Technical Information
Revised Thermocouple Reference Tables

MAXIMUM TEMPERATURE RANGE
Thermocouple Grade
-32 to 4208°F
-0 to 2320°C
Extension Grade
32 to 1600°F
0 to 870°C
LIMITS OF ERROR
(whichever is greater)
Standard: 4.5°C to 425°C
1.0% to 2320°C
Special: Not Established
COMMENTS, BARE WIRE ENVIRONMENT:
Vacuum, Inert; Hydrogen; Beware of Embrittlement; Not Practical Below 750°F; Not for Oxidizing Atmosphere
TEMPERATURE IN DEGREES °C
REFERENCE JUNCTION AT 0°C

°C

Tungsten-5% Rhenium vs. Tungsten-26% Rhenium

TYPE C

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

Thermoelectric Voltage in Millivolts

°C	0	1	2	3	4	5	6	7	8	9	10	°C
0	0.000	0.013	0.026	0.040	0.053	0.067	0.080	0.094	0.107	0.121	0.135	0
10	0.135	0.148	0.162	0.176	0.189	0.203	0.217	0.231	0.244	0.258	0.272	10
20	0.272	0.286	0.300	0.314	0.328	0.342	0.356	0.370	0.384	0.398	0.412	20
30	0.412	0.426	0.440	0.454	0.469	0.483	0.497	0.511	0.525	0.540	0.554	0
40	0.554	0.568	0.583	0.597	0.612	0.626	0.640	0.655	0.669	0.684	0.698	40
50	0.698	0.713	0.727	0.742	0.757	0.771	0.786	0.801	0.815	0.830	0.845	50
60	0.845	0.860	0.874	0.889	0.904	0.919	0.934	0.948	0.963	0.978	0.993	60
70	0.993	1.008	1.023	1.038	1.053	1.068	1.083	1.098	1.114	1.129	1.144	70
80	1.144	1.159	1.174	1.189	1.205	1.220	1.235	1.250	1.266	1.281	1.296	80
90	1.296	1.312	1.327	1.342	1.358	1.373	1.389	1.404	1.420	1.435	1.451	90
100	1.451	1.466	1.482	1.497	1.513	1.529	1.544	1.560	1.576	1.591	1.607	100
110	1.607	1.623	1.639	1.654	1.670	1.686	1.702	1.718	1.733	1.749	1.765	110
120	1.765	1.781	1.797	1.813	1.829	1.845	1.861	1.877	1.893	1.909	1.925	120
130	1.925	1.941	1.957	1.973	1.989	2.006	2.022	2.038	2.054	2.070	2.087	130
140	2.087	2.103	2.119	2.135	2.152	2.168	2.184	2.201	2.217	2.233	2.250	140
150	2.250	2.266	2.283	2.299	2.316	2.332	2.349	2.365	2.382	2.398	2.415	150
160	2.415	2.431	2.448	2.464	2.481	2.498	2.514	2.531	2.548	2.564	2.581	160
170	2.581	2.598	2.614	2.631	2.648	2.665	2.682	2.698	2.715	2.732	2.749	170
180	2.749	2.766	2.783	2.800	2.816	2.833	2.850	2.867	2.884	2.901	2.918	180
190	2.918	2.935	2.952	2.969	2.986	3.003	3.020	3.038	3.055	3.072	3.089	190
200	3.089	3.106	3.123	3.140	3.158	3.175	3.192	3.209	3.227	3.244	3.26	200
210	3.261	3.278	3.296	3.313	3.330	3.348	3.365	3.382	3.400	3.417	3.434	210
220	3.434	3.452	3.469	3.487	3.504	3.522	3.539	3.557	3.574	3.592	3.609	220
230	3.609	3.627	3.644	3.662	3.679	3.697	3.714	3.732	3.750	3.767	3.785	230
240	3.785	3.803	3.820	3.838	3.856	3.873	3.891	3.909	3.927	3.944	3.962	240
250	3.962	3.980	3.998	4.015	4.033	4.051	4.069	4.087	4.104	4.122	4.140	250
260	4.140	4.158	4.176	4.194	4.212	4.230	4.248	4.266	4.284	4.301	4.319	260
270	4.319	4.337	4.355	4.373	4.391	4.410	4.428	4.446	4.464	4.482	4.500	270
280	4.500	4.518	4.536	4.554	4.572	4.590	4.608	4.627	4.645	4.663	4.681	280
290	4.681	4.699	4.717	4.736	4.754	4.772	4.790	4.809	4.827	4.845	4.863	290
300	4.863	4.882	4.900	4.918	4.937	4.955	4.973	4.992	5.010	5.028	5.047	300
310	5.047	5.065	5.083	5.102	5.120	5.139	5.157	5.175	5.194	5.212	5.231	310
320	5.231	5.249	5.268	5.286	5.305	5.323	5.342	5.360	5.379	5.397	5.416	320
330	5.416	5.434	5.453	5.471	5.490	5.508	5.527	5.546	5.564	5.583	5.601	330
340	5.601	5.620	5.639	5.657	5.676	5.695	5.713	5.732	5.751	5.769	5.788	340
350	5.788	5.807	5.825	5.844	5.863	5.882	5.900	5.919	5.938	5.956	5.975	350
360	5.975	5.994	6.013	6.032	6.050	6.069	6.088	6.107	6.126	6.144	6.163	360
370	6.163	6.182	6.201	6.220	6.239	6.257	6.276	6.295	6.314	6.333	6.352	370
380	6.352	6.371	6.390	6.409	6.427	6.446	6.465	6.484	6.503	6.522	6.541	380
390	6.541	6.560	6.579	6.598	6.617	6636	6.655	6.674	6.693	6.712	6.731	390
400	6.731	6.750	6. 69	6.788	6.807	6.826	6.845	6.864	6.883	6.902	6.921	400
410	6.921	6.940	6.959	6.979	6.998	7.017	7.036	7.055	7.074	7.093	7.112	410
420	7.112	7.131	7.151	7.170	7.189	7.208	7.227	7.246	7.265	7.285	7.304	420
430	7.304	7.323	7.342	7.361	7.380	7.400	7.419	7.438	7.457	7.476	7.496	430
440	7.496	7.515	7.534	7.553	7.572	7.592	7.611	7.630	7.649	7.669	7.688	440
450	7.688	7.707	7.726	7.746	7.765	7.784	7.804	7.823	7.842	7.861	7.881	450
460	7.881	7.900	7.919	7.939	7.958	7.977	7.996	8.016	8.035	8.054	8.074	460
470	8.074	8.093	8.112	8.132	8.151	8.170	8.190	8.209	8.229	8.248	8.267	470
480	8.267	8.287	8.306	8.325	8.345	8.364	8.383	8.403	8.422	8.422	8.461	480
490	8.461	8.480	8.500	8.519	8.539	8.558	8.577	8.597	8.616	8.636	8.655	490
°C	**0**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**°C**

°C	0	1	2	3	4	5	6	7	8	9	10	°C
500	8.655	8.674	8.694	8.713	8.733	8.752	8.772	8.791	8.810	8.830	8.849	500
510	8.849	8.869	8.888	8.908	8.927	8.947	8.966	8.986	9.005	9.024	9.044	510
520	9.044	9.063	9.083	9.102	9.122	9.141	9.161	9.180	9.200	9.219	9.239	520
530	9.239	9.258	9.278	9.297	9.317	9.336	9.356	9.375	9.395	9.414	9.434	530
540	9.434	9.453	9.473	9.492	9.512	9.531	9.551	9.570	9.590	9.609	9.629	540
550	9.629	9.648	9.668	9.687	9.707	9.726	9.746	9.765	9.785	9.804	9.824	550
560	9.824	9.843	9.863	9.883	9.902	9.922	9.941	9.961	9.980	10.000	10.019	560
570	10.019	10.039	10.058	10.078	10.097	10.117	10.137	10.156	10.176	10.195	10.215	570
580	10.215	10.234	10.254	10.273	10.293	10.312	10.332	10.352	10.371	10.391	10.410	580
590	10.410	10.430	10.449	10.469	10.488	10.508	10.528	10.547	10.567	10.586	10.606	590
600	10.606	10-625	10.645	10.664	10.684	10.703	10.723	10.743	10.762	10.782	10.801	600
610	10.801	10.821	10.840	10.860	10.879	10.899	10.919	10.938	10.958	10.977	10.997	610
620	10.997	11.016	11.036	11.055	11.075	11.095	11.114	11.134	11.153	11.173	11.192	620
630	11.192	11.212	11.231	11.251	11.270	11.290	11.310	11.329	11.349	11.368	11.388	630
640	11.388	11.407	11.427	11.446	11.466	11.485	11.505	11.525	11.544	11.564	11.583	640
650	11.583	11.603	11.622	11.642	11.661	11.681	11.700	11.720	11.739	11.759	11.778	650
660	11.778	11.798	11.817	11.837	11.857	11.876	11.896	11.915	11.935	11.954	11.974	660
670	11.974	11.993	12.013	12.032	12.052	12.071	12.091	12.110	12.130	12.149	12.169	670
680	12.169	12.188	12.208	12.227	12.247	12.266	12.286	12.305	12.325	12.344	12.364	680
690	12.364	12.383	12.403	12.422	12.442	12.461	12.481	12.500	12-519	12.539	12.558	690
700	12.558	12.578	12.597	12.617	12.636	12.656	12.675	12.695	12.714	12.734	12.753	700
710	12.753	12.772	12.792	12.811	12.831	12.850	12.870	12.889	12.909	12.928	12.947	710
720	12.947	12.967	12.986	13.006	13.025	13.045	13.064	13.083	13.103	13.122	13.142	720
730	13.142	13.161	13.180	13.200	13.219	13.239	13.258	13.277	13.297	13.316	13.336	730
740	13.336	13.355	13.374	13.394	13.413	13.432	13.452	13.471	13.491	13.510	13.529	740
750	13.529	13.549	13.568	13.587	13.607	13.626	13.645	13.665	13.684	13.703	13.723	750
760	13.723	13.742	13.761	13.781	13.800	13.819	13.839	13.858	13.877	13.897	13.916	760
770	13.916	13.935	13.955	13.974	13.993	14.012	14.032	14.051	14 .070	14.090	14.109	770
780	14.109	14.128	14.147	14.167	14.186	14.205	14.224	14.244	14.263	14.282	14.302	780
790	14.302	14.321	14.340	14.359	14.378	14.398	14.417	14.436	14.455	14.475	14.494	790
800	14.494	14.513	14.532	14-551	14.571	14.590	14.609	14.628	14.647	14.667	14.686	800
810	14.686	14.705	14.724	14.743	14.762	14.782	14.801	14.820	14.839	14.858	14.877	810
820	14.877	14.897	14.916	14.935	14.954	14.973	14.992	15.011	15.030	15.050	15.069	820
830	15.069	15.088	15.107	15.126	15.145	15.164	15.183	15.202	15.221	15.241	15.260	830
840	15.260	15.279	15.298	15.317	15.336	15.355	15.374	15.393	15.412	15.431	15.450	840
850	15.450	15.469	15.488	15.507	15.526	15.545	15.564	15.583	15.602	15.621	15.640	850
860	15.640	15.659	15.678	15.697	15.716	15.735	15.754	15.773	15.792	15.811	15.830	860
870	15.830	15.849	15.868	15.887	15.906	15.925	15.944	15.963	15.982	16.001	16.020	870
880	16.020	16.038	16.057	16.076	16.095	16.114	16.133	16.152	16.171	19.190	16.208	880
890	16.208	16.227	16.246	16.265	16.284	16.303	16.322	16.340	16.359	16.378	16.397	890
900	16.397	16.416	16.435	16.453	16.472	16.491	16.510	16.529	16.547	16.566	16.585	900
910	16.585	16.604	16.623	16.641	16.660	16.679	16.698	16.716	16.735	16.754	16.773	910
920	16.773	16.791	16.810	16.829	16.848	16.866	16.885	16.904	16.923	16.941	16.960	920
930	16.960	16.979	16.997	17.016	17.035	17.053	17.072	17.091	17.109	17.128	17.147	930
940	17.147	17.165	17.184	17.203	17.221	17.240	17.258	17.277	17.296	17.314	17.333	940
950	17.333	17.352	17.370	17.389	17.407	17.426	17.444	17.463	17.482	17.500	17.519	950
960	17.519	17.537	17.556	17.574	17.593	17.611	17.630	17.648	17.667	17.686	17.704	960
970	17.704	17.723	17.741	17.760	17.778	17.796	17.815	17.833	17.852	17.870	17.889	970
980	17.889	17.907	17.926	17.944	17.963	17.981	17.999	18.018	18.036	18.055	18.073	980
990	18.073	18.092	18.110	18.128	18.147	18.165	18.184	18.202	18.220	18.239	18.257	990
°C	**0**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**°C**

CONVECTRONICS

Technical Information
Revised Thermocouple Reference Tables

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

°C

Tungsten-5% Rhenium vs. Tungsten-26% Rhenium

MAXIMUM TEMPERATURE RANGE
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-0 to 2320°C
Extension Grade
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LIMITS OF ERROR
(whichever is greater)
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Special: Not Established
COMMENTS, BARE WIRE ENVIRONMENT: Vacuum, Inert; Hydrogen; Beware of Embrittlement; Not Practical Below 750°F; Not for Oxidizing Atmosphere
TEMPERATURE IN DEGREES °C
REFERENCE JUNCTION AT 0°C

Thermoelectric Voltage in Millivolts

°C	0	1	2	3	4	5	6	7	8	9	10	°C
1000	18.257	18.275	18.294	18.312	18.330	18.349	18.367	18.385	18.404	18.422	18.440	1000
1010	18.440	18.459	18.477	18.495	18.513	18.532	18.550	18.568	18.587	18.605	18.623	1010
1020	18.623	18.641	18.660	18.678	18.696	18.714	18.732	18.751	18.769	18.787	18.805	1020
1030	18.805	18.824	18.842	18.860	18.878	18.896	18.914	18.933	18.951	18.969	18.987	1030
1040	18.987	19.005	19.023	19.041	19.060	19.078	19.096	19.114	19.132	19.150	19.168	1040
1050	19.168	19.186	19.204	19.223	19.241	19.259	19.277	19.295	19.313	19.331	19.349	1050
1060	19.349	19.367	19.385	19.403	19.421	19.439	19.457	19.475	19.493	19.511	19.529	1060
1070	19.529	19.547	19.565	19.583	19.601	19.619	19.637	19.655	19.673	19.691	19.709	1070
1080	19.709	19.727	19.744	19.762	19.780	19.798	19.816	19.834	19.852	19.870	19.888	1080
1090	19.888	19.905	19.923	19.941	19.959	19.977	19.995	20.013	20.030	20.048	20.066	1090
1100	20.066	20.084	20.102	20.120	20.137	20.155	20.173	20.191	20.208	20.226	20.066	1100
1110	20.244	20.262	20.279	20.297	20.315	20.333	20.350	20.368	20.386	20.404	20.421	1110
1120	20.421	20.439	20.457	20.474	20.492	20.510	20.527	20.545	20.563	20.580	20.598	1120
1130	20.598	20.616	20.633	20.651	20.669	20.686	20.704	20.721	20.739	20.757	20.774	1130
1140	20.774	20.792	20.809	20.827	20.845	20.862	20.880	20.897	20.915	20.932	20.950	1140
1150	20.950	20.967	20.985	21.002	21.020	21.037	21.055	21.072	21.090	21.107	21.125	1150
1160	21.125	21.142	21.160	21.177	21.195	21.212	21.230	21.247	21.265	21.282	21.299	1160
1170	21.299	21.317	21.334	21.352	21.369	21.386	21.404	21.421	21.439	21.456	21.473	1170
1180	21.473	21.491	21.508	21.525	21.543	21.560	21.577	21.595	21.612	21.629	21.647	1180
1190	21.647	21.664	21.681	21.698	21.716	21.733	21.750	21.768	21.785	21.802	21.819	1190
1200	21.819	21.837	21.854	21.871	21.888	21.905	21.923	21.940	21.957	21.974	21.991	1200
1210	21.991	22.009	22.026	22.043	22.060	22.077	22.094	22.112	22.129	22.146	22.163	1210
1220	22.163	22.180	22.197	22.214	22.231	22.249	22.266	22.283	22.300	22.317	22.334	1220
1230	22.334	22.35	22.368	22.385	22.402	22.419	22.436	22.453	22.470	22.487	22.504	1230
1240	22.504	22.521	22.538	22.555	22.572	22.589	22.606	22.623	22.640	22.657	22.674	1240
1250	22.674	22.691	22.708	22.725	22.742	22.759	22.776	22.792	22.809	22.826	22.843	1250
1260	22.843	22.860	22.877	22.894	22.911	22.928	22.944	22.961	22.978	22.995	23.012	1260
1270	23.012	23.029	23.045	23.062	23.079	23.096	23.113	23.129	23.146	23.163	23.180	1270
1280	23.180	23.196	23.213	23.230	23.247	23.263	23.280	23.297	23.314	23.330	23.347	1280
1290	23.347	23.364	23.380	23.397	23.414	23.431	23.447	23.464	23.481	23.497	23.514	1290
1300	23.514	23.530	23.547	23.564	23.580	23.597	23.614	23.630	23.647	23.663	23.680	1300
1310	23.680	23.697	23.713	23.730	23.746	23.763	23.779	23.796	23.812	23.829	23.846	1310
1320	23.846	23.862	23.879	23.895	23.912	23.928	23.945	23.961	23.978	23.994	24.010	1320
1330	24.010	24.027	24.043	24.060	24.076	24.093	24.109	24.126	24.142	24.158	24.175	1330
1340	24.175	24.191	24.208	24.224	24.240	24.257	24.273	24.290	24.306	24.322	24.339	1340
1350	24.339	24.355	24.371	24.388	24.404	24.420	24.437	24.453	24.46	24.485	24.502	1350
1360	24.502	24.518	24.534	24.551	24.567	24.583	24.599	24.616	24.632	24.648	24.664	1360
1370	24.664	24.680	24.697	24.713	24.729	24.745	24.762	24.778	24.794	24.810	24.826	1370
1380	24.826	24.842	24.859	24.875	24.891	24.907	24.923	24.939	24.955	24.971	24.988	1380
1390	24.988	25.004	25.020	25.036	25.052	25.068	25.084	25.100	25.116	24.132	25.148	1390
1400	25.148	25.164	25.180	25.196	25.212	25.228	25.244	25.260	25.276	25.292	25.308	1400
1410	25.308	25.324	25.340	25.356	25.372	25.388	25.404	25.420	25.436	25.452	25.468	1410
1420	25.468	25.484	25.500	25.516	25.532	25.547	25.563	25.579	25.595	25.611	25.627	1420
1430	25.627	25.643	25.658	25.674	25.690	25.706	25.722	25.738	25.753	25.769	25.785	1430
1440	25.785	25.801	25.817	25.832	25.848	25.864	25.880	25.896	25.911	25.927	25.943	1440
1450	25.943	25.959	25.974	25.990	26.006	26.021	26.037	26.053	26.069	26.084	26.100	1450
1460	26.100	26.116	26.131	26.147	26.163	26.178	26.194	26.209	26.225	26.241	26.256	1460
1470	26.256	26.272	26.288	26.303	26.319	26.334	26.350	26.366	26.381	26.397	26.412	1470
1480	26.412	26.428	26.443	26.459	26.474	26.490	26.505	26.521	26.537	26.552	26.568	1480
1490	26.568	26.583	26.599	26.614	26.629	26.645	26.660	26.676	26.691	26.707	26.722	1490
°C	0	1	2	3	4	5	6	7	8	9	10	°C

°C	0	1	2	3	4	5	6	7	8	9	10	°C
1500	26.722	26.738	26.753	26.768	26.784	26.799	26.815	26.830	26.845	26.861	26.876	1500
1510	26.876	26.892	26.907	26.922	26.938	26.953	26.968	26.984	26.999	27.014	27.030	1510
1520	27.030	27.045	27.060	27.076	27.091	27.106	27.121	27.137	27.152	27.167	27.183	1520
1530	27.183	27.198	27.213	27.228	27.244	27.259	27.274	27.289	27.304	27.320	27.335	1530
1540	27.335	27.350	27.365	27.380	27.396	27.411	27.426	27.441	27.456	27.471	27.486	1540
1550	27.486	27.502	27.517	27.532	27.547	27.562	27.577	27.592	27.607	27.622	27.637	1550
1560	27.637	27.653	27.668	27.683	27.698	27.713	27.728	27.743	27.758	27.773	27.788	1560
1570	27.788	27.803	27.818	27.833	27.848	27.863	27.878	27.893	27.908	27.923	27.938	1570
1580	27.938	27.953	27.968	27.983	27.997	28.012	28.027	28.042	28.057	28.072	28.087	1580
1590	28.087	28.102	28.117	28.132	28.146	28.161	28.176	28.191	28.206	28.221	28.236	1590
1600	28.236	28.250	28.265	28.280	28.295	28.310	28.324	28.339	28.354	28.369	28.384	1600
1610	28.384	28.398	28.413	28.428	28.443	28.457	28.472	28.487	28.502	28.516	28.531	1610
1620	28.531	28.546	28.560	28.575	28.590	28.604	28.619	28.634	28.648	28.663	28.678	1620
1630	28.678	28.692	28.707	28.722	28.736	28.751	28.765	28.780	28.795	28.809	28.824	1630
1640	28.824	28.838	28.853	28.868	28.882	28.897	28.911	28.926	28.940	28.955	28.969	1640
1650	28.969	28.984	28.998	29.013	29.027	29.042	29.056	29.071	29.085	29.100	29.114	1650
1660	29.114	29.129	29.143	29.158	29.172	29.187	29.201	29.215	29.230	29.244	29.259	1660
1670	29.259	29.273	29.287	29.302	29.316	29.331	29.345	29.359	29.374	29.388	29.402	1670
1680	29.402	29.417	29.431	29.445	29.460	29.474	29.488	29.503	29.517	29.531	29.546	1680
1690	29.546	29.560	29.574	29.588	29.603	29.617	29.631	29.645	29.660	29.674	29.688	1690
1700	29.688	29.702	29.716	29.731	29.745	29.759	29.773	29.787	29.802	29.816	29.830	1700
1710	29.830	29.844	29.858	29.872	29.886	29.901	29.915	29.929	29.943	29.957	29.971	1710
1720	29.971	29.985	29.999	30.013	30.027	30.041	30.056	30.070	30.084	30.098	30.112	1720
1730	30.112	30.126	30.140	30.154	30.168	30.182	30.196	30.210	30.224	30.238	30.252	1730
1740	30.252	30.266	30.280	30.294	30.308	30.321	30.335	30.349	30.363	30.377	30.391	1740
1750	30.391	30.405	30.419	30.433	30.447	30.460	30.474	30.488	30.502	30.516	30.530	1750
1760	30.530	30.544	30.557	30.571	30.585	30.599	30.613	30.627	20.640	30.654	30.668	1760
1770	30.668	30.682	30.695	30.709	30.723	30.737	30.750	30.764	30.778	30.792	30.805	1770
1780	30.805	30.819	30.833	30.846	30.860	30.874	30.887	30.901	30.915	20.928	30.942	1780
1790	30.942	30.956	30.969	30.983	30.997	31.010	31.024	31.038	31.051	31.065	31.078	1790
1800	31.078	31.092	31.105	31.119	31.133	31.146	31.160	31.173	31.187	31.200	31.214	1800
1810	31.214	31.227	31.241	31.254	31.268	31.281	31.295	31.308	31.322	31.335	31.349	1810
1820	31.349	31.362	31.376	31.389	31.403	31.416	31.429	31.443	31.456	31.470	31.483	1820
1830	31.483	31.496	31.510	31.523	31.536	31.550	31.563	31.577	31.590	31.603	31.617	1830
1840	31.617	31.630	31.643	31.656	31.670	31.683	31.696	31.710	31.723	31.736	31.749	1840
1850	31.749	31.763	31.776	31.789	31.802	31.816	31.829	31.842	31.855	31.869	31.882	1850
1860	31.882	31.895	31.908	31.921	31.934	31.948	31.961	31.974	31.987	32.000	32.013	1860
1870	32.013	32.026	32.040	32.053	32.066	32.079	32.092	32.105	32.118	32.131	32.144	1870
1880	32.144	32.157	32.170	31.183	32.196	32.209	32.222	32.235	32.248	32.261	32.274	1880
1890	32.274	32.287	32.300	31.313	32.326	32.339	32.352	32.365	32.378	32.391	32.404	1890
1900	32.404	32.417	32.430	32.443	32.456	32.468	32.481	32.494	32.507	32.520	32.533	1900
1910	32.533	32.546	32.558	32.571	32.584	32.597	32.610	32.623	32.635	32.648	32.661	1910
1920	32.661	32.674	32.686	32.699	32.712	32.725	32.737	32.750	32.763	32.776	32.788	1920
1930	32.788	32.801	32.814	32.826	32.839	32.852	32.864	32.877	32.890	32.902	32.915	1930
1940	32.915	32.928	32.940	32.953	32.966	32.978	32.991	33.003	33.016	33.028	33.041	1940
1950	33.041	33.054	33.066	33.079	33.091	33.104	33.116	33.129	33.141	33.154	33.166	1950
1960	33.166	33.179	33.191	33.204	33.216	33.229	33.241	33.254	33.266	33.278	33.291	1960
1970	33.291	33.303	33.316	33.328	33.341	33.353	33.365	33.378	33.390	33.402	33.415	1970
1980	33.415	33.427	33.439	33.452	33.464	33.476	33.489	33.501	33.513	33.525	33.538	1980
1990	33.538	33.550	33.562	33.575	33.587	33.599	33.611	33.623	33.636	33.648	33.660	1990
°C	0	1	2	3	4	5	6	7	8	9	10	°C

CONVECTRONICS

Technical Information
Revised Thermocouple Reference Tables

MAXIMUM TEMPERATURE RANGE
Thermocouple Grade
-32 to 4208°F
-0 to 2320°C
Extension Grade
32 to 1600°F
0 to 870°C
LIMITS OF ERROR
(whichever is greater)
Standard: 4.5°C to 425°C
1.0% to 2320°C
Special: Not Established
COMMENTS, BARE WIRE ENVIRONMENT:
Vacuum, Inert; Hydrogen; Beware of Embrittlement; Not Practical Below 750°F; Not for Oxidizing Atmosphere
TEMPERATURE IN DEGREES °C
REFERENCE JUNCTION AT 0°C

°C

Tungsten-5% Rhenium vs. Tungsten-26% Rhenium

TYPE C

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

Thermoelectric Voltage in Millivolts

°C	0	1	2	3	4	5	6	7	8	9	10	°C
2000	33.660	33.672	33.684	33.697	33.709	33.721	33.733	33.745	33.757	33.769	33.782	2000
2010	33.782	33.794	33.806	33.818	33.830	33.842	33.854	33.866	33.878	33.890	33.902	2010
2020	33.902	33.914	33.926	33.938	33.950	33.962	33.974	33.986	33.998	34.010	34.022	2020
2030	34.022	34.034	34.046	34.058	34.070	34.082	34.094	34.106	34.118	34.130	34.142	2030
2040	34.142	34.153	34.165	34.177	34.189	34.201	34.213	34.225	34.236	34.248	34.260	2040
2050	34.260	34.272	34.284	34.295	34.307	34.319	34.331	34.342	34.354	34.366	34.378	2050
2060	34.378	34.389	34.401	34.413	34.424	34.436	34.448	34.459	34.471	34.483	34.494	2060
2070	34.494	34.506	34.518	34.529	34.541	34.552	34.564	34.576	34.587	34.599	34.610	2070
2080	34.610	34.622	34.633	34.645	34.656	34.668	34.679	34.691	34.702	34.714	34.725	2080
2090	34.725	34.737	34.748	34.760	34.771	34.782	34.794	34.805	34.817	34.828	34.839	2090
2100	34.839	34.851	34.862	34.874	34.885	34.896	34.908	34.919	34.930	34.942	34.953	2100
2110	34.953	34.964	34.975	34.987	34.998	35.009	35.020	35.032	35.043	35.054	35.065	2110
2120	35.065	35.077	35.088	35.099	35.110	35.121	35.132	34.144	35.155	35.166	35.177	2120
2130	35.177	35.188	35.199	35.210	35.221	35.232	35.243	35.254	35.265	35.277	35.288	2130
2140	35.288	35.299	35.310	35.321	35.332	35.343	35.353	35.364	35.375	35.386	35.397	2140
2150	35.397	35.408	35.419	35.430	35.441	35.452	35.463	35.474	35.484	35.495	35.506	2150
2160	35.506	35.517	35.528	35.539	35.549	35.560	35.571	35.582	35.592	35.603	35.614	2160
2170	35.614	35.625	35.635	35.646	35.657	35.668	35.678	35.689	35.700	35.710	35.721	2170
2180	35.721	35.731	35.742	35.753	35.763	35.774	35.784	35.795	35.806	35.816	35.827	2180
2190	35.827	35.837	35.848	35.858	35.869	35.879	35.890	35.900	35.911	35.921	35.932	2190
°C	**0**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**°C**

°C	0	1	2	3	4	5	6	7	8	9	10	°C
2200	35.932	35.942	35.953	35.963	35.973	35.984	35.994	36.004	36.015	36.025	36.036	2200
2210	36.036	36.046	36-056	36.067	36.077	36.087	36.097	36.108	36.118	36.128	36.138	2210
2220	36.138	36.149	36.159	36.169	36.179	36.189	36.200	36.210	36.220	36.230	36.240	2220
2230	36.240	36.250	36.260	36.271	36.281	36.291	36.301	36.311	36.321	36.331	36.341	2230
2240	36.341	36.351	36.361	36.371	36.381	36.391	36.401	36.411	36.421	36.431	36.441	2240
2250	36.441	36.451	36.460	36.470	36.480	36.490	36-500	36.510	36.520	36.529	36.539	2250
2260	36.539	36.549	36.559	36.569	36.578	36.588	36.598	36.608	36.617	36.627	36.637	2260
2270	36.637	36.646	36.656	36.666	36.675	36.685	36.695	36.704	36.714	36.723	36.733	2270
2280	36.733	36.743	36.752	36.762	36.771	36.781	36.790	36.800	36.809	36.819	36.828	2280
2290	36.828	36.838	36.847	36.857	36.866	36.875	36.885	36.894	36.903	36.913	36.922	2290
2300	36.922	36.932	36.941	36.950	36.959	36.969	36.978	36.987	36.997	37.006	37.015	2300
2310	37.015	37.024	37.033	37.043	37.052	37.061	37.070	37.079	37.088	37.097	37.107	2310
°C	**0**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**°C**

CONVECTRONICS