
700	8.357	8.547	8.737	8.929	9.121	9.315	9.509	9.705	9.901	10.098
800	10.296	10.459	10.694	10.895	11.096	11.297	11.500	11.703	11.906	12.111
900	12.315	12.521	12.727	12.933	13.140	13.347	13.555	13.763	13.971	14.180
1000	14.389	14.598	14.808	15.018	15.228	15.439	15.649	15.860	16.071	16.282
1100	16.493	16.705	16.916	17.127	17.339	17.550	17.762	17.973	18.185	18.396
1200	18.607	18.819	19.030	19.241	19.452	19.662	19.873	20.083	20.293	20.503
1300	20.713	20.922	21.131	21.340	21.549	21.757	21.965	22.172	22.379	22.586
1400	22.793	22.999	23.204	23.410	23.614	23.819	24.023	24.226	24.429	24.631
1500	24.833	25.034	25.235	25.435	25.635	25.834	26.033	26.231	26.428	26.625
1600	26.821	27.016	27.211	27.405	27.598	27.791	27.983	28.174	28.365	28.554
1700	28.744	28.932	29.119	29.306	29.492	29.678	29.862	30.046	30.228	30.591
1800	30.591	30.772	30.951	31.130	31.307	31.484	31.660	31.835	32.009	32.354
1900	32.354	32.525	32.696	32.865	33.033	33.201	33.367	33.533	33.697	34.023
2000	34.023	34.184	34.344	34.503	34.661	34.818	34.974	35.129	35.283	35.587
2100	35.587	35.738	35.887	36.035	36.182	36.328	36.473	36.616	36.758	37.039
2200	37.039	37.178	37.315	37.452	37.586	37.720	37.853	37.984	38.113	38.369
2300	38.369	38.495								



Type *W3 (0°C to 2310°C)

TUNGSTEN 3% RHENIUM vs. TUNGSTEN 26% RHENIUM
EMF IN MILLIVOLTS - REFERENCE JUNCTION 0

*Letter Code not ANSI Standard

C	0	10	20	30	40	50	60	70	80	90
0	0.000	0.098	0.199	0.305	0.415	0.528	0.644	0.765	0.888	1.015
100	1.145	1.278	1.414	1.554	1.696	1.840	1.988	2.137	2.290	2.445
200	2.602	2.761	2.923	3.087	3.253	3.420	3.590	3.761	3.935	4.110
300	4.286	4.464	4.644	4.825	5.008	5.192	5.377	5.563	5.751	5.940
400	6.129	6.320	6.512	6.705	6.898	7.093	7.288	7.484	7.681	7.879
500	8.077	8.275	8.475	8.675	8.875	9.076	9.277	9.479	9.681	9.883
600	10.086	10.289	10.492	10.695	10.899	11.103	11.307	11.511	11.715	11.920
700	12.124	12.329	12.534	12.738	12.943	13.147	13.352	13.557	13.761	13.966
800	14.171	14.376	14.580	14.785	14.989	15.194	15.398	15.601	15.805	16.008
900	16.211	16.414	16.617	16.819	17.021	17.223	17.424	17.625	17.826	18.026
1000	18.226	18.426	18.625	18.824	19.023	19.221	19.419	19.616	19.813	20.009
1100	20.206	20.401	20.597	20.791	20.986	21.180	21.373	21.566	21.759	21.951
1200	22.143	22.334	22.525	22.715	22.905	23.094	23.283	23.471	23.659	23.846
1300	24.033	24.220	24.406	24.591	24.776	24.961	25.145	25.328	25.511	25.693
1400	25.875	26.057	26.238	26.418	26.598	26.777	26.956	27.134	27.312	27.489
1500	27.666	27.842	28.018	28.193	28.368	28.542	28.715	28.888	29.061	29.233
1600	29.404	29.575	29.745	29.914	30.083	30.252	30.419	30.587	30.753	30.919
1700	31.085	31.249	31.413	31.577	31.740	31.902	32.063	32.224	32.384	32.543
1800	32.702	32.860	33.017	33.174	33.330	33.485	33.639	33.792	33.945	34.097
1900	34.248	34.398	34.547	34.695	34.843	34.989	35.135	35.279	35.423	35.566
2000	35.707	35.848	35.987	36.126	36.263	36.399	36.535	36.668	36.801	36.933
2100	37.063	37.192	37.319	37.446	37.571	37.694	37.816	37.937	38.056	38.174
2200	38.290	38.404	38.517	38.628	38.738	38.845	38.951	39.055	39.158	39.258
2300	39.356	39.453								

