MAXIMUM TEMPERATURE RANGE

Thermocouple Grade
- 200 to 900°C, - 328 to 1652°F
Extension Grade
32 to 392°F
0 to 200°C

LIMITS OF ERROR

Chillian Control Con

COMMENTS, BARE WIRE ENVIRONMENT: Oxidising or Inert; Limited Use in Vacuum or Reducing; Highest EMF Change per Degree

TEMPERATURE IN DEGREES °C REFERENCE JUNCTION AT 0°C

Nickel-Chromium Copper-Nickel



Reference **Tables** N.I.S.T. Monograph 175 Revised to ITS-90

Thermoelectric Voltage in Millivolts

	°C	-10	-9	-8	-7	-6	-5	-4	-3	-2	-1	0	°C	°C 350 360	0 24.964 25.757	1 25.044 25.836	2 25.123 25.916	2
	260 250	-9.835 -9.797	-9.833 -9.790	-9.831 -9.784	-9.828 -9.777	-9.825 -9.770	-9.821 -9.762	-9.817 -9.754	-9.813 -9.746	-9.808 -9.737	-9.802 -9.728	-9.797 -9.718	-260 -250	370 380 390	27.348	26.631 27.428 28.226	27.507	2
-	240 230 220 210 200	-9.604 -9.455 -9.274	-9.591 -9.438 -9.254	-9.577 -9.421 -9.234	-9.563 -9.404 -9.214	-9.548 -9.386 -9.193	-9.534 -9.368 -9.172	-9.519 -9.350 -9.151	-9.503 -9.331 -9.129	-9.313	-9.471 -9.293 -9.085		-240 -230 -220 -210 -200	400 410 420 430 440	29.747 30.550 31.354	29.026 29.827 30.630 31.434 32.239	29.908 30.711 31.515	3
-	190 180 170 160 150	-8.561 -8.273	-8.533 -8.243 -7.931	-8.505 -8.213 -7.899	-8.748 -8.477 -8.183 -7.866 -7.528	-8.449 -8.152 -7.833	-8.420 -8.121 -7.800	-8.391 -8.090 -7.767	-8.362	-8.027 -7.700	-8.303 -7.995 -7.666	-8.561 -8.273 -7.963 -7.632 -7.279	-190 -180 -170 -160 -150	450 460 470 480 490	33.772 34.579 35.387	33.045 33.852 34.660 35.468 36.277	33.933 34.741 35.549	3
-	140 130 120 110 100	-6.907 -6.516 -6.107	-6.869 -6.476 -6.065	-6.831 -6.436 -6.023	-6.792 -6.396 -5.981	-6.753 -6.355 -5.939	-6.714 -6.314 -5.896	-6.675 -6.273 -5.853	-6.636 -6.232 -5.810	-6.191 -5.767	-6.556 -6.149 -5.724	-6.516 -6.107 -5.681	-140 -130 -120 -110 -100	500 510 520 530 540	37.815 38.624 39.434	37.086 37.896 38.705 39.515 40.324	37.977 38.786 39.596	3
	-90 -80 -70 -60 -50	-5.237 -4.777 -4.302 -3.811 -3.306	-4.731 -4.254	-3.711	-5.101 -4.636 -4.156 -3.661 -3.152	-4.589 -4.107 -3.611	-4.542 -4.058 -3.561	-4.494 -4.009 -3.510	-4.917 -4.446 -3.960 -3.459 -2.944	-4.398 -3.911 -3.408	-3.861 -3.357	-4.302 -3.811	-90 -80 -70 -60 -50	550 560 570 580 590	41.862 42.671 43.479	41.134 41.943 42.751 43.560 44.367	42.024 42.832 43.640	4
	-40 -30 -20 -10	-2.255 -1.709	-2.201 -1.654 -1.095	-2.147 -1.599 -1.039	-2.629 -2.093 -1.543 -0.982 -0.408	-2.038 -1.488 -0.925	-1.984 -1.432 -0.868	-1.929 -1.376	-1.874 -1.320 -0.754	-1.264	-1.765	-1.709 -1.152	-40 -30 -20 -10	600 610 620 630 640	45.900 46.705 47.509	45.174 45.980 46.785 47.590 48.393	46.061 46.866 47.670	4
	0 10 20 30 40	0.000 0.591 1.192 1.801 2.420	0.059 0.651 1.252 1.862 2.482	0.118 0.711 1.313 1.924 2.545	0.176 0.770 1.373 1.986 2.607	0.235 0.830 1.434 2.047 2.670	0.294 0.890 1.495 2.109 2.733	0.354 0.950 1.556 2.171 2.795	0.413 1.010 1.617 2.233 2.858	0.472 1.071 1.678 2.295 2.921	0.532 1.131 1.740 2.357 2.984	0.591 1.192 1.801 2.420 3.048	0 10 20 30 40	650 660 670 680 690	49.917 50.718 51.517	49.196 49.997 50.798 51.597 52.395	50.077 50.878	5 5
	50 60 70 80 90	3.048 3.685 4.330 4.985 5.648	3.111 3.749 4.395 5.051 5.714	3.174 3.813 4.460 5.117 5.781	3.238 3.877 4.526 5.183 5.848	3.301 3.942 4.591 5.249 5.915	3.365 4.006 4.656 5.315 5.982	3.429 4.071 4.722 5.382 6.049	3.492 4.136 4.788 5.448 6.117	3.556 4.200 4.853 5.514 6.184	3.620 4.265 4.919 5.581 6.251	3.685 4.330 4.985 5.648 6.319	50 60 70 80 90	700 710 720 730 740	53.908	53.192 53.988 54.782 55.576 56.368	54.067 54.862	5
	100 110 120 130 140	6.319 6.998 7.685 8.379 9.081	6.386 7.066 7.754 8.449 9.151	6.454 7.135 7.823 8.519 9.222	6.522 7.203 7.892 8.589 9.292	6.590 7.272 7.962 8.659 9.363	6.658 7.341 8.031 8.729 9.434	6.725 7.409 8.101 8.799 9.505	6.794 7.478 8.170 8.869 9.576	6.862 7.547 8.240 8.940 9.647	6.930 7.616 8.309 9.010 9.718	6.998 7.685 8.379 9.081 9.789	100 110 120 130 140	750 760 770 780 790	57.870 58.659	57.159 57.949 58.738 59.525 60.311	58.028 58.816	5
	150 160 170 180 190	11.224 11.951	10.575 11.297 12.024	10.647 11.369 12.097	10.719 11.442 12.170	10.791 11.514 12.243	10.863 11.587 12.317	10.935 11.660 12.390	11.007 11.733 12.463	10.360 11.080 11.805 12.537 13.273	11.152 11.878 12.610	11.224 11.951 12.684	150 160 170 180 190	800 810 820 830 840	61.801	61.096 61.879 62.662 63.442 64.222	61.958 62.740	6
	200 210 220 230 240	14.912 15.664	14.987 15.739	15.062 15.815	15.137 15.890	15.212 15.966	15.287 16.041	15.362 16.117	15.438 16.193	14.015 14.762 15.513 16.269 17.028	15.588 16.344	15.664 16.420	200 210 220 230 240	850 860 870 880 890	65.698 66.473	65.000 65.776 66.550 67.323 68.094	65.853 66.628	6
	250 260 270 280 290	17.945 18.713 19.484	18.021 18.790 19.561	18.098 18.867 19.639	18.175 18.944 19.716	18.252 19.021 19.794	18.328 19.098 19.871	18.405 19.175 19.948	18.482 19.252 20.026	17.792 18.559 19.330 20.103 20.880	18.636 19.407 20.181	18.713 19.484 20.259	250 260 270 280 290	900 910 920 930 940	69.554 70.319	68.863 69.631 70.396 71.159 71.920	69.707 70.472	7
	300 310 320 330 340	21.817 22.600 23.386	21.895 22.678 23.464	21.973 22.757 23.543	22.051 22.835 23.622	22.130 22.914 23.701	22.208 22.993 23.780	22.286 23.071 23.858	22.365 23.150 23.937	21.660 22.443 23.228 24.016 24.806	22.522 23.307 24.095	22.600 23.386 24.174	300 310 320 330 340	950 960 970 980 990	73.360 74.115 74.869	72.678 73.435 74.190 74.944 75.696	73.511 74.266 75.019	7

°C 350 360 370 380 390	0 24.964 25.757 26.552 27.348 28.146	1 25.044 25.836 26.631 27.428 28.226	2 25.123 25.916 26.711 27.507 28.306	3 25.202 25.995 26.790 27.587 28.386	26.075 26.870	26.154 26.950 27.747	27.029		8 25.598 26.392 27.189 27.986 28.786	26.472 27.268	26.552	°C 350 360 370 380 390
400 410 420 430 440	28.946 29.747 30.550 31.354 32.159	29.026 29.827 30.630 31.434 32.239	29.106 29.908 30.711 31.515 32.320	29.186 29.988 30.791 31.595 32.400	29.266 30.068 30.871 31.676 32.481	29.346	29.427 30.229 31.032 31.837 32.642	29.507 30.309 31.112 31.917 32.723	29.587 30.389 31.193 31.998 32.803	29.667 30.470 31.273 32.078 32.884	29.747 30.550 31.354 32.159 32.965	400 410 420 430 440
450 460 470 480 490	32.965 33.772 34.579 35.387 36.196	33.045 33.852 34.660 35.468 36.277	33.126 33.933 34.741 35.549 36.358	33.207 34.014 34.822 35.630 36.439	33.287 34.095 34.902 35.711 36.520	33.368 34.175 34.983 35.792 36.601	33.449 34.256 35.064 35.873 36.682	33.529 34.337 35.145 35.954 36.763	33.610 34.418 35.226 36.034 36.843	33.691 34.498 35.307 36.115 36.924	33.772 34.579 35.387 36.196 37.005	450 460 470 480 490
500 510 520 530 540	37.005 37.815 38.624 39.434 40.243	37.086 37.896 38.705 39.515 40.324	37.167 37.977 38.786 39.596 40.405	37.248 38.058 38.867 39.677 40.486	37.329 38.139 38.948 39.758 40.567	37.410 38.220 39.029 39.839 40.648	37.491 38.300 39.110 39.920 40.729	37.572 38.381 39.191 40.001 40.810	37.653 38.462 39.272 40.082 40.891	37.734 38.543 39.353 40.163 40.972	37.815 38.624 39.434 40.243 41.053	500 510 520 530 540
550 560 570 580 590	41.053 41.862 42.671 43.479 44.286	41.134 41.943 42.751 43.560 44.367	41.215 42.024 42.832 43.640 44.448	41.296 42.105 42.913 43.721 44.529	42.185		42.347	41.619 42.428 43.236 44.044 44.851	41.700 42.509 43.317 44.125 44.932	42.590	41.862 42.671 43.479 44.286 45.093	550 560 570 580 590
600 610 620 630 640	45.093 45.900 46.705 47.509 48.313	45.174 45.980 46.785 47.590 48.393	45.255 46.061 46.866 47.670 48.474	45.335 46.141 46.946 47.751 48.554	46.222 47.027		46.383 47.188	45.658 46.463 47.268 48.072 48.875	45.738 46.544 47.349 48.152 48.955		45.900 46.705 47.509 48.313 49.116	600 610 620 630 640
650 660 670 680 690	49.116 49.917 50.718 51.517 52.315	49.196 49.997 50.798 51.597 52.395	49.276 50.077 50.878 51.677 52.475	49.356 50.157 50.958 51.757 52.555	49.436 50.238 51.038 51.837 52.634	49.517 50.318 51.118 51.916 52.714	49.597 50.398 51.197 51.996 52.794	49.677 50.478 51.277 52.076 52.873	49.757 50.558 51.357 52.156 52.953	49.837 50.638 51.437 52.236 53.033	49.917 50.718 51.517 52.315 53.112	650 660 670 680 690
700 710 720 730 740	53.112 53.908 54.703 55.497 56.289	53.192 53.988 54.782 55.576 56.368	53.272 54.067 54.862 55.655 56.447	53.351 54.147 54.941 55.734 56.526	54.226 55.021 55.814	54.306	53.590 54.385 55.179 55.972 56.764	53.670 54.465 55.259 56.051 56.843	53.749 54.544 55.338 56.131 56.922	53.829 54.624 55.417 56.210 57.001	53.908 54.703 55.497 56.289 57.080	700 710 720 730 740
750 760 770 780 790	57.080 57.870 58.659 59.446 60.232	57.159 57.949 58.738 59.525 60.311	57.238 58.028 58.816 59.604 60.390	57.317 58.107 58.895 59.682 60.468	58.186 58.974 59.761	57.475 58.265 59.053 59.839 60.625	57.554 58.343 59.131 59.918 60.704	57.633 58.422 59.210 59.997 60.782	57.712 58.501 59.289 60.075 60.860		57.870 58.659 59.446 60.232 61.017	750 760 770 780 790
800 810 820 830 840	61.017 61.801 62.583 63.364 64.144	61.096 61.879 62.662 63.442 64.222	61.174 61.958 62.740 63.520 64.300	61.253 62.036 62.818 63.598 64.377	61.331 62.114 62.896 63.676 64.455	62.192	61.488 62.271 63.052 63.832 64.611	61.566 62.349 63.130 63.910 64.689	61.644 62.427 63.208 63.988 64.766	62.505	61.801 62.583 63.364 64.144 64.922	800 810 820 830 840
850 860 870 880 890	64.922 65.698 66.473 67.246 68.017		65.077 65.853 66.628 67.400 68.171	65.155 65.931 66.705 67.478 68.248	66.782	65.310 66.086 66.860 67.632 68.402	66.163 66.937	66.241 67.014	65.543 66.318 67.092 67.863 68.633	65.621 66.396 67.169 67.940 68.710	66.473 67.246	850 860 870 880 890
900 910 920 930 940	68.787 69.554 70.319 71.082 71.844	68.863 69.631 70.396 71.159 71.920	68.940 69.707 70.472 71.235 71.996	69.017 69.784 70.548 71.311 72.072	69.094 69.860 70.625 71.387 72.147		69.247 70.013 70.777 71.539 72.299	69.324 70.090 70.854 71.615 72.375	69.401 70.166 70.930 71.692 72.451	69.477 70.243 71.006 71.768 72.527		900 910 920 930 940
950 960 970 980 990	72.603 73.360 74.115 74.869 75.621	72.678 73.435 74.190 74.944 75.696	72.754 73.511 74.266 75.019 75.771	72.830 73.586 74.341 75.095 75.847	73.662 74.417 75.170	72.981 73.738 74.492 75.245 75.997	73.057 73.813 74.567 75.320 76.072	73.133 73.889 74.643 75.395 76.147	73.208 73.964 74.718 75.471 76.223	73.284 74.040 74.793 75.546 76.298	73.360 74.115 74.869 75.621 76.373	950 960 970 980 990
°C	0	1	2	3	4	5	6	7	8	9	10	°C