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ITS-90 Table for type B thermocouple

°F	0	1	2	3	4	5	6	7	8	9	10
Thermoelectric Voltage in mV											
30			0.000	0.000	0.000	0.000	-0.001	-0.001	-0.001	-0.001	-0.001
40	-0.001	-0.001	-0.001	-0.001	-0.001	-0.001	-0.002	-0.002	-0.002	-0.002	-0.002
50	-0.002	-0.002	-0.002	-0.002	-0.002	-0.002	-0.002	-0.002	-0.002	-0.002	-0.002
60	-0.002	-0.002	-0.002	-0.003	-0.003	-0.003	-0.003	-0.003	-0.003	-0.003	-0.003
70	-0.003	-0.003	-0.003	-0.003	-0.003	-0.003	-0.003	-0.002	-0.002	-0.002	-0.002
80	-0.002	-0.002	-0.002	-0.002	-0.002	-0.002	-0.002	-0.002	-0.002	-0.002	-0.002
90	-0.002	-0.002	-0.002	-0.002	-0.002	-0.001	-0.001	-0.001	-0.001	-0.001	-0.001
100	-0.001	-0.001	-0.001	-0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000
110	0.000	0.000	0.001	0.001	0.001	0.001	0.001	0.001	0.002	0.002	0.002
120	0.002	0.002	0.002	0.002	0.003	0.003	0.003	0.003	0.003	0.004	0.004
130	0.004	0.004	0.004	0.005	0.005	0.005	0.005	0.005	0.006	0.006	0.006
140	0.006	0.006	0.007	0.007	0.007	0.007	0.008	0.008	0.008	0.009	0.009
150	0.009	0.009	0.009	0.010	0.010	0.010	0.011	0.011	0.011	0.012	0.012
160	0.012	0.012	0.013	0.013	0.013	0.014	0.014	0.014	0.015	0.015	0.015
170	0.015	0.016	0.016	0.016	0.017	0.017	0.017	0.018	0.018	0.019	0.019
180	0.019	0.019	0.020	0.020	0.021	0.021	0.021	0.022	0.022	0.023	0.023
190	0.023	0.023	0.024	0.024	0.025	0.025	0.026	0.026	0.027	0.027	0.027
200	0.027	0.028	0.028	0.029	0.029	0.030	0.030	0.031	0.031	0.032	0.032
210	0.032	0.033	0.033	0.034	0.034	0.035	0.035	0.036	0.036	0.037	0.037
220	0.037	0.038	0.038	0.039	0.039	0.040	0.041	0.041	0.042	0.042	0.043
230	0.043	0.043	0.044	0.044	0.045	0.045	0.046	0.047	0.047	0.048	0.048
240	0.049	0.049	0.050	0.050	0.051	0.052	0.052	0.053	0.053	0.054	0.054
250	0.055	0.055	0.056	0.057	0.057	0.058	0.059	0.059	0.060	0.060	0.060
260	0.061	0.062	0.062	0.063	0.064	0.065	0.065	0.066	0.067	0.067	0.067
270	0.068	0.069	0.069	0.070	0.071	0.072	0.072	0.073	0.074	0.074	0.074
280	0.075	0.076	0.077	0.077	0.078	0.079	0.080	0.080	0.081	0.082	0.082
290	0.083	0.083	0.084	0.085	0.086	0.086	0.087	0.088	0.089	0.089	0.089
300	0.090	0.091	0.092	0.093	0.094	0.094	0.095	0.096	0.097	0.098	0.098
310	0.099	0.099	0.100	0.101	0.102	0.103	0.104	0.105	0.105	0.106	0.106
320	0.107	0.108	0.109	0.110	0.111	0.112	0.112	0.113	0.114	0.115	0.115
330	0.116	0.117	0.118	0.119	0.120	0.121	0.121	0.122	0.123	0.124	0.124
340	0.125	0.126	0.127	0.128	0.129	0.130	0.131	0.132	0.133	0.134	0.134
350	0.135	0.136	0.137	0.138	0.139	0.140	0.141	0.142	0.143	0.144	0.144
360	0.145	0.146	0.147	0.148	0.149	0.150	0.151	0.152	0.153	0.154	0.154
370	0.155	0.156	0.157	0.158	0.159	0.160	0.161	0.162	0.163	0.164	0.164
380	0.165	0.166	0.167	0.168	0.170	0.171	0.172	0.173	0.174	0.175	0.175
390	0.176	0.177	0.178	0.179	0.180	0.182	0.183	0.184	0.185	0.186	0.186
400	0.187	0.188	0.190	0.191	0.192	0.193	0.194	0.195	0.196	0.198	0.198
410	0.199	0.200	0.201	0.202	0.203	0.205	0.206	0.207	0.208	0.209	0.210
420	0.211	0.212	0.213	0.214	0.215	0.217	0.218	0.219	0.220	0.222	0.222
430	0.223	0.224	0.225	0.226	0.228	0.229	0.230	0.231	0.233	0.234	0.234
440	0.235	0.236	0.238	0.239	0.240	0.242	0.243	0.244	0.245	0.247	0.247
450	0.248	0.249	0.251	0.252	0.253	0.255	0.256	0.257	0.259	0.260	0.260
460	0.261	0.263	0.264	0.265	0.267	0.268	0.269	0.271	0.272	0.273	0.273
470	0.275	0.276	0.277	0.279	0.280	0.282	0.283	0.284	0.286	0.287	0.287
480	0.288	0.290	0.291	0.293	0.294	0.296	0.297	0.298	0.300	0.301	0.301
490	0.303	0.304	0.305	0.307	0.308	0.310	0.311	0.313	0.314	0.316	0.316
500	0.317	0.319	0.320	0.321	0.323	0.324	0.326	0.327	0.329	0.330	0.330
510	0.332	0.333	0.335	0.336	0.338	0.339	0.341	0.342	0.344	0.345	0.345
520	0.347	0.348	0.350	0.352	0.353	0.355	0.356	0.358	0.359	0.361	0.361
530	0.362	0.364	0.365	0.367	0.369	0.370	0.372	0.373	0.375	0.377	0.377
540	0.378	0.380	0.381	0.383	0.384	0.386	0.388	0.389	0.391	0.393	0.393
550	0.394	0.396	0.397	0.399	0.401	0.402	0.404	0.406	0.407	0.409	0.411
560	0.411	0.412	0.414	0.416	0.417	0.419	0.421	0.422	0.424	0.426	0.426
570	0.427	0.429	0.431	0.432	0.434	0.436	0.437	0.439	0.441	0.443	0.444
580	0.444	0.446	0.448	0.449	0.451	0.453	0.455	0.456	0.458	0.460	0.460
590	0.462	0.463	0.465	0.467	0.469	0.470	0.472	0.474	0.476	0.478	0.478
600	0.479	0.481	0.483	0.485	0.486	0.488	0.490	0.492	0.494	0.495	0.499
610	0.497	0.499	0.501	0.503	0.505	0.506	0.508	0.510	0.512	0.514	0.515
620	0.516	0.517	0.519	0.521	0.523	0.525	0.527	0.529	0.530	0.532	0.533
630	0.534	0.536	0.538	0.540	0.542	0.544	0.546	0.547	0.549	0.551	0.555
640	0.553	0.555	0.557	0.559	0.561	0.563	0.565	0.567	0.569	0.570	0.570

ITS-90 Table for type B thermocouple

°F	0	1	2	3	4	5	6	7	8	9	10
Thermoelectric Voltage in mV											
650	0.572	0.574	0.576	0.578	0.580	0.582	0.584	0.586	0.588	0.590	0.59
660	0.592	0.594	0.596	0.598	0.600	0.602	0.604	0.606	0.608	0.610	0.61
670	0.612	0.614	0.616	0.618	0.620	0.622	0.624	0.626	0.628	0.630	0.63
680	0.632	0.634	0.636	0.638	0.640	0.642	0.644	0.646	0.648	0.650	0.65
690	0.653	0.655	0.657	0.659	0.661	0.663	0.665	0.667	0.669	0.671	0.67
700	0.673	0.675	0.678	0.680	0.682	0.684	0.686	0.688	0.690	0.692	0.69
710	0.694	0.697	0.699	0.701	0.703	0.705	0.707	0.709	0.712	0.714	0.71
720	0.716	0.718	0.720	0.722	0.725	0.727	0.729	0.731	0.733	0.735	0.73
730	0.738	0.740	0.742	0.744	0.746	0.749	0.751	0.753	0.755	0.757	0.76
740	0.760	0.762	0.764	0.766	0.769	0.771	0.773	0.775	0.778	0.780	0.78
750	0.782	0.784	0.787	0.789	0.791	0.793	0.796	0.798	0.800	0.802	0.80
760	0.805	0.807	0.809	0.812	0.814	0.816	0.818	0.821	0.823	0.825	0.82
770	0.828	0.830	0.832	0.835	0.837	0.839	0.842	0.844	0.846	0.849	0.85
780	0.851	0.853	0.856	0.858	0.860	0.863	0.865	0.867	0.870	0.872	0.87
790	0.875	0.877	0.879	0.882	0.884	0.886	0.889	0.891	0.894	0.896	0.89
800	0.898	0.901	0.903	0.906	0.908	0.910	0.913	0.915	0.918	0.920	0.92
810	0.923	0.925	0.927	0.930	0.932	0.935	0.937	0.940	0.942	0.945	0.94
820	0.947	0.950	0.952	0.955	0.957	0.959	0.962	0.964	0.967	0.969	0.97
830	0.972	0.974	0.977	0.979	0.982	0.984	0.987	0.989	0.992	0.994	0.99
840	0.997	1.000	1.002	1.005	1.007	1.010	1.012	1.015	1.017	1.020	1.02
850	1.022	1.025	1.027	1.030	1.033	1.035	1.038	1.040	1.043	1.045	1.04
860	1.048	1.051	1.053	1.056	1.058	1.061	1.064	1.066	1.069	1.071	1.07
870	1.074	1.077	1.079	1.082	1.085	1.087	1.090	1.092	1.095	1.098	1.10
880	1.100	1.103	1.106	1.108	1.111	1.114	1.116	1.119	1.122	1.124	1.12
890	1.127	1.130	1.132	1.135	1.138	1.140	1.143	1.146	1.148	1.151	1.15
900	1.154	1.157	1.159	1.162	1.165	1.167	1.170	1.173	1.176	1.178	1.18
910	1.181	1.184	1.186	1.189	1.192	1.195	1.197	1.200	1.203	1.206	1.20
920	1.208	1.211	1.214	1.217	1.220	1.222	1.225	1.228	1.231	1.233	1.23
930	1.236	1.239	1.242	1.245	1.247	1.250	1.253	1.256	1.259	1.262	1.26
940	1.264	1.267	1.270	1.273	1.276	1.278	1.281	1.284	1.287	1.290	1.29
950	1.293	1.296	1.298	1.301	1.304	1.307	1.310	1.313	1.316	1.318	1.32
960	1.321	1.324	1.327	1.330	1.333	1.336	1.339	1.342	1.344	1.347	1.35
970	1.350	1.353	1.356	1.359	1.362	1.365	1.368	1.371	1.374	1.377	1.37
980	1.379	1.382	1.385	1.388	1.391	1.394	1.397	1.400	1.403	1.406	1.40
990	1.409	1.412	1.415	1.418	1.421	1.424	1.427	1.430	1.433	1.436	1.43
1000	1.439	1.442	1.445	1.448	1.451	1.454	1.457	1.460			

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ITS-90 °F	Table for type B thermocouple										
	0	1	2	3	4	5	6	7	8	9	10
	Thermoelectric Voltage in mV										
1300	2.461	2.465	2.469	2.472	2.476	2.480	2.484	2.488	2.492	2.495	2.49
1310	2.499	2.503	2.507	2.511	2.515	2.518	2.522	2.526	2.530	2.534	2.53
1320	2.538	2.541	2.545	2.549	2.553	2.557	2.561	2.565	2.569	2.572	2.57
1330	2.576	2.580	2.584	2.588	2.592	2.596	2.600	2.604	2.607	2.611	2.61
1340	2.615	2.619	2.623	2.627	2.631	2.635	2.639	2.643	2.647	2.651	2.65
1350	2.654	2.658	2.662	2.666	2.670	2.674	2.678	2.682	2.686	2.690	2.69
1360	2.694	2.698	2.702	2.706	2.710	2.714	2.718	2.722	2.726	2.730	2.73
1370	2.734	2.738	2.742	2.746	2.750	2.754	2.758	2.762	2.766	2.770	2.77
1380	2.774	2.778	2.782	2.786	2.790	2.794	2.798	2.802	2.806	2.810	2.81
1390	2.814	2.818	2.822	2.826	2.830	2.834	2.838	2.842	2.846	2.850	2.85
1400	2.854	2.859	2.863	2.867	2.871	2.875	2.879	2.883	2.887	2.891	2.89
1410	2.895	2.899	2.903	2.908	2.912	2.916	2.920	2.924	2.928	2.932	2.93
1420	2.936	2.940	2.944	2.949	2.953	2.957	2.961	2.965	2.969	2.973	2.97
1430	2.978	2.982	2.986	2.990	2.994	2.998	3.002	3.007	3.011	3.015	3.01
1440	3.019	3.023	3.027	3.032	3.036	3.040	3.044	3.048	3.052	3.057	3.06
1450	3.061	3.065	3.069	3.073	3.078	3.082	3.086	3.090	3.094	3.099	3.10
1460	3.103	3.107	3.111	3.116	3.120	3.124	3.128	3.132	3.137	3.141	3.14
1470	3.145	3.149	3.154	3.158	3.162	3.166	3.171	3.175	3.179	3.183	3.18
1480	3.188	3.192	3.196	3.200	3.205	3.209	3.213	3.218	3.222	3.226	3.23
1490	3.230	3.235	3.239	3.243	3.248	3.252	3.256	3.261	3.265	3.269	3.27
1500	3.273	3.278	3.282	3.286	3.291	3.295	3.299	3.304	3.308	3.312	3.31
1510	3.317	3.321	3.325	3.330	3.334	3.338	3.343	3.347	3.352	3.356	3.36
1520	3.360	3.365	3.369	3.373	3.378	3.382	3.386	3.391	3.395	3.400	3.40
1530	3.404	3.408	3.413	3.417	3.422	3.426	3.430	3.435	3.439	3.444	3.44
1540	3.448	3.452	3.457	3.461	3.466	3.470	3.474	3.479	3.483	3.488	3.49
1550	3.492	3.497	3.501	3.506	3.510	3.514	3.519	3.523	3.528	3.532	3.53
1560	3.537	3.541	3.546	3.550	3.555	3.559	3.563	3.568	3.572	3.577	3.58
1570	3.581	3.586	3.590	3.595	3.599	3.604	3.608	3.613	3.617	3.622	3.62
1580	3.626	3.631	3.635	3.640	3.644	3.649	3.653	3.658	3.662	3.667	3.67
1590	3.672	3.676	3.681	3.685	3.690	3.694	3.699	3.703	3.708	3.712	3.71
1600	3.717	3.722	3.726	3.731	3.735	3.740	3.744	3.749	3.753	3.758	3.76
1610	3.763	3.767	3.772	3.776	3.781	3.786	3.790	3.795	3.799	3.804	3.80
1620	3.809	3.813	3.818	3.822	3.827	3.832	3.836	3.841	3.845	3.850	3.85
1630	3.855	3.859	3.864	3.869	3.873	3.878	3.882	3.887	3.892	3.896	3.90
1640	3.901	3.906	3.910	3.915	3.920	3.924	3.929	3.934	3.938	3.943	3.94
1650	3.948	3.952	3.957	3.962	3.966	3.971	3.976	3.980	3.985	3.990	3.99
1660	3.994	3.999	4.004	4.009	4.013	4.018	4.023	4.027	4.032	4.037	4.04
1670	4.041	4.046	4.051	4.056	4.060	4.065	4.070	4.075	4.079	4.084	4.08
1680	4.089	4.093	4.098	4.103	4.108	4.112	4.117	4.122	4.127	4.131	4.13
1690	4.136	4.141	4.146	4.151	4.155	4.160	4.165	4.170	4.174	4.179	4.18
1700	4.184	4.189	4.194	4.198	4.203	4.208	4.213	4.217	4.222	4.227	4.23
1710	4.232	4.237	4.242	4.246	4.251	4.256	4.261	4.266	4.270	4.275	4.28
1720	4.280	4.285	4.290	4.295	4.299	4.304	4.309	4.314	4.319	4.324	4.32
1730	4.328	4.333	4.338	4.343	4.348	4.353	4.358	4.362	4.367	4.372	4.37
1740	4.377	4.382	4.387	4.392	4.397	4.401	4.406	4.411	4.416	4.421	4.42
1750	4.426	4.431	4.436	4.441	4.445	4.450	4.455	4.460	4.465	4.470	4.47
1760	4.475	4.480	4.485	4.490	4.495	4.500	4.504	4.509	4.514	4.519	4.52
1770	4.524	4.529	4.534	4.539	4.544	4.549	4.554	4.559	4.564	4.569	4.57
1780	4.574	4.579	4.584	4.589	4.593	4.598	4.603	4.608	4.613	4.618	4.62
1790	4.623	4.628	4.633	4.638	4.643	4.648	4.653	4.658	4.663	4.668	4.67
1800	4.673	4.678	4.683	4.688	4.693	4.698	4.703	4.708	4.713	4.718	4.72
1810	4.723	4.728	4.733	4.738	4.743	4.748	4.754	4.759	4.764	4.769	4.77
1820	4.774	4.779	4.784	4.789	4.794	4.799	4.804	4.809	4.814	4.819	4.82
1830	4.824	4.829	4.834	4.839	4.844	4.850	4.855	4.860	4.865	4.870	4.87
1840	4.875	4.880	4.885	4.890	4.895	4.900	4.905	4.911	4.916	4.921	4.92
1850	4.926	4.931	4.936	4.941	4.946	4.951	4.957	4.962	4.967	4.972	4.97
1860	4.977	4.982	4.987	4.992	4.998	5.003	5.008	5.013	5.018	5.023	5.02
1870	5.028	5.034	5.039	5.044	5.049	5.054	5.059	5.065	5.070	5.075	5.08
1880	5.080	5.085	5.090	5.096	5.101	5.106	5.111	5.116	5.121	5.127	5.13
1890	5.132	5.137	5.142	5.147	5.153	5.158	5.163	5.168	5.173	5.179	5.18
1900	5.184	5.189	5.194	5.199	5.205	5.210	5.215	5.220	5.225	5.231	5.23
1910	5.236	5.241	5.246	5.252	5.257	5.262	5.267	5.273	5.278	5.283	5.28
1920	5.288	5.294	5.299	5.304	5.309	5.315	5.320	5.325	5.330	5.336	5.34
1930	5.341	5.346	5.351	5.357	5.362	5.367	5.373	5.378	5.383	5.388	5.39
1940	5.394	5.399	5.404	5.410	5.415	5.420	5.425	5.431	5.436	5.441	5.44

ITS-90 °F	Table for type B thermocouple										
	0	1	2	3	4	5	6	7	8	9	10
	Thermoelectric Voltage in mV										
1950	5.447	5.452	5.457	5.463	5.468	5.473	5.479	5.484	5.489	5.495	5.50
1960	5.500	5.505	5.511	5.516	5.521	5.527	5.532	5.537	5.543	5.548	5.55
1970	5.553	5.559	5.564	5.569	5.575	5.580	5.585	5.591	5.596	5.601	5.60
1980	5.607	5.612	5.618	5.623	5.628	5.634	5.639	5.644	5.650	5.655	5.66
1990	5.661	5.666	5.671	5.677	5.682	5.688	5.693	5.698	5.704	5.709	5.71
2000	5.715	5.720	5.725	5.731	5.736	5.742	5.747	5.752	5.758	5.763	5.76
2010	5.769	5.774	5.780	5.785	5.790	5.796	5.801	5.807	5.812	5.818	5.82
2020	5.823	5.828	5.834	5.839	5.845	5.850	5.856	5.861	5.867	5.872	5.87
2030	5.878	5.883	5.888	5.894	5.899	5.905	5.910	5.916	5.921	5.927	5.93
2040	5.932	5.938	5.943	5.949	5.954	5.960	5.965	5.971	5.976	5.982	5.98
2050	5.987	5.993	5.998	6.004	6.009	6.015	6.020	6.026	6.031	6.037	6.04
2060	6.042	6.048	6.053	6.059	6.064	6.070	6.075	6.081	6.086	6.092	6.09
2070	6.098	6.103	6.109	6.114	6.120	6.125	6.131	6.136	6.142	6.147	6.15
2080	6.153	6.159	6.164	6.170	6.175	6.181	6.186	6.192	6.197	6.203	6.20
2090	6.209	6.214	6.220	6.225	6.231	6.237	6.242	6.248	6.253	6.259	6.26
2100	6.264	6.270	6.276	6.281	6.287	6.292	6.298	6.304	6.309	6.315	6.32
2110	6.320	6.326	6.332	6.337	6.343	6.349	6.354	6.360	6.365	6.371	6.37
2120	6.377	6.382	6.388	6.394	6.399	6.405	6.410	6.416	6.422	6.427	6.43
2130	6.433	6.439	6.444	6.450	6.456	6.461	6.467	6.473	6.478	6.484	6.49
2140	6.490	6.495	6.501	6.507	6.512	6.518	6.524	6.529	6.535	6.541	6.54
2150	6.546	6.552	6.558	6.563	6.569	6.575	6.580	6.586	6.592	6.597	6.60
2160	6.603	6.609	6.615	6.620	6.626	6.632	6.637	6.643	6.649	6.655	6.66
2170	6.660	6.666	6.672	6.677	6.683	6.689	6.695	6.700	6.706	6.712	6.71
2180	6.718	6.723	6.729	6.735	6.740	6.746	6.752	6.758	6.763	6.769	6.77
2190	6.775	6.781	6.786	6.792	6.798	6.804	6.809	6.815	6.821	6.827	6.83
2200	6.833	6.838	6.844	6.850	6.856	6.861	6.867	6.873	6.879	6.884	6.89
2210	6.890	6.896	6.902	6.908	6.913	6.919	6.925	6.931	6.937	6.942	6.94
2220	6.948	6.954	6.960	6.966	6.971	6.977	6.983	6.989	6.995	7.000	7.00
2230	7.006	7.012	7.018	7.024	7.030	7.035	7.041	7.047	7.053	7.059	7.06
2240	7.065	7.070	7.076	7.082	7.088	7.094	7.100	7.105	7.111	7.117	7.12
2250	7.123	7.129	7.135	7.141	7.146	7.152	7.158	7.164	7.170	7.176	7.18
2260	7.182	7.187	7.193	7.199	7.205	7.211	7.217	7.223			

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ITS-90 Table for type B thermocouple

°C	0	1	2	3	4	5	6	7	8	9	10
Thermoelectric Voltage in mV											
0	0.000	0.000	0.000	-0.001	-0.001	-0.001	-0.001	-0.001	-0.002	-0.002	-0.00
10	-0.002	-0.002	-0.002	-0.002	-0.002	-0.002	-0.002	-0.002	-0.003	-0.003	-0.00
20	-0.003	-0.003	-0.003	-0.003	-0.003	-0.002	-0.002	-0.002	-0.002	-0.002	-0.00
30	-0.002	-0.002	-0.002	-0.002	-0.002	-0.001	-0.001	-0.001	-0.001	-0.001	0.00
40	0.000	0.000	0.000	0.000	0.000	0.001	0.001	0.001	0.002	0.002	0.00
50	0.002	0.003	0.003	0.003	0.004	0.004	0.004	0.005	0.005	0.006	0.00
60	0.006	0.007	0.007	0.008	0.008	0.009	0.009	0.010	0.010	0.011	0.01
70	0.011	0.012	0.012	0.013	0.014	0.014	0.015	0.015	0.016	0.017	0.01
80	0.017	0.018	0.019	0.020	0.020	0.021	0.022	0.022	0.023	0.024	0.02
90	0.025	0.026	0.026	0.027	0.028	0.029	0.030	0.031	0.031	0.032	0.03
100	0.033	0.034	0.035	0.036	0.037	0.038	0.039	0.040	0.041	0.042	0.04
110	0.043	0.044	0.045	0.046	0.047	0.048	0.049	0.050	0.051	0.052	0.05
120	0.053	0.055	0.056	0.057	0.058	0.059	0.060	0.062	0.063	0.064	0.06
130	0.065	0.066	0.068	0.069	0.070	0.072	0.073	0.074	0.075	0.077	0.07
140	0.078	0.079	0.081	0.082	0.084	0.085	0.086	0.088	0.089	0.091	0.09
150	0.092	0.094	0.095	0.096	0.098	0.099	0.101	0.102	0.104	0.106	0.10
160	0.107	0.109	0.110	0.112	0.113	0.115	0.117	0.118	0.120	0.122	0.12
170	0.123	0.125	0.127	0.128	0.130	0.132	0.134	0.135	0.137	0.139	0.14
180	0.141	0.142	0.144	0.146	0.148	0.150	0.151	0.153	0.155	0.157	0.15
190	0.159	0.161	0.163	0.165	0.166	0.168	0.170	0.172	0.174	0.176	0.17
200	0.178	0.180	0.182	0.184	0.186	0.188	0.190	0.192	0.195	0.197	0.19
210	0.199	0.201	0.203	0.205	0.207	0.209	0.212	0.214	0.216	0.218	0.22
220	0.220	0.222	0.225	0.227	0.229	0.231	0.234	0.236	0.238	0.241	0.24
230	0.243	0.245	0.248	0.250	0.252	0.255	0.257	0.259	0.262	0.264	0.26
240	0.267	0.269	0.271	0.274	0.276	0.279	0.281	0.284	0.286	0.289	0.29
250	0.291	0.294	0.296	0.299	0.301	0.304	0.307	0.309	0.312	0.314	0.31
260	0.317	0.320	0.322	0.325	0.328	0.330	0.333	0.336	0.338	0.341	0.34
270	0.344	0.347	0.349	0.352	0.355	0.358	0.360	0.363	0.366	0.369	0.37
280	0.372	0.375	0.377	0.380	0.383	0.386	0.389	0.392	0.395	0.398	0.40
290	0.401	0.404	0.407	0.410	0.413	0.416	0.419	0.422	0.425	0.428	0.43
300	0.431	0.434	0.437	0.440	0.443	0.446	0.449	0.452	0.455	0.458	0.46
310	0.462	0.465	0.468	0.471	0.474	0.478	0.481	0.484	0.487	0.490	0.49
320	0.494	0.497	0.500	0.503	0.507	0.510	0.513	0.517	0.520	0.523	0.52
330	0.527	0.530	0.533	0.537	0.540	0.544	0.547	0.550	0.554	0.557	0.56
340	0.561	0.564	0.568	0.571	0.575	0.578	0.582	0.585	0.589	0.592	0.59
350	0.596	0.599	0.603	0.607	0.610	0.614	0.617	0.621	0.625	0.628	0.63
360	0.632	0.636	0.639	0.643	0.647	0.650	0.654	0.658	0.662	0.665	0.66
370	0.669	0.673	0.677	0.680	0.684	0.688	0.692	0.696	0.700	0.703	0.70
380	0.707	0.711	0.715	0.719	0.723	0.727	0.731	0.735	0.738	0.742	0.74
390	0.746	0.750	0.754	0.758	0.762	0.766	0.770	0.774	0.778	0.782	0.78
400	0.787	0.791	0.795	0.799	0.803	0.807	0.811	0.815	0.819	0.824	0.82
410	0.828	0.832	0.836	0.840	0.844	0.849	0.853	0.857	0.861	0.866	0.87
420	0.870	0.874	0.878	0.883	0.887	0.891	0.896	0.900	0.904	0.909	0.91
430	0.913	0.917	0.922	0.926	0.930	0.935	0.939	0.944	0.948	0.953	0.95
440	0.957	0.961	0.966	0.970	0.975	0.979	0.984	0.988	0.993	0.997	1.00
450	1.002	1.007	1.011	1.016	1.020	1.025	1.030	1.034	1.039	1.043	1.04
460	1.048	1.053	1.057	1.062	1.067	1.071	1.076	1.081	1.086	1.090	1.09
3070	12.290	12.296	12.303	12.309	12.316	12.322	12.329	12.335	12.342	12.348	12.35
3080	12.355	12.361	12.368	12.374	12.381	12.387	12.394	12.400	12.407	12.413	12.42
3090	12.420	12.426	12.433	12.439	12.446	12.452	12.458	12.465	12.471	12.478	12.48
3100	12.484	12.491	12.497	12.504	12.510	12.517	12.523	12.530	12.536	12.543	12.54
3110	12.549	12.556	12.562	12.569	12.575	12.582	12.588	12.595	12.601	12.607	12.61
3120	12.614	12.620	12.627	12.633	12.640	12.646	12.653	12.659	12.666	12.672	12.67
3130	12.679	12.685	12.692	12.698	12.704	12.711	12.717	12.724	12.730	12.737	12.74
3140	12.743	12.750	12.756	12.763	12.769	12.776	12.782	12.789	12.795	12.801	12.80
3150	12.808	12.814	12.821	12.827	12.834	12.840	12.847	12.853	12.860	12.866	12.87
3160	12.872	12.879	12.885	12.892	12.898	12.905	12.911	12.918	12.924	12.931	12.93
3170	12.937	12.943	12.950	12.956	12.963	12.969	12.976	12.982	12.989	12.995	13.00
3180	13.001	13.008	13.014	13.021	13.027	13.034	13.040	13.047	13.053	13.059	13.06
3190	13.066	13.072	13.079	13.085	13.092	13.098	13.104	13.111	13.117	13.124	13.13
3200	13.130	13.137	13.143	13.149	13.156	13.162	13.169	13.175	13.182	13.188	13.19
3210	13.194	13.201	13.207	13.214	13.220	13.227	13.233	13.239	13.246	13.252	13.25
3220	13.259	13.265	13.271	13.278	13.284	13.291	13.297	13.304	13.310	13.316	13.32
3230	13.323	13.329	13.336	13.342	13.348	13.355	13.361	13.368	13.374	13.380	13.38
3240	13.387	13.393	13.400	13.406	13.412	13.419	13.425	13.432	13.438	13.444	13.45
°F	0	1	2	3	4	5	6	7	8	9	10

ITS-90 Table for type B thermocouple

°F	0	1	2	3	4	5	6	7	8	9	10
Thermoelectric Voltage in mV											
3250	13.451	13.457	13.464	13.470	13.476	13.483	13.489	13.496	13.502	13.508	13.51
3260	13.515	13.521	13.527	13.534	13.540	13.547	13.553	13.559	13.566	13.572	13.57
3270	13.579	13.585	13.591	13.598	13.604	13.610	13.617	13.623	13.630	13.636	13.64
3280	13.642	13.649	13.655	13.661	13.668	13.674	13.680	13.687	13.693	13.700	13.70
3290	13.706	13.712	13.719	13.725	13.731	13.738	13.744	13.750	13.757	13.763	13.76
°F	0	1	2	3	4	5	6	7	8	9	10

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ITS-90 Table for type B thermocouple											
°C	0	1	2	3	4	5	6	7	8	9	10
Thermoelectric Voltage in mV											
0	0.000	0.000	0.000	-0.001	-0.001	-0.001	-0.001	-0.001	-0.002	-0.002	-0.00
10	0.002	-0.002	-0.002	-0.002	-0.002	-0.002	-0.002	-0.002	-0.003	-0.003	-0.00
20	0.003	-0.003	-0.003	-0.003	-0.003	-0.002	-0.002	-0.002	-0.002	-0.002	-0.00
30	-0.002	-0.002	-0.002	-0.002	-0.002	-0.001	-0.001	-0.001	-0.001	-0.001	0.00
40	0.000	0.000	0.000	0.000	0.000	0.001	0.001	0.001	0.002	0.002	0.00
50	0.002	0.003	0.003	0.003	0.004	0.004	0.004	0.005	0.005	0.006	0.00
60	0.006	0.007	0.007	0.008	0.008	0.009	0.009	0.010	0.010	0.011	0.01
70	0.011	0.012	0.012	0.013	0.014	0.014	0.015	0.015	0.016	0.017	0.01
80	0.017	0.018	0.019	0.020	0.020	0.021	0.022	0.022	0.023	0.024	0.02
90	0.025	0.026	0.026	0.027	0.028	0.029	0.030	0.031	0.031	0.032	0.03
100	0.033	0.034	0.035	0.036	0.037	0.038	0.039	0.040	0.041	0.042	0.04
110	0.043	0.044	0.045	0.046	0.047	0.048	0.049	0.050	0.051	0.052	0.05
120	0.053	0.055	0.056	0.057	0.058	0.059	0.060	0.062	0.063	0.064	0.06
130	0.065	0.066	0.068	0.069	0.070	0.072	0.073	0.074	0.075	0.077	0.07
140	0.078	0.079	0.081	0.082	0.084	0.085	0.086	0.088	0.089	0.091	0.09
150	0.092	0.094	0.095	0.096	0.098	0.099	0.101	0.102	0.104	0.106	0.10
160	0.107	0.109	0.110	0.112	0.113	0.115	0.117	0.118	0.120	0.122	0.12
170	0.123	0.125	0.127	0.128	0.130	0.132	0.134	0.135	0.137	0.139	0.14
180	0.141	0.142	0.144	0.146	0.148	0.150	0.151	0.153	0.155	0.157	0.15
190	0.159	0.161	0.163	0.165	0.166	0.168	0.170	0.172	0.174	0.176	0.17
200	0.178	0.180	0.182	0.184	0.186	0.188	0.190	0.192	0.195	0.197	0.19
210	0.199	0.201	0.203	0.205	0.207	0.209	0.212	0.214	0.216	0.218	0.22
220	0.220	0.222	0.225	0.227	0.229	0.231	0.234	0.236	0.238	0.241	0.24
230	0.243	0.245	0.248	0.250	0.252	0.255	0.257	0.259	0.262	0.264	0.26
240	0.267	0.269	0.271	0.274	0.276	0.279	0.281	0.284	0.286	0.289	0.29
250	0.291	0.294	0.296	0.299	0.301	0.304	0.307	0.309	0.312	0.314	0.31
260	0.317	0.320	0.322	0.325	0.328	0.330	0.333	0.336	0.338	0.341	0.34
270	0.344	0.347	0.349	0.352	0.355	0.358	0.360	0.363	0.366	0.369	0.37
280	0.372	0.375	0.377	0.380	0.383	0.386	0.389	0.392	0.395	0.398	0.40
290	0.401	0.404	0.407	0.410	0.413	0.416	0.419	0.422	0.425	0.428	0.43
300	0.431	0.434	0.437	0.440	0.443	0.446	0.449	0.452	0.455	0.458	0.46
310	0.462	0.465	0.468	0.471	0.474	0.478	0.481	0.484	0.487	0.490	0.49
320	0.494	0.497	0.500	0.503	0.507	0.510	0.513	0.517	0.520	0.523	0.52
330	0.527	0.530	0.533	0.537	0.540	0.544	0.547	0.550	0.554	0.557	0.56
340	0.561	0.564	0.568	0.571	0.575	0.578	0.582	0.585	0.589	0.592	0.59
350	0.596	0.599	0.603	0.607	0.610	0.614	0.617	0.621	0.625	0.628	0.63
360	0.632	0.636	0.639	0.643	0.647	0.650	0.654	0.658	0.662	0.665	0.66
370	0.669	0.673	0.677	0.680	0.684	0.688	0.692	0.696	0.700	0.703	0.70
380	0.707	0.711	0.715	0.719	0.723	0.727	0.731	0.735	0.738	0.742	0.74
390	0.746	0.750	0.754	0.758	0.762	0.766	0.770	0.774	0.778	0.782	0.78
400	0.787	0.791	0.795	0.799	0.803	0.807	0.811	0.815	0.819	0.824	0.82
410	0.828	0.832	0.836	0.840	0.844	0.849	0.853	0.857	0.861	0.866	0.87
420	0.870	0.874	0.878	0.883	0.887	0.891	0.896	0.900	0.904	0.909	0.91
430	0.913	0.917	0.922	0.926	0.930	0.935	0.939	0.944	0.948	0.953	0.95
440	0.957	0.961	0.966	0.970	0.975	0.979	0.984	0.988	0.993	0.997	1.00
450	1.002	1.007	1.011	1.016	1.020	1.025	1.030	1.034	1.039	1.043	1.04
460	1.048	1.053	1.057	1.062	1.067	1.071	1.076	1.081	1.086	1.090	1.09
470	1.095	1.100	1.105	1.109	1.114	1.119	1.124	1.129	1.133	1.138	1.14
480	1.143	1.148	1.153	1.158	1.163	1.167	1.172	1.177	1.182	1.187	1.19
490	1.192	1.197	1.202	1.207	1.212	1.217	1.222	1.227	1.232	1.237	1.24
500	1.242	1.247	1.252	1.257	1.262	1.267	1.272	1.277	1.282	1.288	1.29
510	1.293	1.298	1.303	1.308	1.313	1.318	1.324	1.329	1.334	1.339	1.34
520	1.344	1.350	1.355	1.360	1.365	1.371	1.376	1.381	1.387	1.392	1.39
530	1.397	1.402	1.408	1.413	1.418	1.424	1.429	1.435	1.440	1.445	1.45
540	1.451	1.456	1.462	1.467	1.472	1.478	1.483	1.489	1.494	1.500	1.50
550	1.505	1.511	1.516	1.522	1.527	1.533	1.539	1.544	1.550	1.555	1.56
560	1.561	1.566	1.572	1.578	1.583	1.589	1.595	1.600	1.606	1.612	1.61
570	1.617	1.623	1.629	1.634	1.640	1.646	1.652	1.657	1.663	1.669	1.67
580	1.675	1.680	1.686	1.692	1.698	1.704	1.709	1.715	1.721	1.727	1.73
590	1.733	1.739	1.745	1.750	1.756	1.762	1.768	1.774	1.780	1.786	1.79
600	1.792	1.798	1.804	1.810	1.816	1.822	1.828	1.834	1.840	1.846	1.85
610	1.852	1.858	1.864	1.870	1.876	1.882	1.888	1.894	1.901	1.907	1.91
620	1.913	1.919	1.925	1.931	1.937	1.944	1.950	1.956	1.962	1.968	1.97
630	1.975	1.981	1.987	1.993	1.999	2.006	2.012	2.018	2.025	2.031	2.03
640	2.037	2.043	2.050	2.056	2.062	2.069	2.075	2.082	2.088	2.094	2.10

ITS-90 Table for type B thermocouple											
°C	0	1	2	3	4	5	6	7	8	9	10
Thermoelectric Voltage in mV											
650	2.101	2.107	2.113	2.120	2.126	2.133	2.139	2.146	2.152	2.158	2.16
660	2.165	2.171	2.178	2.184	2.191	2.197	2.204	2.210	2.217	2.224	2.23
670	2.230	2.237	2.243	2.250	2.256	2.263	2.270	2.276	2.283	2.289	2.29
680	2.296	2.303	2.309	2.316	2.323	2.329	2.336	2.343	2.350	2.356	2.36
690	2.363	2.370	2.376	2.383	2.390	2.397	2.403	2.410	2.417	2.424	2.43
700	2.431	2.437	2.444	2.451	2.458	2.465	2.472	2.479	2.485	2.492	2.49
710	2.499	2.506	2.513	2.520	2.527	2.534	2.541	2.548	2.555	2.562	2.56
720	2.569	2.576	2.583	2.590	2.597	2.604	2.611	2.618	2.625	2.632	2.63
730	2.639	2.646	2.653	2.660	2.667	2.674	2.681	2.688	2.696	2.703	2.71
740	2.710	2.717	2.724	2.731	2.738	2.746	2.753	2.760	2.767	2.775	2.78
750	2.782	2.789	2.796	2.803	2.811	2.818	2.825	2.833	2.840	2.847	2.85
760	2.854	2.862	2.869	2.876	2.884	2.891	2.898	2.906	2.913	2.921	2.92
770	2.928	2.935	2.943	2.950	2.958	2.965	2.973	2.980	2.987	2.995	3.00
780	3.002	3.010	3.017	3.025	3.032	3.040	3.047	3.055	3.062	3.070	3.07
790	3.078	3.085	3.093	3.100	3.108	3.116	3.123	3.131	3.138	3.146	3.15
800	3.154	3.161	3.169	3.177	3.184	3.192	3.200	3.207	3.215	3.223	3.23
810	3.230	3.238	3.246	3.254	3.261	3.269	3.277	3.285	3.292	3.300	3.30
820	3.308	3.316	3.324	3.331	3.339	3.347	3.355	3.363	3.371	3.379	3.38
830	3.386	3.394	3.402	3.410	3.418	3.426	3.434	3.442	3.450	3.458	3.46
840	3.466	3.474	3.482	3.490	3.498	3.506	3.514	3.522	3.530	3.538	3.54
850	3.546	3.554	3.562	3.570	3.578	3.586	3.594	3.602	3.610	3.618	3.62
860	3.626	3.634	3.643	3.651	3.659	3.667	3.675	3.683	3.692	3.700	3.70
870	3.708	3.716	3.724	3.732	3.741	3.749	3.757	3.765	3.774	3.782	3.79
880	3.790	3.798	3.807	3.815	3.823	3.832	3.840	3.848	3.857	3.865	3.87
890	3.873	3.882	3.890	3.898	3.907	3.915	3.923	3.932	3.940	3.949	3.95
900	3.957	3.965	3.974	3.982	3.991	3.999	4.008	4.016	4.024	4.033	4.04
910	4.041	4.050	4.058	4.067	4.075	4.084	4.093	4.101	4.110	4.118	4.12
920	4.127	4.135	4.144	4.152	4.161	4.170	4.178	4.187	4.195	4.204	4.21
930	4.213	4.221	4.230	4.239	4.247	4.256	4.265	4.273	4.282	4.291	4.29
940	4.299	4.308	4.317	4.326	4.334	4.343	4.352	4.360	4.369	4.378	4.38
950	4.387	4.396	4.404	4.413	4.422	4.431	4.440	4.448	4.457	4.466	4.47
960	4.475	4.484	4.493	4.501	4.510	4.519	4.528	4.537	4.546	4.555	4.56
970	4.564	4.573	4.582	4.591	4.599	4.608</					

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ITS-90 Table for type B thermocouple

°C	0	1	2	3	4	5	6	7	8	9	10
	Thermoelectric Voltage in mV										
1300	7.848	7.859	7.870	7.881	7.892	7.903	7.914	7.924	7.935	7.946	7.95
1310	7.957	7.968	7.979	7.990	8.001	8.012	8.023	8.034	8.045	8.056	8.06
1320	8.066	8.077	8.088	8.099	8.110	8.121	8.132	8.143	8.154	8.165	8.17
1330	8.176	8.187	8.198	8.209	8.220	8.231	8.242	8.253	8.264	8.275	8.28
1340	8.286	8.298	8.309	8.320	8.331	8.342	8.353	8.364	8.375	8.386	8.39
1350	8.397	8.408	8.419	8.430	8.441	8.453	8.464	8.475	8.486	8.497	8.50
1360	8.508	8.519	8.530	8.542	8.553	8.564	8.575	8.586	8.597	8.608	8.62
1370	8.620	8.631	8.642	8.653	8.664	8.675	8.687	8.698	8.709	8.720	8.73
1380	8.731	8.743	8.754	8.765	8.776	8.787	8.799	8.810	8.821	8.832	8.84
1390	8.844	8.855	8.866	8.877	8.889	8.900	8.911	8.922	8.934	8.945	8.95
1400	8.956	8.967	8.979	8.990	9.001	9.013	9.024	9.035	9.047	9.058	9.06
1410	9.069	9.080	9.092	9.103	9.114	9.126	9.137	9.148	9.160	9.171	9.18
1420	9.182	9.194	9.205	9.216	9.228	9.239	9.251	9.262	9.273	9.285	9.29
1430	9.296	9.307	9.319	9.330	9.342	9.353	9.364	9.376	9.387	9.398	9.41
1440	9.410	9.421	9.433	9.444	9.456	9.467	9.478	9.490	9.501	9.513	9.52
1450	9.524	9.536	9.547	9.558	9.570	9.581	9.593	9.604	9.616	9.627	9.63
1460	9.639	9.650	9.662	9.673	9.684	9.696	9.707	9.719	9.730	9.742	9.75
1470	9.753	9.765	9.776	9.788	9.799	9.811	9.822	9.834	9.845	9.857	9.86
1480	9.868	9.880	9.891	9.903	9.914	9.926	9.937	9.949	9.961	9.972	9.98
1490	9.984	9.995	10.007	10.018	10.030	10.041	10.053	10.064	10.076	10.088	10.09
1500	10.099	10.111	10.122	10.134	10.145	10.157	10.168	10.180	10.192	10.203	10.21
1510	10.215	10.226	10.238	10.249	10.261	10.273	10.284	10.296	10.307	10.319	10.33
1520	10.331	10.342	10.354	10.365	10.377	10.389	10.400	10.412	10.423	10.435	10.44
1530	10.447	10.458	10.470	10.482	10.493	10.505	10.516	10.528	10.540	10.551	10.56
1540	10.563	10.575	10.586	10.598	10.609	10.621	10.633	10.644	10.656	10.668	10.67
1550	10.679	10.691	10.703	10.714	10.726	10.738	10.749	10.761	10.773	10.784	10.79
1560	10.796	10.808	10.819	10.831	10.843	10.854	10.866	10.877	10.889	10.901	10.91
1570	10.913	10.924	10.936	10.948	10.959	10.971	10.983	10.994	11.006	11.018	11.02
1580	11.029	11.041	11.053	11.064	11.076	11.088	11.099	11.111	11.123	11.134	11.14
1590	11.146	11.158	11.169	11.181	11.193	11.205	11.216	11.228	11.240	11.251	11.26
1600	11.263	11.275	11.286	11.298	11.310	11.321	11.333	11.345	11.357	11.368	11.38
1610	11.380	11.392	11.403	11.415	11.427	11.438	11.450	11.462	11.474	11.485	11.49
1620	11.497	11.509	11.520	11.532	11.544	11.555	11.567	11.579	11.591	11.602	11.61
1630	11.614	11.626	11.637	11.649	11.661	11.673	11.684	11.696	11.708	11.719	11.73
1640	11.731	11.743	11.754	11.766	11.778	11.790	11.801	11.813	11.825	11.836	11.84
1650	11.848	11.860	11.871	11.883	11.895	11.907	11.918	11.930	11.942	11.953	11.96
1660	11.965	11.977	11.988	12.000	12.012	12.024	12.035	12.047	12.059	12.070	12.08
1670	12.082	12.094	12.105	12.117	12.129	12.141	12.152	12.164	12.176	12.187	12.19
1680	12.199	12.211	12.222	12.234	12.246	12.257	12.269	12.281	12.292	12.304	12.31
1690	12.316	12.327	12.339	12.351	12.363	12.374	12.386	12.398	12.409	12.421	12.43
1700	12.433	12.444	12.456	12.468	12.479	12.491	12.503	12.514	12.526	12.538	12.54
1710	12.549	12.561	12.572	12.584	12.596	12.607	12.619	12.631	12.642	12.654	12.66
1720	12.666	12.677	12.689	12.701	12.712	12.724	12.736	12.747	12.759	12.770	12.78
1730	12.782	12.794	12.805	12.817	12.829	12.840	12.852	12.863	12.875	12.887	12.89
1740	12.898	12.910	12.921	12.933	12.945	12.956	12.968	12.980	12.991	13.003	13.01
1750	13.014	13.026	13.037	13.049	13.061	13.072	13.084	13.095	13.107	13.119	13.13
1760	13.130	13.142	13.153	13.165	13.176	13.188	13.200	13.211	13.223	13.234	13.24
1770	13.246	13.257	13.269	13.280	13.292	13.304	13.315	13.327	13.338	13.350	13.36
1780	13.361	13.373	13.384	13.396	13.407	13.419	13.430	13.442	13.453	13.465	13.47
1790	13.476	13.488	13.499	13.511	13.522	13.534	13.545	13.557	13.568	13.580	13.59
1800	13.591	13.603	13.614	13.626	13.637	13.649	13.660	13.672	13.683	13.694	13.70
1810	13.706	13.717	13.729	13.740	13.752	13.763	13.775	13.786	13.797	13.809	13.82

ITS-90 Table for type E thermocouple

°C	0	1	2	3	4	5	6	7	8	9	10
0	-1.026	-0.994	-0.963	-0.931	-0.900	-0.868	-0.836	-0.805	-0.773	-0.741	-0.70
10	-0.709	-0.677	-0.645	-0.614	-0.582	-0.550	-0.517	-0.485	-0.453	-0.421	-0.38
20	-0.389	-0.357	-0.324	-0.292	-0.260	-0.227	-0.195	-0.163	-0.130	-0.098	-0.06
30	-0.065	-0.033	0.000	0.033	0.065	0.098	0.131	0.163	0.196	0.229	0.26
40	0.262	0.294	0.327	0.360	0.393	0.426	0.459	0.492	0.525	0.558	0.59
50	0.591	0.624	0.657	0.691	0.724	0.757	0.790	0.824	0.857	0.890	0.92
60	0.924	0.957	0.990	1.024	1.057	1.091	1.124	1.158	1.192	1.225	1.25
70	1.259	1.292	1.326	1.360	1.394	1.427	1.461	1.495	1.529	1.563	1.59
80	1.597	1.631	1.665	1.699	1.733	1.767	1.801	1.835	1.869	1.904	1.93
90	1.938	1.972	2.006	2.041	2.075	2.109	2.144	2.178	2.212	2.247	2.28
100	2.281	2.316	2.351	2.385	2.420	2.454	2.489	2.524	2.558	2.593	2.62
110	2.628	2.663	2.698	2.733	2.767	2.802	2.837	2.872	2.907	2.942	2.97
120	2.977	3.012	3.048	3.083	3.118	3.153	3.188	3.224	3.259	3.294	3.33
130	3.330	3.365	3.400	3.436	3.471	3.507	3.542	3.578	3.613	3.649	3.68
140	3.685	3.720	3.756	3.792	3.827	3.863	3.899	3.935	3.970	4.006	4.04

ITS-90 Table for type E thermocouple

°F	-10	-9	-8	-7	-6	-5	-4	-3	-2	-1	0
	Thermoelectric Voltage in mV										
-440	-9.830	-9.829	-9.827	-9.825	-9.823	-9.821	-9.819	-9.817	-9.814	-9.812	-9.80
-430	-9.809	-9.806	-9.803	-9.800	-9.797	-9.793	-9.790	-9.786	-9.782	-9.779	-9.77
-420	-9.775	-9.771	-9.766	-9.762	-9.758	-9.753	-9.749	-9.744	-9.739	-9.734	-9.72
-410	-9.729	-9.724	-9.718	-9.713	-9.707	-9.702	-9.696	-9.690	-9.684	-9.678	-9.67
-400	-9.672	-9.666	-9.659	-9.653	-9.646	-9.639	-9.632	-9.625	-9.618	-9.611	-9.60
-390	-9.604	-9.597	-9.589	-9.581	-9.574	-9.566	-9.558	-9.550	-9.542	-9.534	-9.52
-380	-9.525	-9.517	-9.508	-9.500	-9.491	-9.482	-9.473	-9.464	-9.455	-9.446	-9.43
-370	-9.436	-9.427	-9.417	-9.408	-9.398	-9.388	-9.378	-9.368	-9.358	-9.348	-9.33
-360	-9.338	-9.327	-9.317	-9.306	-9.295	-9.285	-9.274	-9.263	-9.252	-9.241	-9.22
-350	-9.229	-9.218	-9.207	-9.195	-9.184	-9.172	-9.160	-9.148	-9.136	-9.124	-9.11
-340	-9.112	-9.100	-9.088	-9.075	-9.063	-9.050	-9.038	-9.025	-9.012	-8.999	-8.98
-330	-8.986	-8.973	-8.960	-8.947	-8.934	-8.920	-8.907	-8.893	-8.880	-8.866	-8.85
-320	-8.852	-8.839	-8.825	-8.811	-8.797	-8.782	-8.768	-8.754	-8.739	-8.725	-8.71
-310	-8.710	-8.696	-8.681	-8.666	-8.652	-8.637	-8.622	-8.607	-8.591	-8.576	-8.56
-300	-8.561	-8.548	-8.530	-8.515	-8.499	-8.483	-8.468	-8.452	-8.436	-8.420	-8.40
-290	-8.404	-8.388	-8.372	-8.356	-8.339	-8.323	-8.307	-8.290	-8.273	-8.257	-8.24

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ITS-90 Table for type E thermocouple											
°F	0	1	2	3	4	5	6	7	8	9	10
Thermoelectric Voltage in mV											
150	4.042	4.078	4.114	4.150	4.186	4.222	4.258	4.294	4.330	4.366	4.40
160	4.403	4.439	4.475	4.511	4.547	4.584	4.620	4.656	4.693	4.729	4.76
170	4.766	4.802	4.839	4.875	4.912	4.948	4.985	5.021	5.058	5.095	5.13
180	5.131	5.168	5.205	5.242	5.278	5.315	5.352	5.389	5.426	5.463	5.50
190	5.500	5.537	5.574	5.611	5.648	5.685	5.722	5.759	5.796	5.833	5.87
200	5.871	5.908	5.945	5.982	6.020	6.057	6.094	6.132	6.169	6.207	6.24
210	6.244	6.281	6.319	6.356	6.394	6.432	6.469	6.507	6.544	6.582	6.62
220	6.620	6.658	6.695	6.733	6.771	6.809	6.847	6.884	6.922	6.960	6.99
230	6.998	7.036	7.074	7.112	7.150	7.188	7.226	7.264	7.302	7.341	7.37
240	7.379	7.417	7.455	7.493	7.532	7.570	7.608	7.647	7.685	7.723	7.76
250	7.762	7.800	7.839	7.877	7.916	7.954	7.993	8.031	8.070	8.108	8.14
260	8.147	8.186	8.224	8.263	8.302	8.340	8.379	8.418	8.457	8.496	8.53
270	8.535	8.573	8.612	8.651	8.690	8.729	8.768	8.807	8.846	8.885	8.92
280	8.924	8.963	9.002	9.041	9.081	9.120	9.159	9.198	9.237	9.277	9.31
290	9.316	9.355	9.395	9.434	9.473	9.513	9.552	9.591	9.631	9.670	9.71
300	9.710	9.749	9.789	9.828	9.868	9.907	9.947	9.987	10.026	10.066	10.10
310	10.106	10.145	10.185	10.225	10.265	10.304	10.344	10.384	10.424	10.464	10.50
320	10.503	10.543	10.583	10.623	10.663	10.703	10.743	10.783	10.823	10.863	10.90
330	10.903	10.943	10.983	11.024	11.064	11.104	11.144	11.184	11.224	11.265	11.30
340	11.305	11.345	11.385	11.426	11.466	11.506	11.547	11.587	11.627	11.668	11.70
350	11.708	11.749	11.789	11.830	11.870	11.911	11.951	11.992	12.032	12.073	12.11
360	12.113	12.154	12.195	12.235	12.276	12.317	12.357	12.398	12.439	12.480	12.52
370	12.520	12.561	12.602	12.643	12.684	12.724	12.765	12.806	12.847	12.888	12.92
380	12.929	12.970	13.011	13.052	13.093	13.134	13.175	13.216	13.257	13.298	13.33
390	13.339	13.380	13.421	13.462	13.504	13.545	13.586	13.627	13.668	13.710	13.75
400	13.751	13.792	13.833	13.875	13.916	13.957	13.999	14.040	14.081	14.123	14.16
410	14.164	14.205	14.247	14.288	14.330	14.371	14.413	14.454	14.496	14.537	14.57
420	14.579	14.620	14.662	14.704	14.745	14.787	14.828	14.870	14.912	14.953	14.99
430	14.995	15.037	15.078	15.120	15.162	15.204	15.245	15.287	15.329	15.371	15.41
440	15.413	15.454	15.496	15.538	15.580	15.622	15.664	15.706	15.748	15.790	15.83
450	15.831	15.873	15.915	15.957	15.999	16.041	16.083	16.125	16.168	16.210	16.25
460	16.252	16.294	16.336	16.378	16.420	16.462	16.504	16.547	16.589	16.631	16.67
470	16.673	16.715	16.758	16.800	16.842	16.884	16.927	16.969	17.011	17.054	17.09
480	17.096	17.138	17.181	17.223	17.265	17.308	17.350	17.392	17.435	17.477	17.52
490	17.520	17.562	17.605	17.647	17.690	17.732	17.775	17.817	17.860	17.902	17.94
500	17.945	17.987	18.030	18.073	18.115	18.158	18.200	18.243	18.286	18.328	18.37
510	18.371	18.414	18.456	18.499	18.542	18.585	18.627	18.670	18.713	18.756	18.79
520	18.798	18.841	18.884	18.927	18.969	19.012	19.055	19.098	19.141	19.184	19.22
530	19.227	19.269	19.312	19.355	19.398	19.441	19.484	19.527	19.570	19.613	19.65
540	19.656	19.699	19.742	19.785	19.828	19.871	19.914	19.957	20.000	20.043	20.08
550	20.086	20.129	20.172	20.216	20.259	20.302	20.345	20.388	20.431	20.474	20.51
560	20.517	20.561	20.604	20.647	20.690	20.733	20.777	20.820	20.863	20.906	20.95
570	20.950	20.993	21.036	21.080	21.123	21.166	21.209	21.253	21.296	21.339	21.38
580	21.383	21.426	21.470	21.513	21.556	21.600	21.643	21.686	21.730	21.773	21.81
590	21.817	21.860	21.904	21.947	21.991	22.034	22.078	22.121	22.165	22.208	22.25
600	22.252	22.295	22.339	22.382	22.426	22.469	22.513	22.556	22.600	22.644	22.68
610	22.687	22.731	22.774	22.818	22.862	22.905	22.949	22.993	23.036	23.080	23.12
620	23.124	23.167	23.211	23.255	23.298	23.342	23.386	23.429	23.473	23.517	23.56
630	23.561	23.604	23.648	23.692	23.736	23.780	23.823	23.867	23.911	23.955	23.99
640	23.999	24.042	24.086	24.130	24.174	24.218	24.262	24.305	24.349	24.393	24.43
650	24.437	24.481	24.525	24.569	24.613	24.657	24.701	24.745	24.789	24.832	24.87
660	24.876	24.920	24.964	25.008	25.052	25.096	25.140	25.184	25.228	25.272	25.31
670	25.316	25.360	25.404	25.448	25.493	25.537	25.581	25.625	25.669	25.713	25.75
680	25.757	25.801	25.845	25.889	25.933	25.977	26.022	26.066	26.110	26.154	26.19
690	26.198	26.242	26.286	26.331	26.375	26.419	26.463	26.507	26.552	26.596	26.64
700	26.640	26.684	26.728	26.773	26.817	26.861	26.905	26.950	26.994	27.038	27.08
710	27.082	27.127	27.171	27.215	27.259	27.304	27.348	27.392	27.437	27.481	27.52
720	27.525	27.570	27.614	27.658	27.703	27.747	27.791	27.836	27.880	27.924	27.96
730	27.969	28.013	28.057	28.102	28.146	28.191	28.235	28.279	28.324	28.368	28.41
740	28.413	28.457	28.501	28.546	28.590	28.635	28.679	28.724	28.768	28.813	28.85
750	28.857	28.901	28.946	28.990	29.035	29.079	29.124	29.168	29.213	29.257	29.30
760	29.302	29.346	29.391	29.435	29.480	29.525	29.569	29.614	29.658	29.703	29.74
770	29.747	29.792	29.836	29.881	29.925	29.970	30.015	30.059	30.104	30.148	30.19
780	30.193	30.238	30.282	30.327	30.371	30.416	30.461	30.505	30.550	30.595	30.63
790	30.639	30.684	30.728	30.773	30.818	30.862	30.907	30.952	30.996	31.041	31.08

ITS-90 Table for type E thermocouple											
°F	0	1	2	3	4	5	6	7	8	9	10
Thermoelectric Voltage in mV											
800	31.086	31.130	31.175	31.220	31.264	31.309	31.354	31.398	31.443	31.488	31.53
810	31.533	31.577	31.622	31.667	31.711	31.756	31.801	31.846	31.890	31.935	31.98
820	31.980	32.025	32.069	32.114	32.159	32.204	32.248	32.293	32.338	32.383	32.42
830	32.427	32.472	32.517	32.562	32.606	32.651	32.696	32.741	32.786	32.830	32.87
840	32.875	32.920	32.965	33.010	33.054	33.099	33.144	33.189	33.234	33.278	33.32
850	33.323	33.368	33.413	33.458	33.503	33.547	33.592	33.637	33.682	33.727	33.77
860	33.772	33.816	33.861	33.906	33.951	33.996	34.041	34.086	34.130	34.175	34.22
870	34.220	34.265	34.310	34.355	34.400	34.445	34.489	34.534	34.579	34.624	34.66
880	34.669	34.714	34.759	34.804	34.849	34.893	34.938	34.983	35.028	35.073	35.11
890	35.118	35.163	35.208	35.253	35.298	35.343	35.387	35.432	35.477	35.522	35.56
900	35.567	35.612	35.657	35.702	35.747	35.792	35.837	35.882	35.927	35.972	36.01
910	36.016	36.061	36.106	36.151	36.196	36.241	36.286	36.331	36.376	36.421	36.46
920	36.466	36.511	36.556	36.601	36.646	36.691	36.736	36.781	36.826	36.870	36.91
930	36.915	36.960	37.005	37.050	37.095	37.140	37.185	37.230	37.275	37.320	37.36
940	37.365	37.410	37.455	37.500	37.545	37.590	37.635	37.680	37.725	37.770	37.81
950	37.815	37.860	37.905	37.950	37.995	38.040	38.085	38.130	38.175	38.220	38.26
960	38.265	38.309	38.354	38.399	38.444	38.489	38.534	38.579	38.624	38.669	38.71
970	38.714	38.759	38.804	38.849	38.894	38.939	38.984	39.029	39.074	39.119	39.16
980	39.164	39.209	39.254	39.299	39.344	39.389	39.434	39.479	39.524	39.569	39.61
990	39.614	39.659	39.704	39.749	39.794	39.839	39.884	39.929	39.974	40.019	40.06
1000	40.064	40.109	40.154	40.199	40.243	40.288	40.333	40.378	40.423	40.468	40.51
1010	40.513	40.558	40.603	40.648	40.693	40.738	40.783	40.828	40.873	40.918	40.96
1020	40.963	41.008	41.053	41.098	41.143	41.188	41.233	41.278	41.323	41.368	41.41
1030	41.412	41.457	41.502	41.547	41.592	41.637	41.682	41.727	41.772	41.817	41.86
1040	41.862	41.907	41.952	41.997	42.042	42.087	42.132	42.177	42.222	42.266	42.31
1050	42.311	42.356	42.401	42.446	42.491	42.536</					

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ITS-90 Table for type E thermocouple											
°F	0	1	2	3	4	5	6	7	8	9	10
Thermoelectric Voltage in mV											
1450	60.058	60.101	60.145	60.189	60.232	60.276	60.320	60.363	60.407	60.451	60.49
1460	60.494	60.538	60.581	60.625	60.669	60.712	60.756	60.799	60.843	60.887	60.93
1470	60.930	60.974	61.017	61.061	61.105	61.148	61.192	61.235	61.279	61.322	61.36
1480	61.366	61.409	61.453	61.496	61.540	61.583	61.627	61.671	61.714	61.758	61.80
1490	61.801	61.845	61.888	61.932	61.975	62.018	62.062	62.105	62.149	62.192	62.23
1500	62.236	62.279	62.323	62.366	62.410	62.453	62.496	62.540	62.583	62.627	62.67
1510	62.670	62.714	62.757	62.800	62.844	62.887	62.931	62.974	63.017	63.061	63.10
1520	63.104	63.148	63.191	63.234	63.278	63.321	63.364	63.408	63.451	63.494	63.53
1530	63.538	63.581	63.624	63.668	63.711	63.754	63.798	63.841	63.884	63.927	63.97
1540	63.971	64.014	64.057	64.101	64.144	64.187	64.230	64.274	64.317	64.360	64.40
1550	64.403	64.447	64.490	64.533	64.576	64.619	64.663	64.706	64.749	64.792	64.83
1560	64.835	64.879	64.922	64.965	65.008	65.051	65.094	65.138	65.181	65.224	65.26
1570	65.267	65.310	65.353	65.396	65.440	65.483	65.526	65.569	65.612	65.655	65.69
1580	65.698	65.741	65.784	65.827	65.871	65.914	65.957	66.000	66.043	66.086	66.12
1590	66.129	66.172	66.215	66.258	66.301	66.344	66.387	66.430	66.473	66.516	66.55
1600	66.559	66.602	66.645	66.688	66.731	66.774	66.817	66.860	66.903	66.946	66.98
1610	66.989	67.031	67.074	67.117	67.160	67.203	67.246	67.289	67.332	67.375	67.41
1620	67.418	67.460	67.503	67.546	67.589	67.632	67.675	67.718	67.760	67.803	67.84
1630	67.846	67.889	67.932	67.974	68.017	68.060	68.103	68.146	68.188	68.231	68.27
1640	68.274	68.317	68.359	68.402	68.445	68.488	68.530	68.573	68.616	68.659	68.70
1650	68.701	68.744	68.787	68.829	68.872	68.915	68.957	69.000	69.043	69.085	69.12
1660	69.128	69.171	69.213	69.256	69.298	69.341	69.384	69.426	69.469	69.511	69.55
1670	69.554	69.597	69.639	69.682	69.724	69.767	69.809	69.852	69.894	69.937	69.97
1680	69.979	70.022	70.064	70.107	70.149	70.192	70.234	70.277	70.319	70.362	70.40
1690	70.404	70.447	70.489	70.531	70.574	70.616	70.659	70.701	70.744	70.786	70.82
1700	70.828	70.871	70.913	70.955	70.998	71.040	71.082	71.125	71.167	71.209	71.25
1710	71.252	71.294	71.336	71.379	71.421	71.463	71.506	71.548	71.590	71.632	71.67
1720	71.675	71.717	71.759	71.801	71.844	71.886	71.928	71.970	72.012	72.055	72.09
1730	72.097	72.139	72.181	72.223	72.266	72.308	72.350	72.392	72.434	72.476	72.51
1740	72.518	72.561	72.603	72.645	72.687	72.729	72.771	72.813	72.855	72.897	72.93
1750	72.939	72.981	73.023	73.066	73.108	73.150	73.192	73.234	73.276	73.318	73.36
1760	73.360	73.402	73.444	73.486	73.528	73.570	73.612	73.654	73.696	73.738	73.78
1770	73.780	73.821	73.863	73.905	73.947	73.989	74.031	74.073	74.115	74.157	74.19
1780	74.199	74.241	74.283	74.324	74.366	74.408	74.450	74.492	74.534	74.576	74.61
1790	74.618	74.659	74.701	74.743	74.785	74.827	74.869	74.910	74.952	74.994	75.03
1800	75.036	75.078	75.120	75.161	75.203	75.245	75.287	75.329	75.370	75.412	75.45
1810	75.454	75.496	75.538	75.579	75.621	75.663	75.705	75.746	75.788	75.830	75.87
1820	75.872	75.913	75.955	75.997	76.039	76.081	76.122	76.164	76.206	76.248	76.28
1830	76.290	76.331	76.373	76.414	76.456	76.497	76.539	76.580	76.622	76.663	76.705
1840	76.747	76.788	76.830	76.871	76.913	76.954	76.996	77.037	77.078	77.120	77.161
1850	77.203	77.244	77.286	77.327	77.368	77.409	77.451	77.492	77.533	77.575	77.616
1860	77.658	77.699	77.741	77.782	77.823	77.865	77.906	77.947	77.988	78.030	78.071
1870	78.113	78.154	78.196	78.237	78.278	78.319	78.360	78.401	78.443	78.484	78.525
1880	78.567	78.608	78.649	78.690	78.731	78.772	78.813	78.854	78.895	78.937	78.978
1890	79.019	79.060	79.101	79.142	79.183	79.224	79.265	79.306	79.347	79.389	79.430
1900	79.471	79.512	79.553	79.594	79.635	79.676	79.717	79.758	79.799	79.840	79.881
1910	79.923	79.964	80.005	80.046	80.087	80.128	80.169	80.210	80.251	80.292	80.333
1920	80.374	80.415	80.456	80.497	80.538	80.579	80.620	80.661	80.702	80.743	80.784
1930	80.825	80.866	80.907	80.948	80.989	81.030	81.071	81.112	81.153	81.194	81.235
1940	81.276	81.317	81.358	81.399	81.440	81.481	81.522	81.563	81.604	81.645	81.686
1950	81.727	81.768	81.809	81.850	81.891	81.932	81.973	82.014	82.055	82.096	82.137
1960	82.178	82.219	82.260	82.301	82.342	82.383	82.424	82.465	82.506	82.547	82.588
1970	82.629	82.670	82.711	82.752	82.793	82.834	82.875	82.916	82.957	82.998	83.039
1980	83.080	83.121	83.162	83.203	83.244	83.285	83.326	83.367	83.408	83.449	83.490
1990	83.531	83.572	83.613	83.654	83.695	83.736	83.777	83.818	83.859	83.900	83.941
2000	83.982	84.023	84.064	84.105	84.146	84.187	84.228	84.269	84.310	84.351	84.392
2010	84.433	84.474	84.515	84.556	84.597	84.638	84.679	84.720	84.761	84.802	84.843
2020	84.884	84.925	84.966	85.007	85.048	85.089	85.130	85.171	85.212	85.253	85.294
2030	85.335	85.376	85.417	85.458	85.499	85.540	85.581	85.622	85.663	85.704	85.745
2040	85.786	85.827	85.868	85.909	85.950	85.991	86.032	86.073	86.114	86.155	86.196
2050	86.237	86.278	86.319	86.360	86.401	86.442	86.483	86.524	86.565	86.606	86.647
2060	86.688	86.729	86.770	86.811	86.852	86.893	86.934	86.975	87.016	87.057	87.098
2070	87.139	87.180	87.221	87.262	87.303	87.344	87.385	87.426	87.467	87.508	87.549
2080	87.590	87.631	87.672	87.713	87.754	87.795	87.836	87.877	87.918	87.959	88.000
2090	88.041	88.082	88.123	88.164	88.205	88.246	88.287	88.328	88.369	88.410	88.451
2100	88.492	88.533	88.574	88.615	88.656	88.697	88.738	88.779	88.820	88.861	88.902
2110	88.943	88.984	89.025	89.066	89.107	89.148	89.189	89.230	89.271	89.312	89.353
2120	89.394	89.435	89.476	89.517	89.558	89.599	89.640	89.681	89.722	89.763	89.804
2130	89.845	89.886	89.927	89.968	90.009	90.050	90.091	90.132	90.173	90.214	90.255
2140	90.296	90.337	90.378	90.419	90.460	90.501	90.542	90.583	90.624	90.665	90.706
2150	90.747	90.788	90.829	90.870	90.911	90.952	90.993	91.034	91.075	91.116	91.157
2160	91.198	91.239	91.280	91.321	91.362	91.403	91.444	91.485	91.526	91.567	91.608
2170	91.649	91.690	91.731	91.772	91.813	91.854	91.895	91.936	91.977	92.018	92.059
2180	92.100	92.141	92.182	92.223	92.264	92.305	92.346	92.387	92.428	92.469	92.510
2190	92.551	92.592	92.633	92.674	92.715	92.756	92.797	92.838	92.879	92.920	92.961
2200	92.999	93.040	93.081	93.122	93.163	93.204	93.245	93.286	93.327	93.368	93.409
2210	93.450	93.491	93.532	93.573	93.614	93.655	93.696	93.737	93.778	93.819	93.860
2220	93.901	93.942	93.983	94.024	94.065	94.106	94.147	94.188	94.229	94.270	94.311
2230	94.352	94.393	94.434	94.475	94.516	94.557	94.598	94.639	94.680	94.721	94.762
2240	94.803	94.844	94.885	94.926	94.967	95.008	95.049	95.090	95.131	95.172	95.213
2250	95.254	95.295	95.336	95.377	95.418	95.459	95.500	95.541	95.582	95.623	95.664
2260	95.705	95.746	95.787	95.828	95.869	95.910	95.951	95.992	96.033	96.074	96.115
2270	96.156	96.197	96.238	96.279	96.320	96.361	96.402	96.443	96.484	96.525	96.566
2280	96.607	96.648	96.689	96.730	96.771	96.812	96.853	96.894	96.935	96.976	97.017
2290	97.058	97.099	97.140	97.181	97.222	97.263	97.304	97.345	97.386	97.427	97.468
2300	97.509	97.550	97.591	97.632	97.673	97.714	97.755	97.796	97.837	97.878	97.919
2310	97.960	98.001	98.042	98.083	98.124	98.165	98.206	98.247	98.288	98.329	98.370
2320	98.411	98.452	98.493	98.534	98.575	98.616	98.657	98.698	98.739	98.780	98.821
2330	98.862	98.903	98.944	98.985	99.026	99.067	99.108	99.149	99.190	99.231	99.272
2340	99.313	99.354	99.395	99.436	99.477	99.518	99.559	99.600	99.641	99.682	99.723
2350	99.764	99									

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ITS-90 Table for type E thermocouple											
°C	0	1	2	3	4	5	6	7	8	9	10
Thermoelectric Voltage in mV											
350	24.964	25.044	25.123	25.202	25.281	25.360	25.440	25.519	25.598	25.678	25.75
360	25.757	25.836	25.916	25.995	26.075	26.154	26.233	26.313	26.392	26.472	26.55
370	26.552	26.631	26.711	26.790	26.870	26.950	27.029	27.109	27.189	27.268	27.34
380	27.348	27.428	27.507	27.587	27.667	27.747	27.827	27.907	27.986	28.066	28.14
390	28.146	28.226	28.306	28.386	28.466	28.546	28.626	28.706	28.786	28.866	28.94
400	28.946	29.026	29.106	29.186	29.266	29.346	29.427	29.507	29.587	29.667	29.74
410	29.747	29.827	29.908	29.988	30.068	30.148	30.229	30.309	30.389	30.470	30.55
420	30.550	30.630	30.711	30.791	30.871	30.952	31.032	31.112	31.193	31.273	31.35
430	31.354	31.434	31.515	31.595	31.676	31.756	31.837	31.917	31.998	32.078	32.15
440	32.159	32.239	32.320	32.400	32.481	32.562	32.642	32.723	32.803	32.884	32.96
450	32.965	33.045	33.126	33.207	33.287	33.368	33.449	33.529	33.610	33.691	33.77
460	33.772	33.852	33.933	34.014	34.095	34.175	34.256	34.337	34.418	34.498	34.57
470	34.579	34.660	34.741	34.822	34.903	34.983	35.064	35.145	35.226	35.307	35.38
480	35.387	35.468	35.549	35.630	35.711	35.792	35.873	35.954	36.034	36.115	36.19
490	36.196	36.277	36.358	36.439	36.520	36.601	36.682	36.763	36.843	36.924	37.00
500	37.005	37.086	37.167	37.248	37.329	37.410	37.491	37.572	37.653	37.734	37.81
510	37.815	37.896	37.977	38.058	38.139	38.220	38.300	38.381	38.462	38.543	38.62
520	38.624	38.705	38.786	38.867	38.948	39.029	39.110	39.191	39.272	39.353	39.43
530	39.434	39.515	39.596	39.677	39.758	39.839	39.920	40.001	40.082	40.163	40.24
540	40.243	40.324	40.405	40.486	40.567	40.648	40.729	40.810	40.891	40.972	41.05
550	41.053	41.134	41.215	41.296	41.377	41.457	41.538	41.619	41.700	41.781	41.86
560	41.862	41.943	42.024	42.105	42.185	42.266	42.347	42.428	42.509	42.590	42.67
570	42.671	42.751	42.832	42.913	42.994	43.075	43.156	43.236	43.317	43.398	43.47
580	43.479	43.560	43.640	43.721	43.802	43.883	43.963	44.044	44.125	44.206	44.28
590	44.286	44.367	44.448	44.529	44.609	44.690	44.771	44.851	44.932	45.013	45.09
600	45.093	45.174	45.255	45.335	45.416	45.497	45.577	45.658	45.738	45.819	45.90
610	45.900	45.980	46.061	46.141	46.222	46.302	46.383	46.463	46.544	46.624	46.70
620	46.705	46.785	46.866	46.946	47.027	47.107	47.188	47.268	47.349	47.429	47.50
630	47.509	47.590	47.670	47.751	47.831	47.911	47.992	48.072	48.152	48.233	48.31
640	48.313	48.393	48.474	48.554	48.634	48.715	48.795	48.875	48.955	49.035	49.11
650	49.116	49.196	49.276	49.356	49.436	49.517	49.597	49.677	49.757	49.837	49.91
660	49.917	49.997	50.077	50.157	50.238	50.318	50.398	50.478	50.558	50.638	50.71
670	50.718	50.798	50.878	50.958	51.038	51.118	51.197	51.277	51.357	51.437	51.51
680	51.517	51.597	51.677	51.757	51.837	51.917	51.996	52.076	52.156	52.236	52.31
690	52.315	52.395	52.475	52.555	52.634	52.714	52.794	52.873	52.953	53.033	53.11
700	53.112	53.192	53.272	53.351	53.431	53.510	53.590	53.670	53.749	53.829	53.90
710	53.908	53.988	54.067	54.147	54.226	54.306	54.385	54.465	54.544	54.624	54.70
720	54.703	54.782	54.862	54.941	55.021	55.100	55.179	55.259	55.338	55.417	55.49
730	55.497	55.576	55.655	55.734	55.814	55.893	55.972	56.051	56.131	56.210	56.28
740	56.289	56.368	56.447	56.526	56.606	56.685	56.764	56.843	56.922	57.001	57.08
750	57.080	57.159	57.238	57.317	57.396	57.475	57.554	57.633	57.712	57.791	57.87
760	57.870	57.949	58.028	58.107	58.186	58.265	58.344	58.423	58.502	58.580	58.65
770	58.659	58.738	58.816	58.895	58.974	59.053	59.131	59.210	59.289	59.367	59.44
780	59.446	59.525	59.604	59.682	59.761	59.839	59.918	59.997	60.075	60.154	60.23
790	60.232	60.311	60.390	60.468	60.547	60.625	60.704	60.782	60.860	60.939	61.01
800	61.017	61.096	61.174	61.253	61.331	61.409	61.488	61.566	61.644	61.723	61.80
810	61.801	61.879	61.958	62.036	62.114	62.192	62.271	62.349	62.427	62.505	62.58
820	62.583	62.662	62.740	62.818	62.896	62.974	63.052	63.130	63.208	63.286	63.36
830	63.364	63.442	63.520	63.598	63.676	63.754	63.832	63.910	63.988	64.066	64.14
840	64.144	64.222	64.300	64.377	64.455	64.533	64.611	64.689	64.766	64.844	64.92
850	64.922	65.000	65.077	65.155	65.233	65.310	65.388	65.465	65.543	65.621	65.69
860	65.698	65.776	65.853	65.931	66.008	66.086	66.163	66.241	66.318	66.396	66.47
870	66.473	66.550	66.628	66.705	66.782	66.860	66.937	67.014	67.092	67.169	67.24
880	67.246	67.323	67.400	67.478	67.555	67.632	67.709	67.786	67.863	67.940	68.01
890	68.017	68.094	68.171	68.248	68.325	68.402	68.479	68.556	68.633	68.710	68.78
900	68.787	68.863	68.940	69.017	69.094	69.171	69.247	69.324	69.401	69.477	69.55
910	69.554	69.631	69.707	69.784	69.860	69.937	70.013	70.090	70.166	70.243	70.31
920	70.319	70.396	70.472	70.548	70.625	70.701	70.777	70.854	70.930	71.006	71.08
930	71.082	71.159	71.235	71.311	71.387	71.463	71.539	71.615	71.692	71.768	71.84
940	71.844	71.920	72.000	72.076	72.152	72.228	72.299	72.375	72.451	72.527	72.60
950	72.603	72.678	72.754	72.830	72.906	72.981	73.057	73.133	73.208	73.284	73.36
960	73.360	73.435	73.511	73.586	73.662	73.738	73.813	73.889	73.964	74.040	74.11
970	74.115	74.190	74.266	74.341	74.417	74.492	74.567	74.643	74.718	74.793	74.86
980	74.869	74.944	75.019	75.095	75.170	75.245	75.320	75.395	75.471	75.546	75.62
990	75.621	75.696	75.771	75.847	75.922	75.997	76.072	76.147	76.223	76.298	76.37

ITS-90 Table for type J thermocouple											
°F	-10	-9	-8	-7	-6	-5	-4	-3	-2	-1	0
Thermoelectric Voltage in mV											
-340					-8.095	-8.085	-8.074	-8.063	-8.052	-8.041	-8.03
-330	-8.030	-8.019	-8.008	-7.996	-7.985	-7.973	-7.962	-7.950	-7.938	-7.927	-7.91
-320	-7.915	-7.903	-7.890	-7.878	-7.866	-7.854	-7.841	-7.829	-7.816	-7.804	-7.79
-310	-7.791	-7.778	-7.765	-7.752	-7.739	-7.726	-7.713	-7.699	-7.686	-7.672	-7.65
-300	-7.659	-7.645	-7.632	-7.618	-7.604	-7.590	-7.576	-7.562	-7.548	-7.534	-7.51
-290	-7.519	-7.505	-7.491	-7.476	-7.462	-7.447	-7.432	-7.417	-7.403	-7.388	-7.37
-280	-7.373	-7.357	-7.342	-7.327	-7.312	-7.296	-7.281	-7.265	-7.250	-7.234	-7.21
-270	-7.219	-7.203	-7.187	-7.171	-7.155	-7.139	-7.123	-7.107	-7.090	-7.074	-7.05
-260	-7.058	-7.041	-7.025	-7.008	-6.991	-6.975	-6.958	-6.941	-6.924	-6.907	-6.89
-250	-6.890	-6.873	-6.856	-6.839	-6.821	-6.804	-6.787	-6.769	-6.752	-6.734	-6.71
-240	-6.716	-6.699	-6.681	-6.663	-6.645	-6.627	-6.609	-6.591	-6.573	-6.555	-6.53
-230	-6.536	-6.518	-6.500	-6.481	-6.463	-6.444	-6.426	-6.407	-6.388	-6.370	-6.35
-220	-6.351	-6.332	-6.313	-6.294	-6.275	-6.256	-6.236	-6.217	-6.198	-6.179	-6.15
-210	-6.159	-6.140	-6.120	-6.101	-6.081	-6.061	-6.042	-6.022	-6.002	-5.982	-5.96
-200	-5.962	-5.942	-5.922	-5.902	-5.882	-5.862	-5.842	-5.821	-5.801	-5.781	-5.76
-190	-5.760	-5.740	-5.719	-5.699	-5.678	-5.657	-5.637	-5.616	-5.595	-5.574	-5.55
-180	-5.553	-5.532	-5.511	-5.490	-5.469	-5.448	-5.426	-5.405	-5.384	-5.363	-5.34
-170	-5.341	-5.320	-5.298	-5.277	-5.255	-5.233	-5.212	-5.190	-5.168	-5.146	-5.12
-160	-5.125	-5.103	-5.081	-5.059	-5.037	-5.015	-4.992	-4.970	-4.948	-4.926	-4.90
-150	-4.903	-4.881	-4.859	-4.836	-4.814	-4.791	-4.769	-4.746	-4.724	-4.701	-4.67
-140	-4.678	-4.655	-4.633	-4.610	-4.587	-4.564	-4.541	-4.518	-4.495	-4.472	-4.44
-130	-4.449	-4.425	-4.402	-4.379	-4.356	-4.332	-4.309	-4.286	-4.262	-4.239	-4.21
-120	-4.215	-4.192	-4.168	-4.144	-4.121	-4.097	-4.073	-4.049	-4.026	-4.002	-3.97
-110	-3.978	-3.954	-3.930	-3.906	-3.882	-3.858	-3.834	-3.810	-3.786	-3.761	-3.73
-100	-3.737	-3.713	-3.688	-3.664	-3.640	-3.615	-3.591	-3.566	-3.542	-3.517	-3.49
-90	-3.493	-3.468	-3.443	-3.419	-3.394	-3.369	-3.344	-3.320	-3.295	-3.270	-3.24
-80	-3.245	-3.220	-3.195	-3.170	-3.145	-3.120	-3.095	-3.07			

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ITS-90 Table for type J thermocouple											
°F	0	1	2	3	4	5	6	7	8	9	10
Thermoelectric Voltage in mV											
200	4.907	4.937	4.967	4.997	5.028	5.058	5.088	5.118	5.148	5.178	5.20
210	5.209	5.239	5.269	5.299	5.329	5.360	5.390	5.420	5.450	5.480	5.51
220	5.511	5.541	5.571	5.602	5.632	5.662	5.692	5.723	5.753	5.783	5.81
230	5.814	5.844	5.874	5.905	5.935	5.965	5.996	6.026	6.056	6.087	6.11
240	6.117	6.147	6.178	6.208	6.239	6.269	6.299	6.330	6.360	6.391	6.42
250	6.421	6.452	6.482	6.512	6.543	6.573	6.604	6.634	6.665	6.695	6.72
260	6.726	6.756	6.787	6.817	6.848	6.878	6.909	6.939	6.970	7.000	7.03
270	7.031	7.061	7.092	7.122	7.153	7.184	7.214	7.245	7.275	7.306	7.33
280	7.336	7.367	7.398	7.428	7.459	7.489	7.520	7.550	7.581	7.612	7.64
290	7.642	7.673	7.704	7.734	7.765	7.795	7.826	7.857	7.887	7.918	7.94
300	7.949	7.979	8.010	8.041	8.071	8.102	8.133	8.163	8.194	8.225	8.25
310	8.255	8.286	8.317	8.347	8.378	8.409	8.439	8.470	8.501	8.532	8.56
320	8.562	8.593	8.624	8.654	8.685	8.716	8.747	8.777	8.808	8.839	8.86
330	8.869	8.900	8.931	8.962	8.992	9.023	9.054	9.085	9.115	9.146	9.17
340	9.177	9.208	9.238	9.269	9.300	9.331	9.362	9.392	9.423	9.454	9.48
350	9.485	9.515	9.546	9.577	9.608	9.639	9.669	9.700	9.731	9.762	9.79
360	9.793	9.823	9.854	9.885	9.916	9.947	9.977	10.008	10.039	10.070	10.10
370	10.101	10.131	10.162	10.193	10.224	10.255	10.285	10.316	10.347	10.378	10.40
380	10.409	10.440	10.470	10.501	10.532	10.563	10.594	10.625	10.655	10.686	10.71
390	10.717	10.748	10.779	10.810	10.840	10.871	10.902	10.933	10.964	10.995	11.02
400	11.025	11.056	11.087	11.118	11.149	11.180	11.211	11.242	11.272	11.303	11.33
410	11.334	11.365	11.396	11.426	11.457	11.488	11.519	11.550	11.581	11.612	11.64
420	11.642	11.673	11.704	11.735	11.766	11.797	11.828	11.858	11.889	11.920	11.95
430	11.951	11.982	12.013	12.044	12.074	12.105	12.136	12.167	12.198	12.229	12.26
440	12.260	12.290	12.321	12.352	12.383	12.414	12.445	12.476	12.506	12.537	12.56
450	12.568	12.599	12.630	12.661	12.691	12.722	12.753	12.784	12.815	12.846	12.87
460	12.877	12.907	12.938	12.969	13.000	13.031	13.062	13.093	13.123	13.154	13.18
470	13.185	13.216	13.247	13.278	13.308	13.339	13.370	13.401	13.432	13.463	13.49
480	13.494	13.524	13.555	13.586	13.617	13.648	13.679	13.709	13.740	13.771	13.80
490	13.802	13.833	13.864	13.894	13.925	13.956	13.987	14.018	14.049	14.079	14.11
500	14.110	14.141	14.172	14.203	14.233	14.264	14.295	14.326	14.357	14.388	14.41
510	14.418	14.449	14.480	14.511	14.542	14.573	14.603	14.634	14.665	14.696	14.72
520	14.727	14.758	14.788	14.819	14.850	14.881	14.911	14.942	14.973	15.004	15.03
530	15.035	15.065	15.096	15.127	15.158	15.189	15.219	15.250	15.281	15.312	15.34
540	15.343	15.373	15.404	15.435	15.466	15.496	15.527	15.558	15.589	15.620	15.65
550	15.650	15.681	15.712	15.743	15.773	15.804	15.835	15.866	15.897	15.927	15.95
560	15.958	15.989	16.020	16.050	16.081	16.112	16.143	16.173	16.204	16.235	16.26
570	16.266	16.296	16.327	16.358	16.389	16.419	16.450	16.481	16.512	16.542	16.57
580	16.573	16.604	16.635	16.665	16.696	16.727	16.758	16.788	16.819	16.850	16.88
590	16.881	16.911	16.942	16.973	17.003	17.034	17.065	17.096	17.126	17.157	17.18
600	17.188	17.219	17.249	17.280	17.311	17.341	17.372	17.403	17.434	17.464	17.49
610	17.495	17.526	17.556	17.587	17.618	17.649	17.679	17.710	17.741	17.771	17.80
620	17.802	17.833	17.863	17.894	17.925	17.955	17.986	18.017	18.048	18.078	18.10
630	18.109	18.140	18.170	18.201	18.232	18.262	18.293	18.324	18.354	18.385	18.41
640	18.416	18.446	18.477	18.508	18.538	18.569	18.600	18.630	18.661	18.692	18.72
650	18.722	18.753	18.784	18.814	18.845	18.876	18.906	18.937	18.968	18.998	19.02
660	19.029	19.060	19.090	19.121	19.152	19.182	19.213	19.244	19.274	19.305	19.33
670	19.336	19.366	19.397	19.428	19.458	19.489	19.520	19.550	19.581	19.612	19.64
680	19.642	19.673	19.704	19.734	19.765	19.795	19.826	19.857	19.887	19.918	19.94
690	19.949	19.979	20.010	20.041	20.071	20.102	20.132	20.163	20.194	20.224	20.25
700	20.255	20.286	20.316	20.347	20.378	20.408	20.439	20.469	20.500	20.531	20.56
710	20.561	20.592	20.623	20.653	20.684	20.715	20.745	20.776	20.806	20.837	20.86
720	20.868	20.898	20.929	20.960	20.990	21.021	21.052	21.082	21.113	21.143	21.17
730	21.174	21.205	21.235	21.266	21.297	21.327	21.358	21.389	21.419	21.450	21.48
740	21.480	21.511	21.542	21.572	21.603	21.634	21.664	21.695	21.726	21.756	21.78
750	21.787	21.817	21.848	21.879	21.909	21.940	21.971	22.001	22.032	22.063	22.09
760	22.093	22.124	22.154	22.185	22.216	22.246	22.277	22.308	22.338	22.369	22.40
770	22.400	22.430	22.461	22.492	22.522	22.553	22.584	22.614	22.645	22.676	22.70
780	22.706	22.737	22.768	22.798	22.829	22.860	22.890	22.921	22.952	22.982	23.01
790	23.013	23.044	23.074	23.105	23.136	23.166	23.197	23.228	23.258	23.289	23.32
°F	0	1	2	3	4	5	6	7	8	9	10

ITS-90 Table for type J thermocouple											
°F	0	1	2	3	4	5	6	7	8	9	10
Thermoelectric Voltage in mV											
800	23.320	23.350	23.381	23.412	23.442	23.473	23.504	23.535	23.565	23.596	23.62
810	23.627	23.657	23.688	23.719	23.749	23.780	23.811	23.842	23.872	23.903	23.93
820	23.934	23.964	23.995	24.026	24.057	24.087	24.118	24.149	24.180	24.210	24.24
830	24.241	24.272	24.303	24.333	24.364	24.395	24.426	24.456	24.487	24.518	24.54
840	24.549	24.579	24.610	24.641	24.672	24.702	24.733	24.764	24.795	24.826	24.85
850	24.856	24.887	24.918	24.949	24.979	25.010	25.041	25.072	25.103	25.134	25.16
860	25.164	25.195	25.226	25.257	25.288	25.318	25.349	25.380	25.411	25.442	25.47
870	25.473	25.504	25.534	25.565	25.596	25.627	25.658	25.689	25.720	25.751	25.78
880	25.781	25.812	25.843	25.874	25.905	25.936	25.967	25.998	26.029	26.060	26.09
890	26.090	26.121	26.152	26.183	26.214	26.245	26.276	26.307	26.338	26.369	26.40
900	26.400	26.431	26.462	26.493	26.524	26.555	26.586	26.617	26.648	26.679	26.71
910	26.710	26.741	26.772	26.803	26.834	26.865	26.896	26.927	26.958	26.989	27.02
920	27.020	27.051	27.082	27.113	27.144	27.175	27.206	27.237	27.268	27.299	27.33
930	27.330	27.362	27.393	27.424	27.455	27.486	27.517	27.548	27.579	27.610	27.64
940	27.642	27.673	27.704	27.735	27.766	27.797	27.828	27.860	27.891	27.922	27.95
950	27.953	27.985	28.016	28.047	28.078	28.109	28.141	28.172	28.203	28.234	28.26
960	28.266	28.297	28.328	28.359	28.391	28.422	28.453	28.485	28.516	28.547	28.57
970	28.579	28.610	28.641	28.672	28.704	28.735	28.767	28.798	28.829	28.861	28.89
980	28.892	28.923	28.955	28.986	29.018	29.049	29.080	29.112	29.143	29.175	29.20
990	29.206	29.238	29.269	29.301	29.332	29.363	29.395	29.426	29.458	29.489	29.52
1000	29.521	29.552	29.584	29.616	29.647	29.679	29.710	29.742	29.773	29.805	29.83
1010	29.836	29.868	29.900	29.931	29.963	29.995	30.026	30.058	30.089	30.121	30.15
1020	30.153	30.184	30.216	30.248	30.279	30.311	30.343	30.375	30.406	30.438	30.47
1030	30.470	30.502	30.533	30.565	30.597	30.629	30.660	30.692	30.724	30.756	30.78
1040	30.788	30.819	30.851	30.883	30.915	30.947	30.979	31.011	31.043	31.074	31.10
1050	31.106	31.138	31.170	31.202	31.234	31.266	31.298	31.330	31.362	31.394	31.42
1060	31.426	31.458	31.490	31.522	31.554	31.586	31.618	31.650	31.682	31.714	31.74
1070	31.746	31.778	31.811	31.843	31.875	31.907	31.939	31.971	32.003	32.035	32.06
1080	32.068	32.100	32.132	32.164	32.196	32.229	32.261	32.293	32.325	32.358	32.39
1090	32.390	32.422	32.455	32.487	32.519	32.551	32.584	32.616	32.648	32.681	32.71
1100	32.713	32.746	32.778	32.810							

To print, right click or press ctrl + P

ITS-90 Table for type J thermocouple											
°F	0	1	2	3	4	5	6	7	8	9	10
Thermoelectric Voltage in mV											
1400	42.919	42.954	42.990	43.025	43.061	43.096	43.132	43.167	43.203	43.239	43.27
1410	43.274	43.310	43.346	43.381	43.417	43.452	43.488	43.524	43.559	43.595	43.63
1420	43.631	43.667	43.702	43.738	43.774	43.809	43.845	43.881	43.917	43.953	43.98
1430	43.988	44.024	44.060	44.096	44.131	44.167	44.203	44.239	44.275	44.310	44.34
1440	44.346	44.382	44.418	44.454	44.490	44.525	44.561	44.597	44.633	44.669	44.70
1450	44.705	44.741	44.777	44.812	44.848	44.884	44.920	44.956	44.992	45.028	45.06
1460	45.064	45.099	45.135	45.171	45.207	45.243	45.279	45.315	45.351	45.387	45.42
1470	45.423	45.458	45.494	45.530	45.566	45.602	45.638	45.674	45.710	45.746	45.78
1480	45.782	45.818	45.853	45.889	45.925	45.961	45.997	46.033	46.069	46.105	46.14
1490	46.141	46.177	46.212	46.248	46.284	46.320	46.356	46.392	46.428	46.464	46.50
1500	46.500	46.535	46.571	46.607	46.643	46.679	46.715	46.751	46.786	46.822	46.85
1510	46.858	46.894	46.930	46.966	47.001	47.037	47.073	47.109	47.145	47.181	47.21
1520	47.216	47.252	47.288	47.324	47.359	47.395	47.431	47.467	47.503	47.538	47.57
1530	47.574	47.610	47.646	47.681	47.717	47.753	47.788	47.824	47.860	47.896	47.93
1540	47.931	47.967	48.003	48.038	48.074	48.110	48.145	48.181	48.217	48.252	48.28
1550	48.288	48.324	48.359	48.395	48.430	48.466	48.502	48.537	48.573	48.608	48.64
1560	48.644	48.679	48.715	48.750	48.786	48.822	48.857	48.893	48.928	48.964	48.99
1570	48.999	49.034	49.070	49.105	49.141	49.176	49.212	49.247	49.283	49.318	49.35
1580	49.353	49.389	49.424	49.460	49.495	49.530	49.566	49.601	49.636	49.672	49.70
1590	49.707	49.742	49.778	49.813	49.848	49.883	49.919	49.954	49.989	50.024	50.06
1600	50.060	50.095	50.130	50.165	50.200	50.235	50.271	50.306	50.341	50.376	50.41
1610	50.411	50.446	50.481	50.517	50.552	50.587	50.622	50.657	50.692	50.727	50.76
1620	50.762	50.797	50.832	50.867	50.902	50.937	50.972	51.007	51.042	51.077	51.11
1630	51.112	51.147	51.181	51.216	51.251	51.286	51.321	51.356	51.391	51.425	51.46
1640	51.460	51.495	51.530	51.565	51.599	51.634	51.669	51.704	51.738	51.773	51.80
1650	51.808	51.843	51.877	51.912	51.947	51.981	52.016	52.051	52.085	52.120	52.15
1660	52.154	52.189	52.224	52.258	52.293	52.327	52.362	52.396	52.431	52.465	52.50
1670	52.500	52.534	52.569	52.603	52.638	52.672	52.707	52.741	52.776	52.810	52.84
1680	52.844	52.879	52.913	52.947	52.982	53.016	53.050	53.085	53.119	53.153	53.18
1690	53.188	53.222	53.256	53.290	53.325	53.359	53.393	53.427	53.462	53.496	53.53
1700	53.530	53.564	53.598	53.632	53.667	53.701	53.735	53.769	53.803	53.837	53.87
1710	53.871	53.905	53.939	53.973	54.007	54.041	54.075	54.109	54.143	54.177	54.21
1720	54.211	54.245	54.279	54.313	54.347	54.381	54.415	54.449	54.483	54.516	54.55
1730	54.550	54.584	54.618	54.652	54.686	54.719	54.753	54.787	54.821	54.855	54.88
1740	54.888	54.922	54.956	54.990	55.023	55.057	55.091	55.124	55.158	55.192	55.22
1750	55.225	55.259	55.293	55.326	55.360	55.393	55.427	55.461	55.494	55.528	55.56
1760	55.561	55.595	55.628	55.662	55.695	55.729	55.762	55.796	55.829	55.863	55.89
1770	55.896	55.930	55.963	55.997	56.030	56.063	56.097	56.130	56.164	56.197	56.23
1780	56.230	56.264	56.297	56.330	56.364	56.397	56.430	56.464	56.497	56.530	56.56
1790	56.564	56.597	56.630	56.663	56.697	56.730	56.763	56.796	56.829	56.863	56.89
1800	56.896	56.929	56.962	56.995	57.028	57.062	57.095	57.128	57.161	57.194	57.22
1810	57.227	57.260	57.293	57.326	57.360	57.393	57.426	57.459	57.492	57.525	57.55
1820	57.558	57.591	57.624	57.657	57.690	57.723	57.756	57.789	57.822	57.855	57.88
1830	57.888	57.920	57.953	57.986	58.019	58.052	58.085	58.118	58.151	58.184	58.21
1840	58.217	58.249	58.282	58.315	58.348	58.381	58.414	58.446	58.479	58.512	58.54
1850	58.545	58.578	58.610	58.643	58.676	58.709	58.741	58.774	58.807	58.840	58.87
1860	58.872	58.905	58.938	58.971	59.003	59.036	59.069	59.101	59.134	59.167	59.19
1870	59.199	59.232	59.265	59.297	59.330	59.363	59.395	59.428	59.460	59.493	59.52
1880	59.526	59.558	59.591	59.623	59.656	59.689	59.721	59.754	59.786	59.819	59.85
1890	59.851	59.884	59.916	59.949	59.982	60.014	60.047	60.079	60.112	60.144	60.17
1900	60.177	60.209	60.242	60.274	60.307	60.339	60.371	60.404	60.436	60.469	60.50
1910	60.501	60.534	60.566	60.599	60.631	60.663	60.696	60.728	60.761	60.793	60.82
1920	60.826	60.858	60.890	60.923	60.955	60.987	61.020	61.052	61.085	61.117	61.14
1930	61.149	61.182	61.214	61.246	61.279	61.311	61.343	61.376	61.408	61.440	61.47
1940	61.473	61.505	61.537	61.570	61.602	61.634	61.667	61.699	61.731	61.763	61.79
1950	61.796	61.828	61.860	61.893	61.925	61.957	61.989	62.022	62.054	62.086	62.11
1960	62.118	62.151	62.183	62.215	62.247	62.280	62.312	62.344	62.376	62.409	62.44
1970	62.441	62.473	62.505	62.537	62.570	62.602	62.634	62.666	62.699	62.731	62.76
1980	62.763	62.795	62.827	62.860	62.892	62.924	62.956	62.988	63.020	63.053	63.08
1990	63.085	63.117	63.149	63.181	63.214	63.246	63.278	63.310	63.342	63.374	63.40

°F	0	1	2	3	4	5	6	7	8	9	10
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ITS-90 Table for type J thermocouple											
°F	0	1	2	3	4	5	6	7	8	9	10
Thermoelectric Voltage in mV											
2000	63.406	63.439	63.471	63.503	63.535	63.567	63.599	63.632	63.664	63.696	63.72
2010	63.728	63.760	63.792	63.824	63.856	63.889	63.921	63.953	63.985	64.017	64.04
2020	64.049	64.081	64.113	64.146	64.178	64.210	64.242	64.274	64.306	64.338	64.37
2030	64.370	64.402	64.435	64.467	64.499	64.531	64.563	64.595	64.627	64.659	64.69
2040	64.691	64.723	64.756	64.788	64.820	64.852	64.884	64.916	64.948	64.980	65.01
2050	65.012	65.044	65.076	65.109	65.141	65.173	65.205	65.237	65.269	65.301	65.33
2060	65.333	65.365	65.397	65.429	65.461	65.493	65.525	65.557	65.590	65.622	65.65
2070	65.654	65.686	65.718	65.750	65.782	65.814	65.846	65.878	65.910	65.942	65.97
2080	65.974	66.006	66.038	66.070	66.102	66.134	66.166	66.199	66.231	66.263	66.29
2090	66.295	66.327	66.359	66.391	66.423	66.455	66.487	66.519	66.551	66.583	66.61
2100	66.615	66.647	66.679	66.711	66.743	66.775	66.807	66.839	66.871	66.903	66.93
2110	66.935	66.967	66.999	67.031	67.063	67.095	67.127	67.159	67.191	67.223	67.25
2120	67.255	67.287	67.319	67.351	67.383	67.415	67.447	67.479	67.511	67.543	67.57
2130	67.575	67.607	67.639	67.671	67.703	67.735	67.767	67.799	67.831	67.863	67.89
2140	67.895	67.927	67.959	67.991	68.023	68.055	68.087	68.119	68.150	68.182	68.21
2150	68.214	68.246	68.278	68.310	68.342	68.374	68.406	68.438	68.470	68.502	68.53
2160	68.534	68.566	68.597	68.629	68.661	68.693	68.725	68.757	68.789	68.821	68.85
2170	68.853	68.884	68.916	68.948	68.980	69.012	69.044	69.076	69.108	69.139	69.17
2180	69.171	69.203	69.235	69.267	69.299	69.330	69.362	69.394	69.426	69.458	69.49
2190	69.490	69.521	69.553								

°F	0	1	2	3	4	5	6	7	8	9	10
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ITS-90 Table for type J thermocouple											
°C	-10	-9	-8	-7	-6	-5	-4	-3	-2	-1	0
Thermoelectric Voltage in mV											
-200	-8.095	-8.076	-8.057	-8.037	-8.017	-7.996	-7.976	-7.955	-7.934	-7.912	-7.89
-190	-7.890	-7.868	-7.846	-7.824	-7.801	-7.778	-7.755	-7.731	-7.707	-7.683	-7.65
-180	-7.659	-7.634	-7.610	-7.585	-7.559	-7.534	-7.508	-7.482	-7.456	-7.429	-7.40
-170	-7.403	-7.376	-7.348	-7.321	-7.293	-7.265	-7.237	-7.209	-7.181	-7.152	-7.12
-160	-7.123	-7.094	-7.064	-7.035	-7.005	-6.975	-6.944	-6.914	-6.883	-6.853	-6.82
-150	-6.821	-6.790	-6.756	-6.727	-6.695	-6.663	-6.631	-6.598	-6.566	-6.533	-6.50
-140	-6.500	-6.467	-6.433	-6.400	-6.366	-6.332	-6.298	-6.263	-6.229	-6.194	-6.15
-130	-6.159	-6.124	-6.089	-6.054	-6.018	-5.982	-5.946	-5.910	-5.874	-5.838	-5.80
-120	-5.801	-5.764	-5.727	-5.690	-5.653	-5.616	-5.578	-5.541	-5.503	-5.465	-5.42
-110	-5.426	-5.388	-5.350	-5.311	-5.272	-5.233	-5.194	-5.155	-5.116	-5.076	-5.03
-100	-5.037	-4.997	-4.957	-4.917	-4.877	-4.836	-4.796	-4.755	-4.714	-4.674	-4.63
-90	-4.633	-4.591	-4.550	-4.509	-4.467	-4.425	-4.384	-4.342	-4.300	-4.257	-4.21
-80	-4.215	-4.173	-4.130	-4.088	-4.045	-4.002	-3.959	-3.916	-3.872	-3.829	-3.78
-70	-3.786	-3.742	-3.698	-3.654	-3.610	-3.566	-3.522	-3.478	-3.434	-3.389	-3.34
-60	-3.344	-3.300	-3.255	-3.210	-3.165	-3.120	-3.075	-3.029	-2.984	-2.938	-2.89
-50	-2.893	-2.847	-2.801	-2.755	-2.709	-2.663	-2.617	-2.571	-2.524	-2.478	-2.43
-40	-2.431	-2.385	-2.338	-2.291	-2.244	-2.197	-2.150	-2.103	-2.055	-2.008	-1.96
-30	-1.961	-1.913	-1.865	-1.818	-1.770	-1.722	-1.674	-1.626	-1.578	-1.530	-1.48
-20	-1.482	-1.433	-1.385	-1.336	-1.288	-1.239	-1.190	-1.142	-1.093	-1.044	-0.99
-10	-0.995	-0.946	-0.896	-0.847	-0.798	-0.749	-0.699	-0.650	-0.600	-0.550	-0.50
0	-0.501	-0.451	-0.401	-0.351	-0.301	-0.251	-0.201	-0.151	-0.101	-0.050	0.00

ITS-90 Table for type J thermocouple											
°C	-10	-9	-8	-7	-6	-5	-4	-3	-2	-1	0
Thermoelectric Voltage in mV											
0	0.000	0.050	0.101	0.151	0.202	0.253	0.303	0.354	0.405	0.456	0.50
10	0.507	0.558	0.609	0.660	0.711	0.762	0.814	0.865	0.916	0.968	1.01
20	1.019	1.071	1.122	1.174	1.226	1.277	1.329	1.381	1.433	1.485	1.53
30	1.537	1.589	1.641	1.693	1.745	1.797	1.849	1.902	1.954	2.006	2.05
40	2.059	2.111	2.164	2.216	2.269	2.322	2.374	2.427	2.480	2.532	2.58
50	2.585	2.638	2.691	2.744	2.797	2.850	2.903	2.956	3.009	3.062	3.11
60	3.116	3.169	3.222	3.275	3.329	3.382	3.436	3.489	3.543	3.596	3.65
70	3.650	3.703	3.757	3.810	3.864	3.918	3.971	4.025	4.079	4.133	4.18
80	4.187	4.240	4.294	4.348	4.402	4.456	4.510	4.564	4.618	4.672	4.72
90	4.726	4.781	4.835	4.889	4.943	4.997	5.052	5.106	5.160	5.215	5.26
100	5.269	5.323	5.378	5.432	5.487	5.541	5.595	5.650	5.705	5.759	5.81
110	5.814	5.868	5.923	5.977	6.032	6.087	6.141	6.196	6.251	6.306	6.36
120	6.360	6.415	6.470	6.525	6.579	6.634	6.689	6.744	6.799	6.854	6.90
130	6.909	6.964	7.019	7.074	7.129	7.184	7.239	7.294	7.349	7.404	7.45
140	7.459	7.514	7.569	7.624	7.679	7.734	7.789	7.844	7.900	7.955	8.01
150	8.010	8.065	8.120	8.175	8.231	8.286	8.341	8.396	8.452	8.507	8.56
160	8.562	8.618	8.673	8.728	8.783	8.839	8.894	8.949	9.005	9.060	9.11
170	9.115	9.171	9.226	9.282	9.337	9.392	9.448	9.503	9.559	9.614	9.66
180	9.669	9.725	9.780	9.836	9.891	9.947	10.002	10.057	10.113	10.168	10.22
190	10.224	10.279	10.335	10.390	10.446	10.501	10.557	10.612	10.668	10.723	10.77
200	10.779	10.834	10.890	10.945	11.001	11.056	11.112	11.167	11.223	11.278	11.33
210	11.334	11.389	11.445	11.501	11.556	11.612	11.667	11.723	11.778	11.834	11.88
220	11.889	11.945	12.000	12.056	12.111	12.167	12.222	12.278	12.334	12.389	12.44
230	12.445	12.500	12.556	12.611	12.667	12.722	12.778	12.833	12.889	12.944	13.00
240	13.000	13.056	13.111	13.167	13.222	13.278	13.333	13.389	13.444	13.500	13.55
250	13.555	13.611	13.666	13.722	13.777	13.833	13.888	13.944	13.999	14.055	14.11
260	14.110	14.166	14.221	14.277	14.332	14.388	14.443	14.499	14.554	14.609	14.66
270	14.665	14.720	14.776	14.831	14.887	14.942	14.998	15.053	15.109	15.164	15.21
280	15.219	15.275	15.330	15.386	15.441	15.496	15.552	15.607	15.663	15.718	15.77
290	15.773	15.829	15.884	15.940	15.995	16.050	16.106	16.161	16.216	16.272	16.32
300	16.327	16.383	16.438	16.493	16.549	16.604	16.659	16.715	16.770	16.825	16.88
310	16.881	16.936	16.991	17.046	17.102	17.157	17.212	17.268	17.323	17.378	17.43
320	17.434	17.489	17.544	17.599	17.655	17.710	17.765	17.820	17.876	17.931	17.98
330	17.986	18.041	18.097	18.152	18.207	18.262	18.318	18.373	18.428	18.483	18.53
340	18.538	18.594	18.649	18.704	18.759	18.814	18.870	18.925	18.980	19.035	19.09

°C	0	1	2	3	4	5	6	7	8	9	10
0	0.000	0.050	0.101	0.151	0.202	0.253	0.303	0.354	0.405	0.456	0.50
10	0.507	0.558	0.609	0.660	0.711	0.762	0.814	0.865	0.916	0.968	1.01
20	1.019	1.071	1.122	1.174	1.226	1.277	1.329	1.381	1.433	1.485	1.53
30	1.537	1.589	1.641	1.693	1.745	1.797	1.849	1.902	1.954	2.006	2.05
40	2.059	2.111	2.164	2.216	2.269	2.322	2.374	2.427	2.480	2.532	2.58
50	2.585	2.638	2.691	2.744	2.797	2.850	2.903	2.956	3.009	3.062	3.11
60	3.116	3.169	3.222	3.275	3.329	3.382	3.436	3.489	3.543	3.596	3.65
70	3.650	3.703	3.757	3.810	3.864	3.918	3.971	4.025	4.079	4.133	4.18
80	4.187	4.240	4.294	4.348	4.402	4.456	4.510	4.564	4.618	4.672	4.72
90	4.726	4.781	4.835	4.889	4.943	4.997	5.052	5.106	5.160	5.215	5.26
100	5.269	5.323	5.378	5.432	5.487	5.541	5.595	5.650	5.705	5.759	5.81
110	5.814	5.868	5.923	5.977	6.032	6.087	6.141	6.196	6.251	6.306	6.36
120	6.360	6.415	6.470	6.525	6.579	6.634	6.689	6.744	6.799	6.854	6.90
130	6.909	6.964	7.019	7.074	7.129	7.184	7.239	7.294	7.349	7.404	7.45
140	7.459	7.514	7.569	7.624	7.679	7.734	7.789	7.844	7.900	7.955	8.01
150	8.010	8.065	8.120	8.175	8.231	8.286	8.341	8.396	8.452	8.507	8.56
160	8.562	8.618	8.673	8.728	8.783	8.839	8.894	8.949	9.005	9.060	9.11
170	9.115	9.171	9.226	9.282	9.337	9.392	9.448	9.503	9.559	9.614	9.66
180	9.669	9.725	9.780	9.836	9.891	9.947	10.002	10.057	10.113	10.168	10.22
190	10.224	10.279	10.335	10.390	10.446	10.501	10.557	10.612	10.668	10.723	10.77
200	10.779	10.834	10.890	10.945	11.001	11.056	11.112	11.167	11.223	11.278	11.33
210	11.334	11.389	11.445	11.501	11.556	11.612	11.667	11.723	11.778	11.834	11.88
220	11.889	11.945	12.000	12.056	12.111	12.167	12.222	12.278	12.334	12.389	12.44
230	12.445	12.500	12.556	12.611	12.667	12.722	12.778	12.833	12.889	12.944	13.00
240	13.000	13.056	13.111	13.167	13.222	13.278	13.333	13.389	13.444	13.500	13.55
250	13.555	13.611	13.666	13.722	13.777	13.833	13.888	13.944	13.999	14.055	14.11
260	14.110	14.166	14.221	14.277	14.332	14.388	14.443	14.499	14.554	14.609	14.66
270	14.665	14.720	14.776	14.831	14.887	14.942	14.998	15.053	15.109	15.164	15.21
280	15.219	15.275	15.330	15.386	15.441	15.496	15.552	15.607	15.663	15.718	15.77
290	15.773	15.829	15.884	15.940	15.995	16.050	16.106	16.161	16.216	16.272	16.32
300	16.327	16.383	16.438	16.493	16.549	16.604	16.659	16.715	16.770	16.825	16.88
310	16.881	16.936	16.991	17.046	17.102	17.157	17.212	17.268	17.323	17.378	17.43
320	17.434	17.489	17.544	17.599	17.655	17.710	17.765	17.820	17.876	17.931	17.98
330	17.986	18.041	18.097	18.152	18.207	18.262	18.318	18.373	18.428	18.483	18.53
340	18.538	18.594	18.649	18.704	18.759	18.814	18.870	18.925	18.980	19.035	19.09

ITS-90 Table for type J thermocouple											
°C	0	1	2	3	4	5	6	7	8	9	10
Thermoelectric Voltage in mV											
350	19.090	19.146	19.201	19.256	19.311	19.366	19.422	19.477	19.532	19.587	19.64
360	19.642	19.6									

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ITS-90 Table for type J thermocouple		Thermoelectric Voltage in mV									
°C	0	1	2	3	4	5	6	7	8	9	10
1000	57.953	58.013	58.072	58.131	58.190	58.249	58.309	58.368	58.427	58.486	58.54
1010	58.545	58.604	58.663	58.722	58.781	58.840	58.899	58.957	59.016	59.075	59.13
1020	59.134	59.193	59.252	59.310	59.369	59.428	59.487	59.545	59.604	59.663	59.72
1030	59.721	59.780	59.838	59.897	59.956	60.014	60.073	60.131	60.190	60.248	60.30
1040	60.307	60.365	60.423	60.482	60.540	60.599	60.657	60.715	60.774	60.832	60.89
1050	60.890	60.949	61.007	61.065	61.123	61.182	61.240	61.298	61.356	61.415	61.47
1060	61.473	61.531	61.589	61.647	61.705	61.763	61.822	61.880	61.938	61.996	62.05
1070	62.054	62.112	62.170	62.228	62.286	62.344	62.402	62.460	62.518	62.576	62.63
1080	62.634	62.692	62.750	62.808	62.866	62.924	62.982	63.040	63.098	63.156	63.21
1090	63.214	63.271	63.329	63.387	63.445	63.503	63.561	63.619	63.677	63.734	63.79
1100	63.792	63.850	63.908	63.966	64.024	64.081	64.139	64.197	64.255	64.313	64.37
1110	64.370	64.428	64.486	64.544	64.602	64.659	64.717	64.775	64.833	64.890	64.94
1120	64.948	65.006	65.064	65.121	65.179	65.237	65.295	65.352	65.410	65.468	65.52
1130	65.525	65.583	65.641	65.699	65.756	65.814	65.872	65.929	65.987	66.045	66.10
1140	66.102	66.160	66.218	66.275	66.333	66.391	66.448	66.506	66.564	66.621	66.67
1150	66.679	66.737	66.794	66.852	66.910	66.967	67.025	67.082	67.140	67.198	67.25
1160	67.255	67.313	67.370	67.428	67.486	67.543	67.601	67.658	67.716	67.773	67.83
1170	67.831	67.888	67.946	68.003	68.061	68.119	68.176	68.234	68.291	68.348	68.40
1180	68.406	68.463	68.521	68.578	68.636	68.693	68.751	68.808	68.865	68.923	68.98
1190	68.980	69.037	69.095	69.152	69.209	69.267	69.324	69.381	69.439	69.496	69.55

ITS-90 Table for type K thermocouple		Thermoelectric Voltage in mV									
°C	0	1	2	3	4	5	6	7	8	9	10
-240	-5.067	-5.054	-5.042	-5.029	-5.016	-5.003	-4.991	-4.978	-4.965	-4.952	-4.93
-230	-4.939	-4.926	-4.913	-4.900	-4.886	-4.873	-4.860	-4.847	-4.833	-4.820	-4.80
-220	-4.806	-4.793	-4.779	-4.766	-4.752	-4.738	-4.724	-4.711	-4.697	-4.683	-4.66
-210	-4.669	-4.655	-4.641	-4.627	-4.613	-4.599	-4.584	-4.570	-4.556	-4.542	-4.52
-200	-4.527	-4.513	-4.498	-4.484	-4.469	-4.455	-4.440	-4.425	-4.411	-4.396	-4.38
-190	-4.381	-4.366	-4.351	-4.336	-4.321	-4.306	-4.291	-4.276	-4.261	-4.246	-4.23
-180	-4.231	-4.215	-4.200	-4.185	-4.169	-4.154	-4.138	-4.123	-4.107	-4.091	-4.07
-170	-4.076	-4.060	-4.044	-4.029	-4.013	-3.997	-3.981	-3.965	-3.949	-3.933	-3.91
-160	-3.917	-3.901	-3.885	-3.869	-3.852	-3.836	-3.820	-3.803	-3.787	-3.771	-3.75
-150	-3.754	-3.738	-3.722	-3.705	-3.688	-3.671	-3.655	-3.638	-3.621	-3.604	-3.58
-140	-3.587	-3.571	-3.554	-3.537	-3.520	-3.503	-3.486	-3.468	-3.451	-3.434	-3.41
-130	-3.417	-3.400	-3.382	-3.365	-3.348	-3.330	-3.313	-3.295	-3.278	-3.260	-3.24
-120	-3.243	-3.225	-3.207	-3.190	-3.172	-3.154	-3.136	-3.119	-3.101	-3.083	-3.06
-110	-3.065	-3.047	-3.029	-3.011	-2.993	-2.975	-2.957	-2.938	-2.920	-2.902	-2.88
-100	-2.884	-2.865	-2.847	-2.829	-2.810	-2.792	-2.773	-2.755	-2.736	-2.718	-2.69
-90	-2.699	-2.680	-2.662	-2.643	-2.624	-2.605	-2.587	-2.568	-2.549	-2.530	-2.51
-80	-2.511	-2.492	-2.473	-2.454	-2.435	-2.416	-2.397	-2.378	-2.359	-2.339	-2.32
-70	-2.320	-2.301	-2.282	-2.262	-2.243	-2.223	-2.204	-2.185	-2.165	-2.146	-2.12
-60	-2.126	-2.106	-2.087	-2.067	-2.048	-2.028	-2.008	-1.988	-1.969	-1.949	-1.92
-50	-1.929	-1.909	-1.889	-1.869	-1.850	-1.830	-1.810	-1.790	-1.770	-1.749	-1.72
-40	-1.729	-1.709	-1.689	-1.669	-1.649	-1.628	-1.608	-1.588	-1.568	-1.547	-1.52
-30	-1.527	-1.507	-1.486	-1.466	-1.445	-1.425	-1.404	-1.384	-1.363	-1.343	-1.32
-20	-1.322	-1.301	-1.281	-1.260	-1.239	-1.218	-1.198	-1.177	-1.156	-1.135	-1.11
-10	-1.114	-1.094	-1.073	-1.052	-1.031	-1.010	-0.989	-0.968	-0.947	-0.926	-0.90
0	-0.905	-0.883	-0.862	-0.841	-0.820	-0.799	-0.778	-0.756	-0.735	-0.714	-0.69

ITS-90 Table for type K thermocouple		Thermoelectric Voltage in mV									
°F	-10	-9	-8	-7	-6	-5	-4	-3	-2	-1	0
-440	-6.456	-6.455	-6.454	-6.454	-6.453	-6.452	-6.451	-6.450	-6.449	-6.448	-6.44
-430	-6.446	-6.445	-6.444	-6.443	-6.441	-6.440	-6.438	-6.436	-6.435	-6.433	-6.43
-420	-6.431	-6.429	-6.427	-6.425	-6.423	-6.421	-6.419	-6.416	-6.414	-6.411	-6.40
-410	-6.409	-6.406	-6.404	-6.401	-6.398	-6.395	-6.392	-6.389	-6.386	-6.383	-6.38
-400	-6.380	-6.377	-6.373	-6.370	-6.366	-6.363	-6.359	-6.355	-6.352	-6.348	-6.34
-390	-6.344	-6.340	-6.336	-6.332	-6.328	-6.323	-6.319	-6.315	-6.310	-6.306	-6.30
-380	-6.301	-6.296	-6.292	-6.287	-6.282	-6.277	-6.272	-6.267	-6.262	-6.257	-6.25
-370	-6.251	-6.246	-6.241	-6.235	-6.230	-6.224	-6.218	-6.213	-6.207	-6.201	-6.19
-360	-6.195	-6.189	-6.183	-6.177	-6.171	-6.165	-6.158	-6.152	-6.146	-6.139	-6.13
-350	-6.133	-6.127	-6.119	-6.113	-6.106	-6.099	-6.092	-6.085	-6.078	-6.071	-6.06
-340	-6.064	-6.057	-6.049	-6.042	-6.035	-6.027	-6.020	-6.012	-6.004	-5.997	-5.98
-330	-5.989	-5.981	-5.973	-5.965	-5.957	-5.949	-5.941	-5.933	-5.925	-5.917	-5.90
-320	-5.908	-5.900	-5.891	-5.883	-5.874	-5.866	-5.857	-5.848	-5.840	-5.831	-5.82
-310	-5.822	-5.813	-5.804	-5.795	-5.786	-5.776	-5.767	-5.758	-5.749	-5.739	-5.73
-300	-5.730	-5.720	-5.711	-5.701	-5.691	-5.682	-5.672	-5.662	-5.652	-5.642	-5.63
-290	-5.632	-5.622	-5.612	-5.602	-5.592	-5.581	-5.571	-5.561	-5.550	-5.540	-5.52
-280	-5.529	-5.519	-5.508	-5.497	-5.487	-5.476	-5.465	-5.454	-5.443	-5.432	-5.42
-270	-5.421	-5.410	-5.399	-5.388	-5.377	-5.365	-5.354	-5.343	-5.331	-5.320	-5.30
-260	-5.308	-5.296	-5.285	-5.273	-5.261	-5.250	-5.238	-5.226	-5.214	-5.202	-5.19
-250	-5.190	-5.178	-5.166	-5.153	-5.141	-5.129	-5.117	-5.104	-5.092	-5.079	-5.06
-240	-5.067	-5.054	-5.042	-5.029	-5.016	-5.003	-4.991	-4.978	-4.965	-4.952	-4.93
-230	-4.939	-4.926	-4.913	-4.900	-4.886	-4.873	-4.860	-4.847	-4.833	-4.820	-4.80
-220	-4.806	-4.793	-4.779	-4.766	-4.752	-4.738	-4.724	-4.711	-4.697	-4.683	-4.66
-210	-4.669	-4.655	-4.641	-4.627	-4.613	-4.599	-4.584	-4.570	-4.556	-4.542	-4.52
-200	-4.527	-4.513	-4.498	-4.484	-4.469	-4.455	-4.440	-4.425	-4.411	-4.396	-4.38
-190	-4.381	-4.366	-4.351	-4.336	-4.321	-4.306	-4.291	-4.276	-4.261	-4.246	-4.23
-180	-4.231	-4.215	-4.200	-4.185	-4.169	-4.154	-4.138	-4.123	-4.107	-4.091	-4.07
-170	-4.076	-4.060	-4.044	-4.029	-4.013	-3.997	-3.981	-3.965	-3.949	-3.933	-3.91
-160	-3.917	-3.901	-3.885	-3.869	-3.852	-3.836	-3.820	-3.803	-3.787	-3.771	-3.75
-150	-3.754	-3.738	-3.722	-3.705	-3.688	-3.671	-3.655	-3.638	-3.621	-3.604	-3.58
-140	-3.587	-3.571	-3.554	-3.537	-3.520	-3.503	-3.486	-3.468	-3.451	-3.434	-3.41
-130	-3.417	-3.400	-3.382	-3.365	-3.348	-3.330	-3.313	-3.295	-3.278	-3.260	-3.24
-120	-3.243	-3.225	-3.207	-3.190	-3.172	-3.154	-3.136	-3.119	-3.101	-3.083	-3.06
-110	-3.065	-3.047	-3.029	-3.011	-2.993	-2.975	-2.957	-2.938	-2.920	-2.902	-2.88
-100	-2.884	-2.865	-2.847	-2.829	-2.810	-2.792	-2.773	-2.755	-2.736	-2.718	-2.69
-90	-2.699	-2.680	-2.662	-2.643	-2.624	-2.605	-2.587	-2.568	-2.549	-2.530	-2.51
-80	-2.511	-2.492	-2.473	-2.454	-2.435	-2.416	-2.397	-2.378	-2.359	-2.339	-2.32
-70	-2.320	-2.301	-2.282	-2.262	-2.243	-2.223	-2.204	-2.185	-2.165	-2.146	-2.12
-60	-2.126	-2.106	-2.087	-2.067	-2.048	-2.028	-2.008	-1.988	-1.969	-1.949	-1.92
-50	-1.929	-1.909	-1.889	-1.869	-1.850	-1.830	-1.810	-1.790	-1.770	-1.749	-1.72
-40	-1.729	-1.709	-1.689	-1.669	-1.649	-1.628	-1.608	-1.588	-1.568	-1.547	-1.52
-30	-1.527	-1.507	-1.486	-1.466	-1.445	-1.425	-1.404	-1.384	-1.363	-1.343	-1.32
-20	-1.322	-1.301	-1.281	-1.260	-1.239	-1.218	-1.198	-1.177	-1.156	-1.135	-1.11
-10	-1.114	-1.094	-1.073	-1.052	-1.031	-1.010	-0.989	-0.968	-0.947	-0.926	-0.90
0	-0.905	-0.883	-0.862	-0.841	-0.820	-0.799	-0.778	-0.756	-0.735	-0.714	-0.69

ITS-90 Table for type K thermocouple		Thermoelectric Voltage in mV									
°F	0	1	2	3	4	5	6	7	8	9	10
0	-0.692	-0.671	-0.650	-0.628	-0.607	-0.586	-0.564	-0.543	-0.521	-0.500	-0.47
10	-0.478	-0.457	-0.435	-0.413	-0.392	-0.370	-0.349	-0.327	-0.305	-0.284	-0.26
20	-0.262	-0.240	-0.218	-0.197	-0.175	-0.153	-0.131	-0.			

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ITS-90 Table for type K thermocouple											
°F	0	1	2	3	4	5	6	7	8	9	10
Thermoelectric Voltage in mV											
150	2.667	2.690	2.713	2.736	2.759	2.782	2.805	2.828	2.851	2.874	2.89
160	2.897	2.920	2.944	2.967	2.990	3.013	3.036	3.059	3.082	3.105	3.12
170	3.128	3.151	3.174	3.197	3.220	3.244	3.267	3.290	3.313	3.336	3.35
180	3.359	3.382	3.405	3.428	3.451	3.474	3.497	3.520	3.544	3.567	3.59
190	3.590	3.613	3.636	3.659	3.682	3.705	3.728	3.751	3.774	3.797	3.82
200	3.820	3.843	3.866	3.889	3.912	3.935	3.958	3.981	4.004	4.027	4.05
210	4.050	4.073	4.096	4.119	4.142	4.165	4.188	4.211	4.234	4.257	4.28
220	4.280	4.303	4.326	4.349	4.372	4.395	4.417	4.440	4.463	4.486	4.50
230	4.509	4.532	4.555	4.578	4.601	4.623	4.646	4.669	4.692	4.715	4.73
240	4.738	4.760	4.783	4.806	4.829	4.852	4.874	4.897	4.920	4.943	4.96
250	4.965	4.988	5.011	5.034	5.056	5.079	5.102	5.124	5.147	5.170	5.19
260	5.192	5.215	5.238	5.260	5.283	5.306	5.328	5.351	5.374	5.396	5.41
270	5.419	5.441	5.464	5.487	5.509	5.532	5.554	5.577	5.599	5.622	5.64
280	5.644	5.667	5.690	5.712	5.735	5.757	5.779	5.802	5.824	5.847	5.86
290	5.869	5.892	5.914	5.937	5.959	5.982	6.004	6.026	6.049	6.071	6.09
300	6.094	6.116	6.138	6.161	6.183	6.205	6.228	6.250	6.272	6.295	6.31
310	6.317	6.339	6.362	6.384	6.406	6.429	6.451	6.473	6.496	6.518	6.54
320	6.540	6.562	6.585	6.607	6.629	6.652	6.674	6.696	6.718	6.741	6.76
330	6.763	6.785	6.807	6.829	6.852	6.874	6.896	6.918	6.941	6.963	6.98
340	6.985	7.007	7.029	7.052	7.074	7.096	7.118	7.140	7.163	7.185	7.20
350	7.207	7.229	7.251	7.273	7.296	7.318	7.340	7.362	7.384	7.407	7.42
360	7.429	7.451	7.473	7.495	7.517	7.540	7.562	7.584	7.606	7.628	7.65
370	7.650	7.673	7.695	7.717	7.739	7.761	7.783	7.806	7.828	7.850	7.87
380	7.872	7.894	7.917	7.939	7.961	7.983	8.005	8.027	8.050	8.072	8.09
390	8.094	8.116	8.138	8.161	8.183	8.205	8.227	8.250	8.272	8.294	8.31
400	8.316	8.338	8.361	8.383	8.405	8.427	8.450	8.472	8.494	8.516	8.53
410	8.539	8.561	8.583	8.605	8.628	8.650	8.672	8.694	8.717	8.739	8.76
420	8.761	8.784	8.806	8.828	8.851	8.873	8.895	8.918	8.940	8.962	8.98
430	8.985	9.007	9.029	9.052	9.074	9.096	9.119	9.141	9.163	9.186	9.20
440	9.208	9.231	9.253	9.275	9.298	9.320	9.343	9.365	9.388	9.410	9.43
450	9.432	9.455	9.477	9.500	9.522	9.545	9.567	9.590	9.612	9.635	9.65
460	9.657	9.680	9.702	9.725	9.747	9.770	9.792	9.815	9.837	9.860	9.88
470	9.882	9.905	9.927	9.950	9.973	9.995	10.018	10.040	10.063	10.086	10.10
480	10.108	10.131	10.153	10.176	10.199	10.221	10.244	10.267	10.289	10.312	10.33
490	10.334	10.357	10.380	10.402	10.425	10.448	10.471	10.493	10.516	10.539	10.56
500	10.561	10.584	10.607	10.629	10.652	10.675	10.698	10.720	10.743	10.766	10.78
510	10.789	10.811	10.834	10.857	10.880	10.903	10.925	10.948	10.971	10.994	11.01
520	11.017	11.039	11.062	11.085	11.108	11.131	11.154	11.176	11.199	11.222	11.24
530	11.245	11.268	11.291	11.313	11.336	11.359	11.382	11.405	11.428	11.451	11.47
540	11.474	11.497	11.519	11.542	11.565	11.588	11.611	11.634	11.657	11.680	11.70
550	11.703	11.726	11.749	11.772	11.795	11.818	11.841	11.864	11.887	11.910	11.93
560	11.933	11.956	11.978	12.001	12.024	12.047	12.070	12.093	12.116	12.140	12.16
570	12.163	12.186	12.209	12.232	12.255	12.278	12.301	12.324	12.347	12.370	12.39
580	12.393	12.416	12.439	12.462	12.485	12.508	12.531	12.554	12.577	12.600	12.62
590	12.624	12.647	12.670	12.693	12.716	12.739	12.762	12.785	12.808	12.831	12.85
600	12.855	12.878	12.901	12.924	12.947	12.970	12.993	13.016	13.040	13.063	13.08
610	13.086	13.109	13.132	13.155	13.179	13.202	13.225	13.248	13.271	13.294	13.31
620	13.318	13.341	13.364	13.387	13.410	13.433	13.457	13.480	13.503	13.526	13.54
630	13.549	13.573	13.596	13.619	13.642	13.665	13.689	13.712	13.735	13.758	13.78
640	13.782	13.805	13.828	13.851	13.874	13.898	13.921	13.944	13.967	13.991	14.01
650	14.014	14.037	14.060	14.084	14.107	14.130	14.154	14.177	14.200	14.223	14.24
660	14.247	14.270	14.293	14.316	14.340	14.363	14.386	14.410	14.433	14.456	14.47
670	14.479	14.503	14.526	14.549	14.573	14.596	14.619	14.643	14.666	14.689	14.71
680	14.713	14.736	14.759	14.783	14.806	14.829	14.853	14.876	14.899	14.923	14.94
690	14.946	14.969	14.993	15.016	15.039	15.063	15.086	15.109	15.133	15.156	15.17
700	15.179	15.203	15.226	15.250	15.273	15.296	15.320	15.343	15.366	15.390	15.41
710	15.413	15.437	15.460	15.483	15.507	15.530	15.554	15.577	15.600	15.624	15.64
720	15.647	15.671	15.694	15.717	15.741	15.764	15.788	15.811	15.834	15.858	15.88
730	15.881	15.905	15.928	15.952	15.975	15.998	16.022	16.045	16.069	16.092	16.11
740	16.116	16.139	16.163	16.186	16.209	16.233	16.256	16.280	16.303	16.327	16.35
750	16.350	16.374	16.397	16.421	16.444	16.468	16.491	16.514	16.538	16.561	16.58
760	16.585	16.608	16.632	16.655	16.679	16.702	16.726	16.749	16.773	16.796	16.82
770	16.820	16.843	16.867	16.890	16.914	16.937	16.961	16.984	17.008	17.031	17.05
780	17.055	17.078	17.102	17.125	17.149	17.173	17.196	17.220	17.243	17.267	17.29
790	17.290	17.314	17.337	17.361	17.384	17.408	17.431	17.455	17.478	17.502	17.52

ITS-90 Table for type K thermocouple											
°F	0	1	2	3	4	5	6	7	8	9	10
Thermoelectric Voltage in mV											
800	17.526	17.549	17.573	17.596	17.620	17.643	17.667	17.690	17.714	17.738	17.76
810	17.761	17.785	17.808	17.832	17.855	17.879	17.902	17.926	17.950	17.973	17.99
820	17.997	18.020	18.044	18.068	18.091	18.115	18.138	18.162	18.185	18.209	18.23
830	18.233	18.256	18.280	18.303	18.327	18.351	18.374	18.398	18.421	18.445	18.46
840	18.469	18.492	18.516	18.539	18.563	18.587	18.610	18.634	18.657	18.681	18.70
850	18.705	18.728	18.752	18.776	18.799	18.823	18.846	18.870	18.894	18.917	18.94
860	18.941	18.965	18.988	19.012	19.035	19.059	19.083	19.106	19.130	19.154	19.17
870	19.177	19.201	19.224	19.248	19.272	19.295	19.319	19.343	19.366	19.390	19.41
880	19.414	19.437	19.461	19.485	19.508	19.532	19.556	19.579	19.603	19.626	19.65
890	19.650	19.674	19.697	19.721	19.745	19.768	19.792	19.816	19.839	19.863	19.88
900	19.887	19.910	19.934	19.958	19.981	20.005	20.029	20.052	20.076	20.100	20.12
910	20.123	20.147	20.171	20.194	20.218	20.242	20.265	20.289	20.313	20.336	20.36
920	20.360	20.384	20.407	20.431	20.455	20.479	20.502	20.526	20.550	20.573	20.59
930	20.597	20.621	20.644	20.668	20.692	20.715	20.739	20.763	20.786	20.810	20.83
940	20.834	20.857	20.881	20.905	20.929	20.952	20.976	21.000	21.023	21.047	21.07
950	21.071	21.094	21.118	21.142	21.165	21.189	21.213	21.236	21.260	21.284	21.30
960	21.308	21.331	21.355	21.379	21.402	21.426	21.450	21.473	21.497	21.521	21.54
970	21.544	21.568	21.592	21.616	21.639	21.663	21.687	21.710	21.734	21.758	21.78
980	21.781	21.805	21.829	21.852	21.876	21.900	21.924	21.947	21.971	21.995	22.01
990	22.018	22.042	22.066	22.089	22.113	22.137	22.160	22.184	22.208	22.232	22.25
1000	22.255	22.279	22.303	22.326	22.350	22.374	22.397	22.421	22.445	22.468	22.49
1010	22.492	22.516	22.540	22.563	22.587	22.611	22.634	22.658	22.682	22.706	22.72
1020	22.729	22.753	22.776	22.800	22.824	22.847	22.871	22.895	22.919	22.942	22.96
1030	22.966	22.990	23.013	23.037	23.061	23.084	23.108	23.132	23.155	23.179	23.20
1040	23.203	23.226	23.250	23.274	23.297	23.321	23.345	23.368	23.392	23.416	23.43
1050	23.439	23.463	23.487	23.510	23.534	23.558	23.581	23.605	23.629	23.652	23.67
1060	23.676	23.700	23.723	23.747	23.771	23.794	23.818	23.842	23.865	23.889	23.91
1070	23.913	23.936	23.960	23.984	24.						

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ITS-90 Table for type K thermocouple											
°F	0	1	2	3	4	5	6	7	8	9	10
Thermoelectric Voltage in mV											
1450	32.774	32.796	32.819	32.842	32.865	32.888	32.911	32.933	32.956	32.979	33.00
1460	33.002	33.025	33.047	33.070	33.093	33.116	33.139	33.161	33.184	33.207	33.23
1470	33.230	33.253	33.275	33.298	33.321	33.344	33.366	33.389	33.412	33.435	33.45
1480	33.458	33.480	33.503	33.526	33.548	33.571	33.594	33.617	33.639	33.662	33.68
1490	33.685	33.708	33.730	33.753	33.776	33.798	33.821	33.844	33.867	33.889	33.91
1500	33.912	33.935	33.957	33.980	34.003	34.025	34.048	34.071	34.093	34.116	34.13
1510	34.139	34.161	34.184	34.207	34.229	34.252	34.275	34.297	34.320	34.343	34.36
1520	34.365	34.388	34.410	34.433	34.456	34.478	34.501	34.524	34.546	34.569	34.59
1530	34.591	34.614	34.637	34.659	34.682	34.704	34.727	34.750	34.772	34.795	34.81
1540	34.817	34.840	34.862	34.885	34.908	34.930	34.953	34.975	34.998	35.020	35.04
1550	35.043	35.065	35.088	35.110	35.133	35.156	35.178	35.201	35.223	35.246	35.26
1560	35.268	35.291	35.313	35.336	35.358	35.381	35.403	35.426	35.448	35.471	35.49
1570	35.493	35.516	35.538	35.560	35.583	35.605	35.628	35.650	35.673	35.695	35.71
1580	35.718	35.740	35.763	35.785	35.807	35.830	35.852	35.875	35.897	35.920	35.94
1590	35.942	35.964	35.987	36.009	36.032	36.054	36.076	36.099	36.121	36.144	36.16
1600	36.166	36.188	36.211	36.233	36.256	36.278	36.300	36.323	36.345	36.367	36.39
1610	36.390	36.412	36.434	36.457	36.479	36.501	36.524	36.546	36.568	36.591	36.61
1620	36.613	36.635	36.658	36.680	36.702	36.725	36.747	36.769	36.792	36.814	36.83
1630	36.836	36.859	36.881	36.903	36.925	36.948	36.970	36.992	37.014	37.037	37.05
1640	37.059	37.081	37.104	37.126	37.148	37.170	37.193	37.215	37.237	37.259	37.28
1650	37.281	37.304	37.326	37.348	37.370	37.393	37.415	37.437	37.459	37.481	37.50
1660	37.504	37.526	37.548	37.570	37.592	37.615	37.637	37.659	37.681	37.703	37.72
1670	37.725	37.748	37.770	37.792	37.814	37.836	37.858	37.881	37.903	37.925	37.94
1680	37.947	37.969	37.991	38.013	38.036	38.058	38.080	38.102	38.124	38.146	38.16
1690	38.168	38.190	38.212	38.235	38.257	38.279	38.301	38.323	38.345	38.367	38.38
1700	38.389	38.411	38.433	38.455	38.477	38.499	38.522	38.544	38.566	38.588	38.61
1710	38.610	38.632	38.654	38.676	38.698	38.720	38.742	38.764	38.786	38.808	38.83
1720	38.830	38.852	38.874	38.896	38.918	38.940	38.962	38.984	39.006	39.028	39.05
1730	39.050	39.072	39.094	39.116	39.138	39.160	39.182	39.204	39.226	39.248	39.27
1740	39.270	39.292	39.314	39.335	39.357	39.379	39.401	39.423	39.445	39.467	39.48
1750	39.489	39.511	39.533	39.555	39.577	39.599	39.620	39.642	39.664	39.686	39.70
1760	39.708	39.730	39.752	39.774	39.796	39.817	39.839	39.861	39.883	39.905	39.92
1770	39.927	39.949	39.970	39.992	40.014	40.036	40.058	40.080	40.101	40.123	40.14
1780	40.145	40.167	40.189	40.211	40.232	40.254	40.276	40.298	40.320	40.341	40.36
1790	40.363	40.385	40.407	40.429	40.450	40.472	40.494	40.516	40.537	40.559	40.58
1800	40.581	40.603	40.624	40.646	40.668	40.690	40.711	40.733	40.755	40.777	40.79
1810	40.798	40.820	40.842	40.864	40.885	40.907	40.929	40.950	40.972	40.994	41.01
1820	41.015	41.037	41.059	41.081	41.102	41.124	41.146	41.167	41.189	41.211	41.23
1830	41.232	41.254	41.276	41.297	41.319	41.341	41.362	41.384	41.405	41.427	41.44
1840	41.449	41.470	41.492	41.514	41.535	41.557	41.578	41.600	41.622	41.643	41.66
1850	41.665	41.686	41.708	41.730	41.751	41.773	41.794	41.816	41.838	41.859	41.88
1860	41.881	41.902	41.924	41.945	41.967	41.988	42.010	42.032	42.053	42.075	42.09
1870	42.096	42.118	42.139	42.161	42.182	42.204	42.225	42.247	42.268	42.290	42.31
1880	42.311	42.333	42.354	42.376	42.397	42.419	42.440	42.462	42.483	42.505	42.52
1890	42.526	42.548	42.569	42.591	42.612	42.633	42.655	42.676	42.698	42.719	42.74
1900	42.741	42.762	42.783	42.805	42.826	42.848	42.869	42.891	42.912	42.933	42.95
1910	42.955	42.976	42.998	43.019	43.040	43.062	43.083	43.104	43.126	43.147	43.16
1920	43.169	43.190	43.211	43.233	43.254	43.275	43.297	43.318	43.339	43.361	43.38
1930	43.382	43.403	43.425	43.446	43.467	43.489	43.510	43.531	43.552	43.574	43.59
1940	43.595	43.616	43.638	43.659	43.680	43.701	43.723	43.744	43.765	43.787	43.80
1950	43.808	43.829	43.850	43.872	43.893	43.914	43.935	43.957	43.978	43.999	44.02
1960	44.020	44.041	44.063	44.084	44.105	44.126	44.147	44.169	44.190	44.211	44.23
1970	44.232	44.253	44.275	44.296	44.317	44.338	44.359	44.380	44.402	44.423	44.44
1980	44.444	44.465	44.486	44.507	44.528	44.550	44.571	44.592	44.613	44.634	44.65
1990	44.655	44.676	44.697	44.719	44.740	44.761	44.782	44.803	44.824	44.845	44.86
2000	44.866	44.887	44.908	44.929	44.950	44.971	44.992	45.014	45.035	45.056	45.07
2010	45.077	45.098	45.119	45.140	45.161	45.182	45.203	45.224	45.245	45.266	45.28
2020	45.287	45.308	45.329	45.350	45.371	45.392	45.413	45.434	45.455	45.476	45.49
2030	45.497	45.518	45.539	45.560	45.580	45.601	45.622	45.643	45.664	45.685	45.70
2040	45.706	45.727	45.748	45.769	45.790	45.811	45.832	45.852	45.873	45.894	45.91
2050	45.915	45.936	45.957	45.978	45.999	46.019	46.040	46.061	46.082	46.103	46.12
2060	46.124	46.145	46.165	46.186	46.207	46.228	46.249	46.269	46.290	46.311	46.33
2070	46.332	46.353	46.373	46.394	46.415	46.436	46.457	46.477	46.498	46.519	46.54
2080	46.540	46.560	46.581	46.602	46.623	46.643	46.664	46.685	46.706	46.726	46.74
2090	46.747	46.768	46.789	46.809	46.830	46.851	46.871	46.892	46.913	46.933	46.95

°F 0 1 2 3 4 5 6 7 8 9 10

ITS-90 Table for type K thermocouple											
°F	0	1	2	3	4	5	6	7	8	9	10
Thermoelectric Voltage in mV											
2100	46.954	46.975	46.995	47.016	47.037	47.057	47.078	47.099	47.119	47.140	47.16
2110	47.161	47.181	47.202	47.223	47.243	47.264	47.284	47.305	47.326	47.346	47.36
2120	47.367	47.387	47.408	47.429	47.449	47.469	47.490	47.511	47.531	47.552	47.57
2130	47.573	47.593	47.614	47.634	47.655	47.675	47.696	47.716	47.737	47.757	47.77
2140	47.778	47.798	47.819	47.839	47.860	47.880	47.901	47.921	47.942	47.962	47.98
2150	47.983	48.003	48.024	48.044	48.065	48.085	48.105	48.126	48.146	48.167	48.18
2160	48.187	48.208	48.228	48.248	48.269	48.289	48.310	48.330	48.350	48.371	48.39
2170	48.391	48.411	48.432	48.452	48.473	48.493	48.513	48.534	48.554	48.574	48.59
2180	48.595	48.615	48.635	48.656	48.676	48.696	48.717	48.737	48.757	48.777	48.79
2190	48.798	48.818	48.838	48.859	48.879	48.899	48.919	48.940	48.960	48.980	49.00
2200	49.000	49.021	49.041	49.061	49.081	49.101	49.122	49.142	49.162	49.182	49.20
2210	49.202	49.223	49.243	49.263	49.283	49.303	49.323	49.344	49.364	49.384	49.40
2220	49.404	49.424	49.444	49.465	49.485	49.505	49.525	49.545	49.565	49.585	49.60
2230	49.605	49.625	49.645	49.666	49.686	49.706	49.726	49.746	49.766	49.786	49.80
2240	49.806	49.826	49.846	49.866	49.886	49.906	49.926	49.946	49.966	49.986	50.00
2250	50.006	50.026	50.046	50.066	50.086	50.106	50.126	50.146	50.166	50.186	50.20
2260	50.206	50.226	50.246	50.266	50.286	50.306	50.326	50.346	50.366	50.386	50.40
2270	50.405	50.425	50.445	50.465	50.485	50.505	50.525	50.545	50.565	50.585	50.60
2280	50.604	50.624	50.644	50.664	50.684	50.703	50.723	50.743	50.763	50.783	50.80
2290	50.802	50.822	50.842	50.862	50.882	50.901	50.921	50.941	50.961	50.981	51.00
2300	51.000	51.020	51.040	51.060	51.079	51.099	51.119	51.139	51.158	51.178	51.19
2310	51.198	51.217	51.237	51.257	51.276	51.296	51.316	51.336	51.355	51.375	51.39
2320	51.395	51.414	51.434	51.453	51.473	51.493	51.512	51.532	51.552	51.571	51.59
2330	51.591	51.611	51.630	51.650	51.669						

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ITS-90 Table for type K thermocouple											
°C	0	1	2	3	4	5	6	7	8	9	10
Thermoelectric Voltage in mV											
350	14.293	14.335	14.377	14.419	14.461	14.503	14.545	14.587	14.629	14.671	14.71
360	14.713	14.755	14.797	14.839	14.881	14.923	14.965	15.007	15.049	15.091	15.133
370	15.133	15.175	15.217	15.259	15.301	15.343	15.385	15.427	15.469	15.511	15.55
380	15.554	15.596	15.638	15.680	15.722	15.764	15.806	15.849	15.891	15.933	15.97
390	15.975	16.017	16.059	16.102	16.144	16.186	16.228	16.270	16.311	16.353	16.39
400	16.397	16.439	16.482	16.524	16.566	16.608	16.651	16.693	16.735	16.778	16.82
410	16.820	16.862	16.904	16.947	16.989	17.031	17.074	17.116	17.158	17.201	17.24
420	17.243	17.285	17.328	17.370	17.413	17.455	17.497	17.540	17.582	17.624	17.66
430	17.667	17.709	17.752	17.794	17.837	17.879	17.921	17.964	18.006	18.049	18.09
440	18.091	18.134	18.176	18.218	18.261	18.303	18.346	18.388	18.431	18.473	18.51
450	18.516	18.558	18.601	18.643	18.686	18.728	18.771	18.813	18.856	18.898	18.94
460	18.941	18.983	19.026	19.068	19.111	19.154	19.196	19.239	19.281	19.324	19.36
470	19.366	19.409	19.451	19.494	19.537	19.579	19.622	19.664	19.707	19.750	19.79
480	19.792	19.835	19.877	19.920	19.962	20.005	20.048	20.090	20.133	20.175	20.21
490	20.218	20.261	20.303	20.346	20.389	20.431	20.474	20.516	20.559	20.602	20.64
500	20.644	20.687	20.730	20.772	20.815	20.857	20.900	20.943	20.985	21.028	21.07
510	21.071	21.113	21.156	21.199	21.241	21.284	21.326	21.369	21.412	21.454	21.49
520	21.497	21.540	21.582	21.625	21.668	21.710	21.753	21.796	21.838	21.881	21.92
530	21.924	21.966	22.009	22.052	22.094	22.137	22.179	22.222	22.265	22.307	22.35
540	22.350	22.393	22.435	22.478	22.521	22.563	22.606	22.649	22.691	22.734	22.77
550	22.776	22.819	22.862	22.904	22.947	22.990	23.032	23.075	23.117	23.160	23.20
560	23.203	23.245	23.288	23.331	23.373	23.416	23.458	23.501	23.544	23.586	23.62
570	23.629	23.671	23.714	23.757	23.799	23.842	23.884	23.927	23.970	24.012	24.05
580	24.055	24.097	24.140	24.182	24.225	24.267	24.310	24.353	24.395	24.438	24.48
590	24.480	24.523	24.565	24.608	24.650	24.693	24.735	24.778	24.820	24.863	24.90
600	24.905	24.948	24.990	25.033	25.075	25.118	25.160	25.203	25.245	25.288	25.33
610	25.330	25.373	25.415	25.458	25.500	25.543	25.585	25.627	25.670	25.712	25.75
620	25.755	25.797	25.840	25.882	25.924	25.967	26.009	26.052	26.094	26.136	26.17
630	26.179	26.221	26.263	26.306	26.348	26.390	26.433	26.475	26.517	26.560	26.60
640	26.602	26.644	26.687	26.729	26.771	26.814	26.856	26.898	26.940	26.983	27.02
650	27.025	27.067	27.109	27.152	27.194	27.236	27.278	27.320	27.363	27.405	27.44
660	27.447	27.489	27.531	27.574	27.616	27.658	27.700	27.742	27.784	27.826	27.86
670	27.869	27.911	27.953	27.995	28.037	28.079	28.121	28.163	28.205	28.247	28.28
680	28.289	28.332	28.374	28.416	28.458	28.500	28.542	28.584	28.626	28.668	28.71
690	28.710	28.752	28.794	28.835	28.877	28.919	28.961	29.003	29.045	29.087	29.12
700	29.129	29.171	29.213	29.255	29.297	29.338	29.380	29.422	29.464	29.506	29.54
710	29.548	29.589	29.631	29.673	29.715	29.757	29.798	29.840	29.882	29.924	29.96
720	29.965	30.007	30.049	30.090	30.132	30.174	30.216	30.257	30.299	30.341	30.38
730	30.382	30.424	30.466	30.507	30.549	30.590	30.632	30.674	30.715	30.757	30.79
740	30.798	30.840	30.881	30.923	30.964	31.006	31.047	31.089	31.130	31.172	31.21
750	31.213	31.255	31.296	31.338	31.379	31.421	31.462	31.504	31.545	31.586	31.62
760	31.628	31.669	31.710	31.752	31.793	31.834	31.876	31.917	31.958	32.000	32.04
770	32.041	32.082	32.124	32.165	32.206	32.247	32.289	32.330	32.371	32.412	32.45
780	32.453	32.495	32.536	32.577	32.618	32.659	32.700	32.742	32.783	32.824	32.86
790	32.865	32.906	32.947	32.988	33.029	33.070	33.111	33.152	33.193	33.234	33.27
800	33.275	33.316	33.357	33.398	33.439	33.480	33.521	33.562	33.603	33.644	33.68
810	33.685	33.726	33.767	33.808	33.848	33.889	33.930	33.971	34.012	34.053	34.09
820	34.093	34.134	34.175	34.216	34.257	34.297	34.338	34.379	34.420	34.460	34.50
830	34.501	34.542	34.582	34.623	34.664	34.704	34.745	34.786	34.826	34.867	34.90
840	34.908	34.948	34.989	35.029	35.070	35.110	35.151	35.192	35.232	35.273	35.31
850	35.313	35.354	35.394	35.435	35.475	35.516	35.556	35.596	35.637	35.677	35.71
860	35.718	35.758	35.798	35.839	35.879	35.920	35.960	36.000	36.041	36.081	36.12
870	36.121	36.162	36.202	36.242	36.282	36.323	36.363	36.403	36.443	36.484	36.52
880	36.524	36.564	36.604	36.644	36.685	36.725	36.765	36.805	36.845	36.885	36.92
890	36.925	36.965	37.006	37.046	37.086	37.126	37.166	37.206	37.246	37.286	37.32
900	37.326	37.366	37.406	37.446	37.486	37.526	37.566	37.606	37.646	37.686	37.72
910	37.725	37.765	37.805	37.845	37.885	37.925	37.965	38.005	38.044	38.084	38.12
920	38.124	38.164	38.204	38.243	38.283	38.323	38.363	38.402	38.442	38.482	38.52
930	38.522	38.561	38.601	38.641	38.680	38.720	38.760	38.799	38.839	38.878	38.91
940	38.918	38.958	38.997	39.037	39.076	39.116	39.155	39.195	39.235	39.274	39.31
950	39.314	39.353	39.393	39.432	39.471	39.511	39.550	39.590	39.629	39.669	39.70
960	39.708	39.747	39.787	39.826	39.866	39.905	39.944	39.984	40.023	40.062	40.10
970	40.101	40.141	40.180	40.219	40.259	40.298	40.337	40.376	40.415	40.455	40.49
980	40.494	40.533	40.572	40.611	40.651	40.690	40.729	40.768	40.807	40.846	40.88
990	40.885	40.924	40.963	41.002	41.042	41.081	41.120	41.159	41.198	41.237	41.27

ITS-90 Table for type K thermocouple											
°C	-10	-9	-8	-7	-6	-5	-4	-3	-2	-1	0
Thermoelectric Voltage in mV											
-260	-6.458	-6.457	-6.456	-6.455	-6.453	-6.452	-6.450	-6.448	-6.446	-6.444	-6.44
-250	-6.441	-6.438	-6.435	-6.432	-6.429	-6.425	-6.421	-6.417	-6.413	-6.408	-6.40
-240	-6.404	-6.399	-6.393	-6.388	-6.382	-6.377	-6.370	-6.364	-6.358	-6.351	-6.34
-230	-6.344	-6.337	-6.329	-6.322	-6.314	-6.306	-6.297	-6.289	-6.280	-6.271	-6.26
-220	-6.262	-6.252	-6.243	-6.233	-6.223	-6.213	-6.202	-6.192	-6.181	-6.170	-6.15
-210	-6.158	-6.147	-6.135	-6.123	-6.111	-6.099	-6.087	-6.074	-6.061	-6.048	-6.03
-200	-6.035	-6.021	-6.007	-5.994	-5.980	-5.965	-5.951	-5.936	-5.922	-5.907	-5.89
-190	-5.891	-5.876	-5.861	-5.845	-5.829	-5.813	-5.797	-5.780	-5.763	-5.747	-5.73
-180	-5.730	-5.713	-5.695	-5.678	-5.660	-5.642	-5.624	-5.606	-5.588	-5.569	-5.55
-170	-5.550	-5.531	-5.512	-5.493	-5.474	-5.454	-5.435	-5.415	-5.395	-5.374	-5.35
-160	-5.354	-5.333	-5.313	-5.292	-5.271	-5.250	-5.228	-5.207	-5.185	-5.163	-5.14
-150	-5.141	-5.119	-5.097	-5.074	-5.052	-5.029	-5.006	-4.983	-4.960	-4.936	-4.91
-140	-4.913	-4.889	-4.865	-4.841	-4.817	-4.793	-4.768	-4.744	-4.719	-4.694	-4.66
-130	-4.669	-4.644	-4.618	-4.593	-4.567	-4.542	-4.516	-4.490	-4.463	-4.437	-4.41
-120	-4.411	-4.384	-4.357	-4.330	-4.303	-4.276	-4.249	-4.221	-4.194	-4.166	-4.13
-110	-4.138	-4.110	-4.082	-4.054	-4.025	-3.997	-3.968	-3.939	-3.911	-3.882	-3.85
-100	-3.852	-3.823	-3.794	-3.764	-3.734	-3.705	-3.675	-3.645	-3.614	-3.584	-3.55
-90	-3.554	-3.523	-3.492	-3.462	-3.431	-3.400	-3.368	-3.337	-3.306	-3.274	-3.24
-80	-3.243	-3.211	-3.179	-3.147	-3.115	-3.083	-3.050	-3.018	-2.986	-2.953	-2.92
-70	-2.920	-2.887	-2.854	-2.821	-2.788	-2.755	-2.721	-2.688	-2.654	-2.620	-2.58
-60	-2.587	-2.553	-2.519	-2.485	-2.450	-2.416	-2.382	-2.347	-2.312	-2.278	-2.24
-50	-2.243	-2.208	-2.173	-2.138	-2.103	-2.067	-2.032	-1.996	-1.961	-1.925	-1.88
-40	-1.889	-1.854	-1.818	-1.782	-1.745	-1.709	-1.673	-1.637	-1.600	-1.564	-1.52
-30	-1.527	-1.490	-1.453	-1.417	-1.380	-1.343	-1.305	-1.268	-1.231	-1.194	-1.15
-20	-1.156	-1.119	-1.081	-1.043	-1.006	-0.968	-0.930	-0.892	-0.854	-0.816	-0.77
-10	-0.778	-0.739	-0.701	-0.663	-0.624	-0.586	-0.547	-0.508	-0.470	-0.431	-0.39
0	-0.392	-0.353	-0.314	-0.275	-0.236	-0.197	-0.157	-0.118	-0.079	-0.039	0.00
ITS-90 Table for type											

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ITS-90 Table for type K thermocouple											
°C	0	1	2	3	4	5	6	7	8	9	10
Thermoelectric Voltage in mV											
1000	41.276	41.315	41.354	41.393	41.431	41.470	41.509	41.548	41.587	41.626	41.66
1010	41.665	41.704	41.743	41.781	41.820	41.859	41.898	41.937	41.976	42.014	42.05
1020	42.053	42.092	42.131	42.169	42.208	42.247	42.286	42.324	42.363	42.402	42.44
1030	42.440	42.479	42.518	42.556	42.595	42.633	42.672	42.711	42.749	42.788	42.82
1040	42.826	42.865	42.903	42.942	42.980	43.019	43.057	43.096	43.134	43.173	43.21
1050	43.211	43.250	43.288	43.327	43.365	43.403	43.442	43.480	43.518	43.557	43.59
1060	43.595	43.633	43.672	43.710	43.748	43.787	43.825	43.863	43.901	43.940	43.97
1070	43.978	44.016	44.054	44.092	44.130	44.169	44.207	44.245	44.283	44.321	44.35
1080	44.359	44.397	44.435	44.473	44.512	44.550	44.588	44.626	44.664	44.702	44.74
1090	44.740	44.778	44.816	44.853	44.891	44.929	44.967	45.005	45.043	45.081	45.11
1100	45.119	45.157	45.194	45.232	45.270	45.308	45.346	45.383	45.421	45.459	45.49
1110	45.497	45.534	45.572	45.610	45.647	45.685	45.723	45.760	45.798	45.836	45.87
1120	45.873	45.911	45.948	45.986	46.024	46.061	46.099	46.136	46.174	46.211	46.24
1130	46.249	46.286	46.324	46.361	46.398	46.436	46.473	46.511	46.548	46.585	46.62
1140	46.623	46.660	46.697	46.735	46.772	46.809	46.847	46.884	46.921	46.958	46.99
1150	46.995	47.033	47.070	47.107	47.144	47.181	47.218	47.256	47.293	47.330	47.36
1160	47.367	47.404	47.441	47.478	47.515	47.552	47.589	47.626	47.663	47.700	47.73
1170	47.737	47.774	47.811	47.848	47.884	47.921	47.958	47.995	48.032	48.069	48.10
1180	48.105	48.142	48.179	48.216	48.252	48.289	48.326	48.363	48.399	48.436	48.47
1190	48.473	48.509	48.546	48.582	48.619	48.656	48.692	48.729	48.765	48.802	48.83
1200	48.838	48.875	48.911	48.948	48.984	49.021	49.057	49.093	49.130	49.166	49.20
1210	49.202	49.239	49.275	49.311	49.348	49.384	49.420	49.456	49.493	49.529	49.56
1220	49.565	49.601	49.637	49.674	49.710	49.746	49.782	49.818	49.854	49.890	49.92
1230	49.926	49.962	49.998	50.034	50.070	50.106	50.142	50.178	50.214	50.250	50.28
1240	50.286	50.322	50.358	50.393	50.429	50.465	50.501	50.537	50.572	50.608	50.64
1250	50.644	50.680	50.715	50.751	50.787	50.822	50.858	50.894	50.929	50.965	51.00
1260	51.000	51.036	51.071	51.107	51.142	51.178	51.213	51.249	51.284	51.320	51.35
1270	51.355	51.391	51.426	51.461	51.497	51.532	51.567	51.603	51.638	51.673	51.70
1280	51.708	51.744	51.779	51.814	51.849	51.885	51.920	51.955	51.990	52.025	52.06
1290	52.060	52.095	52.130	52.165	52.200	52.235	52.270	52.305	52.340	52.375	52.41
1300	52.410	52.445	52.480	52.515	52.550	52.585	52.620	52.654	52.689	52.724	52.75
1310	52.759	52.794	52.828	52.863	52.898	52.932	52.967	53.002	53.037	53.071	53.10
1320	53.106	53.140	53.175	53.210	53.244	53.279	53.313	53.348	53.382	53.417	53.45
1330	53.451	53.486	53.520	53.555	53.589	53.623	53.658	53.692	53.727	53.761	53.79
1340	53.795	53.830	53.864	53.898	53.932	53.967	54.001	54.035	54.069	54.104	54.13
1350	54.138	54.172	54.206	54.240	54.274	54.308	54.343	54.377	54.411	54.445	54.47
1360	54.479	54.513	54.547	54.581	54.615	54.649	54.683	54.717	54.751	54.785	54.81
°C	0	1	2	3	4	5	6	7	8	9	10
ITS-90 Table for type N thermocouple											
°C	-10	-9	-8	-7	-6	-5	-4	-3	-2	-1	0
Thermoelectric Voltage in mV											
-260	-4.345	-4.345	-4.344	-4.344	-4.343	-4.342	-4.341	-4.340	-4.339	-4.337	-4.33
-250	-4.336	-4.334	-4.332	-4.330	-4.328	-4.326	-4.324	-4.321	-4.319	-4.316	-4.31
-240	-4.313	-4.310	-4.307	-4.304	-4.300	-4.297	-4.293	-4.289	-4.285	-4.281	-4.27
-230	-4.277	-4.273	-4.268	-4.263	-4.258	-4.254	-4.248	-4.243	-4.238	-4.232	-4.22
-220	-4.226	-4.221	-4.215	-4.209	-4.202	-4.196	-4.189	-4.183	-4.176	-4.169	-4.16
-210	-4.162	-4.154	-4.147	-4.140	-4.132	-4.124	-4.116	-4.108	-4.100	-4.091	-4.08
-200	-4.083	-4.074	-4.066	-4.057	-4.048	-4.038	-4.029	-4.020	-4.010	-4.000	-3.99
-190	-3.990	-3.980	-3.970	-3.960	-3.950	-3.939	-3.928	-3.918	-3.907	-3.896	-3.88
-180	-3.884	-3.873	-3.862	-3.850	-3.838	-3.827	-3.815	-3.803	-3.790	-3.778	-3.76
-170	-3.766	-3.753	-3.740	-3.728	-3.715	-3.702	-3.688	-3.675	-3.662	-3.648	-3.63
-160	-3.634	-3.621	-3.607	-3.593	-3.578	-3.564	-3.550	-3.535	-3.521	-3.506	-3.49
-150	-3.491	-3.476	-3.461	-3.446	-3.431	-3.415	-3.400	-3.384	-3.368	-3.352	-3.33
-140	-3.336	-3.320	-3.304	-3.288	-3.271	-3.255	-3.238	-3.221	-3.205	-3.188	-3.17
-130	-3.171	-3.153	-3.136	-3.119	-3.101	-3.084	-3.066	-3.048	-3.030	-3.012	-2.99
-120	-2.994	-2.976	-2.958	-2.939	-2.921	-2.902	-2.883	-2.865	-2.846	-2.827	-2.80
-110	-2.808	-2.789	-2.769	-2.750	-2.730	-2.711	-2.691	-2.672	-2.652	-2.632	-2.61
-100	-2.612	-2.592	-2.571	-2.551	-2.531	-2.510	-2.490	-2.469	-2.448	-2.428	-2.40
-90	-2.407	-2.386	-2.365	-2.344	-2.322	-2.301	-2.280	-2.258	-2.237	-2.215	-2.19
-80	-2.193	-2.172	-2.150	-2.128	-2.106	-2.084	-2.062	-2.039	-2.017	-1.995	-1.97
-70	-1.972	-1.950	-1.927	-1.905	-1.882	-1.859	-1.836	-1.813	-1.790	-1.767	-1.74
-60	-1.744	-1.721	-1.698	-1.674	-1.651	-1.627	-1.604	-1.580	-1.557	-1.533	-1.50
-50	-1.509	-1.485	-1.462	-1.438	-1.414	-1.390	-1.366	-1.341	-1.317	-1.293	-1.26
°C	0	1	2	3	4	5	6	7	8	9	10

ITS-90 Table for type N thermocouple											
°C	-10	-9	-8	-7	-6	-5	-4	-3	-2	-1	0
Thermoelectric Voltage in mV											
-40	-1.269	-1.244	-1.220	-1.195	-1.171	-1.146	-1.122	-1.097	-1.072	-1.048	-1.02
-30	-1.023	-0.998	-0.973	-0.948	-0.923	-0.898	-0.873	-0.848	-0.823	-0.798	-0.77
-20	-0.772	-0.747	-0.722	-0.696	-0.671	-0.646	-0.620	-0.595	-0.569	-0.544	-0.51
-10	-0.518	-0.492	-0.467	-0.441	-0.415	-0.390	-0.364	-0.338	-0.312	-0.286	-0.26
0	-0.260	-0.234	-0.209	-0.183	-0.157	-0.131	-0.104	-0.078	-0.052	-0.026	0.00
°C	-10	-9	-8	-7	-6	-5	-4	-3	-2	-1	0
ITS-90 Table for type N thermocouple											
°C	0	1	2	3	4	5	6	7	8	9	10
Thermoelectric Voltage in mV											
0	0.000	0.026	0.052	0.078	0.104	0.130	0.156	0.182	0.208	0.235	0.26
10	0.261	0.287	0.313	0.340	0.366	0.393	0.419	0.446	0.472	0.499	0.52
20	0.525	0.552	0.578	0.605	0.632	0.659	0.685	0.712	0.739	0.766	0.79
30	0.793	0.820	0.847	0.874	0.901	0.928	0.955	0.983	1.010	1.037	1.06
40	1.065	1.092	1.119	1.147	1.174	1.202	1.229	1.257	1.284	1.312	1.34
50	1.340	1.368	1.395	1.423	1.451	1.479	1.507	1.535	1.563	1.591	1.61
60	1.619	1.647	1.675	1.703	1.732	1.760	1.788	1.817	1.845	1.873	1.90
70	1.902	1.930	1.959	1.988	2.016	2.045	2.074	2.102	2.131	2.160	2.18
80	2.189	2.218	2.247	2.276	2.305	2.334	2.363	2.392	2.421	2.450	2.48
90	2.480	2.509	2.538	2.567	2.597	2.626	2.655	2.685	2.715	2.744	2.77
100	2.774	2.804	2.833	2.863	2.893	2.923	2.953	2.983	3.012	3.042	3.07
110	3.072	3.102	3.133	3.163	3.193	3.223	3.253	3.283	3.314	3.344	3.37
120	3.374	3.405	3.435	3.466	3.496	3.527	3.557	3.588	3.619	3.649	3.68
130	3.680	3.711	3.742	3.772	3.803	3.834	3.865	3.896	3.927	3.958	3.98
140	3.989	4.020	4.051	4.083	4.114	4.145	4.176	4.208	4.239	4.270	4.30
150	4.302	4.333	4.365	4.396	4.428	4.459	4.491	4.523	4.554	4.586	4.61
160	4.618	4.650	4.681	4.713	4.745	4.777	4.809	4.841	4.873	4.905	4.93
170	4.937	4.969	5.001	5.033	5.066	5.098	5.130	5.162	5.195	5.227	5.25
180	5.259	5.292	5.324	5.357	5.389	5.422	5.454	5.487	5.520	5.552	5.58
190	5.585	5.618	5.650	5.683	5.716	5.749	5.782	5.815	5.847	5.880	5.91
200	5.913	5.946	5.979	6.013	6.046	6.079	6.112	6.145	6.178	6.211	6.24
210	6.245	6.278	6.311	6.345	6.378	6.411	6.445	6.478	6.512	6.545	6.57
220	6.579	6.612	6.646	6.680	6.713	6.747	6.781	6.814	6.848	6.882	6.91
230	6.916	6.949	6.983	7.017	7.051	7.085	7.119	7.153	7.187	7.221	7.25
240	7.255	7.289	7.323	7.357	7.392	7.426	7.460	7.494	7.528	7.563	7.59
250	7.597	7.631	7.666	7.700	7.734	7.769</					

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ITS-90 Table for type N thermocouple

°C	0	1	2	3	4	5	6	7	8	9	10
	Thermoelectric Voltage in mV										
550	18.672	18.711	18.749	18.788	18.827	18.865	18.904	18.943	18.982	19.020	19.05
560	19.059	19.098	19.136	19.175	19.214	19.253	19.292	19.330	19.369	19.408	19.44
570	19.447	19.485	19.524	19.563	19.602	19.641	19.680	19.718	19.757	19.796	19.83
580	19.835	19.874	19.913	19.952	19.990	20.029	20.068	20.107	20.146	20.185	20.22
590	20.224	20.263	20.302	20.341	20.379	20.418	20.457	20.496	20.535	20.574	20.61
600	20.613	20.652	20.691	20.730	20.769	20.808	20.847	20.886	20.925	20.964	21.00
610	21.003	21.042	21.081	21.120	21.159	21.198	21.237	21.276	21.315	21.354	21.39
620	21.393	21.432	21.471	21.510	21.549	21.588	21.628	21.667	21.706	21.745	21.78
630	21.784	21.823	21.862	21.901	21.940	21.979	22.018	22.058	22.097	22.136	22.17
640	22.175	22.214	22.253	22.292	22.331	22.370	22.410	22.449	22.488	22.527	22.56
650	22.566	22.605	22.644	22.684	22.723	22.762	22.801	22.840	22.879	22.919	22.95
660	22.958	22.997	23.036	23.075	23.115	23.154	23.193	23.232	23.271	23.311	23.35
670	23.350	23.389	23.428	23.467	23.507	23.546	23.585	23.624	23.663	23.703	23.74
680	23.742	23.781	23.820	23.860	23.899	23.938	23.977	24.016	24.056	24.095	24.13
690	24.134	24.173	24.213	24.252	24.291	24.330	24.370	24.409	24.448	24.487	24.52
700	24.527	24.566	24.605	24.644	24.684	24.723	24.762	24.801	24.841	24.880	24.91
710	24.919	24.959	24.998	25.037	25.076	25.116	25.155	25.194	25.233	25.273	25.31
720	25.312	25.351	25.391	25.430	25.469	25.508	25.548	25.587	25.626	25.666	25.70
730	25.705	25.744	25.783	25.823	25.862	25.901	25.941	25.980	26.019	26.058	26.09
740	26.098	26.137	26.176	26.216	26.255	26.294	26.333	26.373	26.412	26.451	26.49
750	26.491	26.530	26.569	26.608	26.648	26.687	26.726	26.766	26.805	26.844	26.88
760	26.883	26.923	26.962	27.001	27.041	27.080	27.119	27.158	27.198	27.237	27.27
770	27.276	27.316	27.355	27.394	27.433	27.473	27.512	27.551	27.591	27.630	27.66
780	27.669	27.708	27.748	27.787	27.826	27.866	27.905	27.944	27.983	28.023	28.06
790	28.062	28.101	28.140	28.180	28.219	28.258	28.297	28.337	28.376	28.415	28.45
800	28.455	28.494	28.533	28.572	28.612	28.651	28.690	28.729	28.769	28.808	28.84
810	28.847	28.886	28.926	28.965	29.004	29.043	29.083	29.122	29.161	29.200	29.23
820	29.239	29.279	29.318	29.357	29.396	29.436	29.475	29.514	29.553	29.592	29.63
830	29.632	29.671	29.710	29.749	29.789	29.828	29.867	29.906	29.945	29.985	30.02
840	30.024	30.063	30.102	30.141	30.181	30.220	30.259	30.298	30.337	30.376	30.41
850	30.416	30.455	30.494	30.533	30.572	30.611	30.651	30.690	30.729	30.768	30.80
860	30.807	30.846	30.886	30.925	30.964	31.003	31.042	31.081	31.120	31.160	31.19
870	31.199	31.238	31.277	31.316	31.355	31.394	31.433	31.473	31.512	31.551	31.59
880	31.590	31.629	31.668	31.707	31.746	31.785	31.824	31.863	31.903	31.942	31.98
890	31.981	32.020	32.059	32.098	32.137	32.176	32.215	32.254	32.293	32.332	32.37
900	32.371	32.410	32.449	32.488	32.527	32.566	32.605	32.644	32.683	32.722	32.76
910	32.761	32.800	32.839	32.878	32.917	32.956	32.995	33.034	33.073	33.112	33.15
920	33.151	33.190	33.229	33.268	33.307	33.346	33.385	33.424	33.463	33.502	33.54
930	33.541	33.580	33.619	33.658	33.697	33.736	33.774	33.813	33.852	33.891	33.93
940	33.930	33.969	34.008	34.047	34.086	34.124	34.163	34.202	34.241	34.280	34.31
950	34.319	34.358	34.396	34.435	34.474	34.513	34.552	34.591	34.629	34.668	34.70
960	34.707	34.746	34.785	34.824	34.863	34.901	34.940	34.979	35.017	35.056	35.09
970	35.095	35.134	35.172	35.211	35.250	35.289	35.327	35.366	35.405	35.444	35.48
980	35.482	35.521	35.560	35.598	35.637	35.676	35.714	35.753	35.792	35.831	35.86
990	35.869	35.908	35.946	35.985	36.024	36.062	36.101	36.140	36.178	36.217	36.25
1000	36.256	36.294	36.333	36.371	36.410	36.449	36.487	36.526	36.564	36.603	36.64
1010	36.641	36.680	36.718	36.757	36.796	36.834	36.873	36.911	36.950	36.988	37.02
1020	37.027	37.065	37.104	37.142	37.181	37.219	37.258	37.296	37.334	37.373	37.41
1030	37.411	37.450	37.488	37.527	37.565	37.603	37.642	37.680	37.719	37.757	37.79
1040	37.795	37.834	37.872	37.911	37.949	37.987	38.026	38.064	38.102	38.141	38.17
1050	38.179	38.217	38.256	38.294	38.332	38.370	38.409	38.447	38.485	38.524	38.56
1060	38.562	38.600	38.638	38.677	38.715	38.753	38.791	38.829	38.868	38.906	38.94
1070	38.944	38.982	39.020	39.059	39.097	39.135	39.173	39.211	39.249	39.287	39.32
1080	39.326	39.364	39.402	39.440	39.478	39.516	39.554	39.592	39.630	39.668	39.70
1090	39.706	39.744	39.783	39.821	39.859	39.897	39.935	39.973	40.011	40.049	40.08
1100	40.087	40.125	40.163	40.201	40.238	40.276	40.314	40.352	40.390	40.428	40.46
1110	40.466	40.504	40.542	40.580	40.618	40.655	40.693	40.731	40.769	40.807	40.84
1120	40.845	40.883	40.920	40.958	40.996	41.034	41.072	41.110	41.149	41.187	41.22
1130	41.223	41.260	41.298	41.336	41.374	41.411	41.449	41.487	41.525	41.562	41.60
1140	41.600	41.638	41.675	41.713	41.751	41.788	41.826	41.864	41.901	41.939	41.97
1150	41.976	42.014	42.052	42.089	42.127	42.164	42.202	42.239	42.277	42.314	42.35
1160	42.352	42.390	42.427	42.465	42.502	42.540	42.577	42.614	42.652	42.689	42.72
1170	42.727	42.764	42.802	42.839	42.877	42.914	42.951	42.988	43.026	43.064	43.10
1180	43.101	43.138	43.176	43.213	43.250	43.288	43.325	43.362	43.399	43.437	43.47
1190	43.474	43.511	43.549	43.586	43.623	43.660	43.698	43.735	43.772	43.809	43.84

ITS-90 Table for type N thermocouple

°C	0	1	2	3	4	5	6	7	8	9	10
	Thermoelectric Voltage in mV										
1100	40.087	40.125	40.163	40.201	40.238	40.276	40.314	40.352	40.390	40.428	40.46
1110	40.466	40.504	40.542	40.580	40.618	40.655	40.693	40.731	40.769	40.807	40.84
1120	40.845	40.883	40.920	40.958	40.996	41.034	41.072	41.110	41.149	41.187	41.22
1130	41.223	41.260	41.298	41.336	41.374	41.411	41.449	41.487	41.525	41.562	41.60
1140	41.600	41.638	41.675	41.713	41.751	41.788	41.826	41.864	41.901	41.939	41.97
1150	41.976	42.014	42.052	42.089	42.127	42.164	42.202	42.239	42.277	42.314	42.35
1160	42.352	42.390	42.427	42.465	42.502	42.540	42.577	42.614	42.652	42.689	42.72
1170	42.727	42.764	42.802	42.839	42.877	42.914	42.951	42.988	43.026	43.064	43.10
1180	43.101	43.138	43.176	43.213	43.250	43.288	43.325	43.362	43.399	43.437	43.47
1190	43.474	43.511	43.549	43.586	43.623	43.660	43.698	43.735	43.772	43.809	43.84
1200	43.846	43.884	43.921	43.958	43.995	44.032	44.069	44.106	44.144	44.181	44.21
1210	44.218	44.255	44.292	44.329	44.366	44.403	44.440	44.477	44.514	44.551	44.58
1220	44.588	44.625	44.662	44.699	44.736	44.773	44.810	44.847	44.884	44.921	44.95
1230	44.958	44.995	45.032	45.069	45.105	45.142	45.179	45.216	45.253	45.290	45.32
1240	45.326	45.363	45.400	45.437	45.474	45.510	45.547	45.584	45.621	45.657	45.69
1250	45.694	45.731	45.767	45.804	45.841	45.877	45.914	45.951	45.987	46.024	46.06
1260	46.060	46.097	46.133	46.170	46.207	46.243	46.280	46.316	46.353	46.389	46.42
1270	46.425	46.462	46.498	46.535	46.571	46.608	46.644	46.680	46.717	46.753	46.78
1280	46.789	46.826	46.862	46.898	46.935	46.971	47.007	47.043	47.079	47.116	47.15
1290	47.152	47.188	47.224	47.260	47.296	47.333	47.369	47.405	47.441	47.477	47.51
°C	0	1	2	3	4	5	6	7	8	9	10
	Thermoelectric Voltage in mV										
ITS-90 Table for type N thermocouple											
°F	-10	-9	-8	-7	-6	-5	-4	-3	-2	-1	0
	Thermoelectric Voltage in mV										
-440	-4.344	-4.344	-4.343	-4.343	-4.342	-4.342	-4.341	-4.341	-4.340	-4.340	-4.33
-430	-4.339	-4.338	-4.337	-4.337	-4.336	-4.335	-4.334	-4.333	-4.332	-4.331	-4.33
-420	-4.330	-4.329	-4.327	-4							

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ITS-90 Table for type N thermocouple											
°F	-10	-9	-8	-7	-6	-5	-4	-3	-2	-1	0
Thermoelectric Voltage in mV											
-40	-1.160	-1.146	-1.133	-1.119	-1.105	-1.092	-1.078	-1.064	-1.050	-1.037	-1.02
-30	-1.023	-1.009	-0.995	-0.981	-0.967	-0.954	-0.940	-0.926	-0.912	-0.898	-0.88
-20	-0.884	-0.870	-0.856	-0.842	-0.828	-0.814	-0.800	-0.786	-0.772	-0.758	-0.74
-10	-0.744	-0.730	-0.716	-0.702	-0.688	-0.674	-0.660	-0.646	-0.632	-0.617	-0.60
0	-0.603	-0.589	-0.575	-0.561	-0.546	-0.532	-0.518	-0.504	-0.490	-0.475	-0.46
10	-0.318	-0.304	-0.289	-0.275	-0.260	-0.246	-0.232	-0.217	-0.203	-0.188	-0.17
20	-0.174	-0.159	-0.145	-0.131	-0.116	-0.102	-0.087	-0.073	-0.058	-0.044	-0.02
30	-0.029	-0.015	0.000	0.014	0.029	0.043	0.058	0.072	0.087	0.101	0.11
40	0.116	0.130	0.145	0.159	0.174	0.188	0.203	0.217	0.232	0.246	0.26
50	0.261	0.275	0.290	0.305	0.319	0.334	0.349	0.363	0.378	0.393	0.40
60	0.407	0.422	0.437	0.451	0.466	0.481	0.496	0.510	0.525	0.540	0.55
70	0.555	0.570	0.584	0.599	0.614	0.629	0.644	0.659	0.674	0.688	0.70
80	0.703	0.718	0.733	0.748	0.763	0.778	0.793	0.808	0.823	0.838	0.85
90	0.853	0.868	0.883	0.898	0.913	0.928	0.943	0.958	0.974	0.989	1.00
100	1.004	1.019	1.034	1.049	1.065	1.080	1.095	1.110	1.125	1.141	1.15
110	1.156	1.171	1.186	1.202	1.217	1.232	1.248	1.263	1.278	1.294	1.30
120	1.309	1.324	1.340	1.355	1.371	1.386	1.402	1.417	1.432	1.448	1.46
130	1.463	1.479	1.494	1.510	1.525	1.541	1.557	1.572	1.588	1.603	1.61
140	1.619	1.635	1.650	1.666	1.682	1.697	1.713	1.729	1.744	1.760	1.77
150	1.776	1.791	1.807	1.823	1.839	1.855	1.870	1.886	1.902	1.918	1.93
160	1.934	1.950	1.965	1.981	1.997	2.013	2.029	2.045	2.061	2.077	2.09
170	2.093	2.109	2.125	2.141	2.157	2.173	2.189	2.205	2.221	2.237	2.25
180	2.253	2.269	2.285	2.301	2.318	2.334	2.350	2.366	2.382	2.398	2.41
190	2.415	2.431	2.447	2.463	2.480	2.496	2.512	2.528	2.545	2.561	2.57
200	2.577	2.594	2.610	2.626	2.643	2.659	2.676	2.692	2.708	2.725	2.74
210	2.741	2.758	2.774	2.791	2.807	2.824	2.840	2.857	2.873	2.890	2.90
220	2.906	2.923	2.939	2.956	2.973	2.989	3.006	3.022	3.039	3.056	3.07
230	3.072	3.089	3.106	3.123	3.139	3.156	3.173	3.189	3.206	3.223	3.24
240	3.240	3.257	3.273	3.290	3.307	3.324	3.341	3.358	3.374	3.391	3.40
250	3.408	3.425	3.442	3.459	3.476	3.493	3.510	3.527	3.544	3.561	3.57
260	3.578	3.595	3.612	3.629	3.646	3.663	3.680	3.697	3.714	3.731	3.74
270	3.748	3.766	3.783	3.800	3.817	3.834	3.851	3.869	3.886	3.903	3.92
280	3.920	3.937	3.955	3.972	3.989	4.007	4.024	4.041	4.058	4.076	4.09
290	4.093	4.110	4.128	4.145	4.162	4.180	4.197	4.215	4.232	4.250	4.26
300	4.267	4.284	4.302	4.319	4.337	4.354	4.372	4.389	4.407	4.424	4.44
310	4.442	4.459	4.477	4.495	4.512	4.530	4.547	4.565	4.583	4.600	4.61
320	4.618	4.635	4.653	4.671	4.688	4.706	4.724	4.742	4.759	4.777	4.79
330	4.795	4.813	4.830	4.848	4.866	4.884	4.901	4.919	4.937	4.955	4.97
340	4.973	4.991	5.008	5.026	5.044	5.062	5.080	5.098	5.116	5.134	5.15
350	5.152	5.170	5.188	5.206	5.224	5.241	5.259	5.277	5.295	5.314	5.33
360	5.332	5.350	5.368	5.386	5.404	5.422	5.440	5.458	5.476	5.494	5.51
370	5.512	5.531	5.549	5.567	5.585	5.603	5.621	5.639	5.658	5.676	5.69
380	5.694	5.712	5.731	5.749	5.767	5.785	5.804	5.822	5.840	5.858	5.87
390	5.877	5.895	5.913	5.932	5.950	5.968	5.987	6.005	6.024	6.042	6.06
400	6.060	6.079	6.097	6.116	6.134	6.152	6.171	6.189	6.208	6.226	6.24
410	6.245	6.263	6.282	6.300	6.319	6.337	6.356	6.374	6.393	6.411	6.43
420	6.430	6.449	6.467	6.486	6.504	6.523	6.542	6.560	6.579	6.597	6.61
430	6.616	6.635	6.653	6.672	6.691	6.710	6.728	6.747	6.766	6.784	6.80
440	6.803	6.822	6.841	6.859	6.878	6.897	6.916	6.934	6.953	6.972	6.99
450	6.991	7.010	7.029	7.047	7.066	7.085	7.104	7.123	7.142	7.161	7.17
460	7.179	7.198	7.217	7.236	7.255	7.274	7.293	7.312	7.331	7.350	7.36
470	7.369	7.388	7.407	7.426	7.445	7.464	7.483	7.502	7.521	7.540	7.55
480	7.559	7.578	7.597	7.616	7.635	7.654	7.673	7.692	7.711	7.731	7.75
490	7.750	7.769	7.788	7.807	7.826	7.845	7.865	7.884	7.903	7.922	7.94
500	7.941	7.960	7.979	7.999	8.018	8.037	8.057	8.076	8.095	8.114	8.13
510	8.134	8.153	8.172	8.191	8.211	8.230	8.249	8.269	8.288	8.307	8.32
520	8.327	8.346	8.365	8.385	8.404	8.423	8.443	8.462	8.482	8.501	8.52
530	8.520	8.540	8.559	8.579	8.598	8.617	8.637	8.656	8.676	8.695	8.71
540	8.715	8.734	8.754	8.773	8.793	8.812	8.832	8.851	8.871	8.890	8.91

ITS-90 Table for type N thermocouple											
°F	0	1	2	3	4	5	6	7	8	9	10
Thermoelectric Voltage in mV											
550	8.910	8.929	8.949	8.968	8.988	9.008	9.027	9.047	9.066	9.086	9.10
560	9.105	9.125	9.145	9.164	9.184	9.204	9.223	9.243	9.262	9.282	9.30
570	9.302	9.321	9.341	9.361	9.381	9.400	9.420	9.440	9.459	9.479	9.49
580	9.499	9.519	9.538	9.558	9.578	9.598	9.617	9.637	9.657	9.677	9.69
590	9.696	9.716	9.736	9.756	9.776	9.795	9.815	9.835	9.855	9.875	9.89
600	9.895	9.914	9.934	9.954	9.974	9.994	10.014	10.034	10.054	10.073	10.09
610	10.093	10.113	10.133	10.153	10.173	10.193	10.213	10.233	10.253	10.273	10.29
620	10.293	10.313	10.333	10.353	10.373	10.393	10.413	10.433	10.453	10.473	10.49
630	10.493	10.513	10.533	10.553	10.573	10.593	10.613	10.633	10.653	10.673	10.69
640	10.693	10.713	10.733	10.753	10.774	10.794	10.814	10.834	10.854	10.874	10.89
650	10.894	10.914	10.934	10.955	10.975	10.995	11.015	11.035	11.055	11.076	11.09
660	11.096	11.116	11.136	11.156	11.177	11.197	11.217	11.237	11.257	11.278	11.29
670	11.298	11.318	11.338	11.359	11.379	11.399	11.419	11.440	11.460	11.480	11.50
680	11.501	11.521	11.541	11.561	11.582	11.602	11.622	11.643	11.663	11.683	11.70
690	11.704	11.724	11.744	11.765	11.785	11.805	11.826	11.846	11.867	11.887	11.90
700	11.907	11.928	11.948	11.968	11.989	12.009	12.030	12.050	12.071	12.091	12.11
710	12.111	12.132	12.152	12.173	12.193	12.214	12.234	12.255	12.275	12.295	12.31
720	12.316	12.336	12.357	12.377	12.398	12.418	12.439	12.459	12.480	12.500	12.52
730	12.521	12.542	12.562	12.583	12.603	12.624	12.644	12.665	12.685	12.706	12.72
740	12.726	12.747	12.768	12.788	12.809	12.829	12.850	12.871	12.891	12.912	12.93
750	12.932	12.953	12.974	12.994	13.015	13.036	13.056	13.077	13.098	13.118	13.13
760	13.139	13.159	13.180	13.201	13.221	13.242	13.263	13.284	13.304	13.325	13.34
770	13.346	13.366	13.387	13.408	13.428	13.449	13.470	13.491	13.511	13.532	13.55
780	13.553	13.574	13.594	13.615	13.636	13.657	13.677	13.698	13.719	13.740	13.76
790	13.760	13.781	13.802	13.823	13.844	13.864	13.885	13.906	13.927	13.948	13.96
800	13.969	13.989	14.010	14.031	14.052	14.073	14.094	14.114	14.135	14.156	14.17
810	14.177	14.198	14.219	14.240	14.260	14.281	14.302	14.323	14.344	14.365	14.38
820	14.386	14.407	14.428	14.448	14.469	14.490	14.511	14.532	14.553	14.574	14.59
830	14.595	14.616	14.637	14.658	14.679	14.700	14.721	14.742	14.763	14.784	14.80
840	14.804	14.825	14.846	14.867	14.888	14.909	14.930	14.951	14.972	14.993	15.01
850	15.014	15.035	15.056	15.077	15.098	15.119	15.140	15.162	15.183	15.204	15.22
860	15.225	15.246	15.267	15.288	15.309	15.330	15.351	15.372	15.393	15.414	15.43
870	15.435	15.456	15.477	15.498	15.520	15.541	15.562	15.583	15.604	15.625	15.64
880	15.646	15.667	15.688	15.709	15.731	15.752	15.773	15.794	15.815	15.836	15.85
890	15.857	15.878	15.900	15.921	15.942	15.963	15.984	16.005	16.027	16.048	16.06
900	16.069	16.090	16.111	16.132	16.154	16.175	16.196	16.			

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ITS-90 Table for type N thermocouple										ITS-90 Table for type N thermocouple													
Thermoelectric Voltage in mV										Thermoelectric Voltage in mV													
°F	0	1	2	3	4	5	6	7	8	9	10	°F	0	1	2	3	4	5	6	7	8	9	10
1100	20.353	20.375	20.397	20.418	20.440	20.462	20.483	20.505	20.527	20.548	20.57	1700	33.411	33.433	33.454	33.476	33.498	33.519	33.541	33.563	33.584	33.606	33.62
1110	20.570	20.591	20.613	20.635	20.656	20.678	20.700	20.721	20.743	20.765	20.78	1710	33.627	33.649	33.671	33.692	33.714	33.736	33.757	33.779	33.800	33.822	33.84
1120	20.786	20.808	20.830	20.851	20.873	20.895	20.916	20.938	20.960	20.981	21.00	1720	33.844	33.866	33.887	33.908	33.930	33.952	33.973	33.995	34.016	34.038	34.06
1130	21.003	21.025	21.046	21.068	21.090	21.111	21.133	21.155	21.176	21.198	21.22	1730	34.060	34.081	34.103	34.124	34.146	34.168	34.189	34.211	34.232	34.254	34.27
1140	21.220	21.241	21.263	21.285	21.306	21.328	21.350	21.371	21.393	21.415	21.43	1740	34.276	34.297	34.319	34.340	34.362	34.384	34.405	34.427	34.448	34.470	34.49
1150	21.437	21.458	21.480	21.502	21.523	21.545	21.567	21.588	21.610	21.632	21.65	1750	34.491	34.513	34.535	34.556	34.578	34.599	34.621	34.642	34.664	34.686	34.70
1160	21.654	21.675	21.697	21.719	21.740	21.762	21.784	21.806	21.827	21.849	21.87	1760	34.707	34.729	34.750	34.772	34.793	34.815	34.836	34.858	34.879	34.901	34.92
1170	21.871	21.892	21.914	21.936	21.958	21.979	22.001	22.023	22.044	22.066	22.08	1770	34.923	34.944	34.966	34.987	35.009	35.030	35.052	35.073	35.095	35.116	35.13
1180	22.088	22.110	22.131	22.153	22.175	22.197	22.218	22.240	22.262	22.284	22.30	1780	35.138	35.160	35.181	35.203	35.224	35.246	35.267	35.289	35.310	35.332	35.35
1190	22.305	22.327	22.349	22.370	22.392	22.414	22.436	22.457	22.479	22.501	22.52	1790	35.353	35.375	35.396	35.418	35.439	35.461	35.482	35.504	35.525	35.547	35.56
1200	22.523	22.544	22.566	22.588	22.610	22.631	22.653	22.675	22.697	22.718	22.74	1800	35.568	35.590	35.611	35.633	35.654	35.676	35.697	35.719	35.740	35.762	35.78
1210	22.740	22.762	22.784	22.805	22.827	22.849	22.871	22.893	22.914	22.936	22.95	1810	35.783	35.805	35.826	35.848	35.869	35.891	35.912	35.934	35.955	35.977	35.99
1220	22.958	22.980	23.001	23.023	23.045	23.067	23.088	23.110	23.132	23.154	23.17	1820	35.998	36.019	36.041	36.062	36.084	36.105	36.127	36.148	36.170	36.191	36.21
1230	23.176	23.197	23.219	23.241	23.263	23.284	23.306	23.328	23.350	23.372	23.39	1830	36.213	36.234	36.256	36.277	36.298	36.320	36.341	36.363	36.384	36.406	36.42
1240	23.393	23.415	23.437	23.459	23.480	23.502	23.524	23.546	23.568	23.589	23.61	1840	36.427	36.449	36.470	36.491	36.513	36.534	36.556	36.577	36.599	36.620	36.64
1250	23.611	23.633	23.655	23.676	23.698	23.720	23.742	23.764	23.785	23.807	23.82	1850	36.641	36.663	36.684	36.706	36.727	36.748	36.770	36.791	36.813	36.834	36.85
1260	23.829	23.851	23.873	23.894	23.916	23.938	23.960	23.982	24.003	24.025	24.04	1860	36.855	36.877	36.898	36.920	36.941	36.962	36.984	37.005	37.027	37.048	37.06
1270	24.047	24.069	24.091	24.112	24.134	24.156	24.178	24.200	24.221	24.243	24.26	1870	37.069	37.091	37.112	37.134	37.155	37.177	37.198	37.219	37.240	37.262	37.28
1280	24.265	24.287	24.309	24.330	24.352	24.374	24.396	24.418	24.439	24.461	24.48	1880	37.283	37.305	37.326	37.347	37.369	37.390	37.411	37.433	37.454	37.475	37.49
1290	24.483	24.505	24.527	24.548	24.570	24.592	24.614	24.636	24.658	24.679	24.70	1890	37.497	37.518	37.539	37.561	37.582	37.603	37.625	37.646	37.667	37.689	37.71
1300	24.701	24.723	24.745	24.767	24.788	24.810	24.832	24.854	24.876	24.897	24.91	1900	37.710	37.731	37.753	37.774	37.795	37.817	37.838	37.859	37.881	37.902	37.92
1310	24.919	24.941	24.963	24.985	25.007	25.028	25.050	25.072	25.094	25.116	25.13	1910	37.923	37.945	37.966	37.987	38.009	38.030	38.051	38.073	38.094	38.115	38.13
1320	25.137	25.159	25.181	25.203	25.225	25.247	25.268	25.290	25.312	25.334	25.35	1920	38.136	38.158	38.179	38.200	38.222	38.243	38.264	38.285	38.307	38.328	38.34
1330	25.356	25.377	25.399	25.421	25.443	25.465	25.487	25.508	25.530	25.552	25.57	1930	38.349	38.370	38.392	38.413	38.434	38.456	38.477	38.498	38.519	38.541	38.56
1340	25.574	25.596	25.618	25.639	25.661	25.683	25.705	25.727	25.748	25.770	25.79	1940	38.562	38.583	38.604	38.626	38.647	38.668	38.689	38.711	38.732	38.753	38.77
1350	25.792	25.814	25.836	25.858	25.879	25.901	25.923	25.945	25.967	25.989	26.01	1950	38.774	38.795	38.817	38.838	38.859	38.880	38.902	38.923	38.944	38.965	38.98
1360	26.010	26.032	26.054	26.076	26.098	26.119	26.141	26.163	26.185	26.207	26.22	1960	38.986	39.008	39.029	39.050	39.071	39.093	39.114	39.135	39.156	39.177	39.19
1370	26.229	26.251	26.272	26.294	26.316	26.338	26.360	26.381	26.403	26.425	26.44	1970	39.198	39.220	39.241	39.262	39.283	39.304	39.326	39.347	39.368	39.389	39.41
1380	26.447	26.469	26.491	26.512	26.534	26.556	26.578	26.600	26.622	26.644	26.66	1980	39.410	39.431	39.453	39.474	39.495	39.516	39.537	39.558	39.580	39.601	39.62
1390	26.665	26.687	26.709	26.731	26.752	26.774	26.796	26.818	26.840	26.862	26.88	1990	39.622	39.643	39.664	39.685	39.706	39.728	39.749	39.770	39.791	39.812	39.83
1400	26.883	26.905	26.927	26.949	26.971	26.993	27.014	27.036	27.058	27.080	27.10	2000	39.833	39.854	39.875	39.897	39.918	39.939	39.960	39.981	40.002	40.023	40.04
1410	27.102	27.124	27.145	27.167	27.189	27.211	27.233	27.254	27.276	27.298	27.32	2010	40.044	40.066	40.087	40.108	40.129	40.150	40.171	40.192	40.213	40.234	40.25
1420	27.320	27.342	27.364	27.385	27.407	27.429	27.451	27.473	27.495	27.516	27.53	2020	40.255	40.277	40.299	40.319	40.340	40.361	40.382	40.403	40.424	40.445	40.46
1430	27.538	27.560	27.582	27.604	27.625	27.647	27.669	27.691	27.713	27.735	27.75	2030	40.466	40.487	40.508	40.529	40.550	40.571	40.592	40.613	40.634	40.655	40.67
1440	27.756	27.778	27.800	27.822	27.844	27.866	27.887	27.909	27.931	27.953	27.97	2040	40.677	40.698	40.719	40.740	40.761	40.782	40.803	40.824	40.845	40.866	40.88
1450	27.975	27.996	28.018	28.040	28.062	28.084	28.105	28.127	28.149	28.171	28.19	2050	40.887	40.908	40.929	40.950	40.971	40.992	41.013	41.034	41.055	41.076	41.09
1460	28.193	28.215	28.236	28.258	28.280	28.302	28.324	28.345	28.367	28.389	28.41	2060	41.097	41.118	41.139	41.160	41.181	41.202	41.223	41.244	41.265	41.286	41.30
1470	28.411	28.433	28.455	28.476	28.498	28.520	28.542	28.564	28.585	28.607	28.62	2070	41.307	41.328	41.349	41.370	41.391	41.411	41.432	41.453	41.474	41.495	41.51
1480	28.629	28.651	28.673	28.694	28.716	28.738	28.760	28.782	28.803	28.825	28.84	2080	41.516	41.537	41.558	41.579	41.600	41.621	41.642	41.663	41.684	41.705	41.72
1490	28.847	28.869	28.891	28.912	28.934	28.956	28.978	29.000	29.021	29.043	29.06	2090	41.725	41.746	41.767	41.788	41.809	41.830	41.851	41.872	41.893	41.914	41.93
1500	29.065	29.087	29.109	29.130	29.152	29.174	29.196	29.218	29.239	29.261	29.28	2100	41.935	41.956	41.977	41.997	42.018	42.039	42.060	42.081	42.102	42.123	42.14
1510	29.283	29.305	29.327	29.348	29.370	29.392	29.414	29.436	29.457	29.479	29.50	2110	42.143	42.164	42.185	42.206	42.227	42.248	42.269	42.289	42.310	42.331	42.35
1520	29.501	29.523	29.545	29.566	29.588	29.610	29.632	29.653	29.675	29.697	29.71	2120	42.352	42.373	42.394	42.415	42.436	42.456	42.477	42.498	42.519	42.540	42.56
1530	29.719	29.741	29.762	29.784	29.806	29.828	29.850	29.871	29.893	29.915	29.93	2130	42.560	42.581	42.602	42.623	42.644	42.664	42.685	42.706	42.727	42.748	42.76
1540	29.937	29.958	29.980	30.002	30.024	30.046	30.067	30.089	30.111	30.133	30.15	2140	42.768	42.789	42.810	42.831	42.852	42.872	42.893	42.914	42.935	42.956	42.97
1550	30.154	30.176	30.198	30.220	30.242	30.263	30.285	30.307	30.329	30.350	30.37	2150	42.976	42.997	43.018	43.039	43.059	43.080					

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ITS-90 Table for type R thermocouple											
°F	-10	-9	-8	-7	-6	-5	-4	-3	-2	-1	0
Thermoelectric Voltage in mV											
-40	-0.210	-0.208	-0.205	-0.203	-0.201	-0.199	-0.197	-0.194	-0.192	-0.190	-0.18
-30	-0.188	-0.185	-0.183	-0.181	-0.179	-0.176	-0.174	-0.172	-0.169	-0.167	-0.16
-20	-0.165	-0.162	-0.160	-0.158	-0.155	-0.153	-0.150	-0.148	-0.145	-0.143	-0.14
-10	-0.141	-0.138	-0.136	-0.133	-0.131	-0.128	-0.126	-0.123	-0.121	-0.118	-0.11
0	-0.116	-0.113	-0.110	-0.108	-0.105	-0.103	-0.100	-0.097	-0.095	-0.092	-0.09
°F	-10	-9	-8	-7	-6	-5	-4	-3	-2	-1	0
ITS-90 Table for type R thermocouple											
°F	0	1	2	3	4	5	6	7	8	9	10
Thermoelectric Voltage in mV											
0	-0.090	-0.087	-0.084	-0.082	-0.079	-0.076	-0.073	-0.071	-0.068	-0.065	-0.06
10	-0.063	-0.060	-0.057	-0.054	-0.051	-0.049	-0.046	-0.043	-0.040	-0.037	-0.03
20	-0.035	-0.032	-0.029	-0.026	-0.023	-0.020	-0.017	-0.015	-0.012	-0.009	-0.00
30	-0.006	-0.003	0.000	0.003	0.006	0.009	0.012	0.015	0.018	0.021	0.02
40	0.024	0.027	0.030	0.033	0.036	0.039	0.042	0.045	0.048	0.051	0.05
50	0.054	0.057	0.060	0.064	0.067	0.070	0.073	0.076	0.079	0.082	0.08
60	0.086	0.089	0.092	0.095	0.098	0.102	0.105	0.108	0.111	0.114	0.11
70	0.118	0.121	0.124	0.127	0.131	0.134	0.137	0.141	0.144	0.147	0.15
80	0.151	0.154	0.157	0.161	0.164	0.167	0.171	0.174	0.177	0.181	0.18
90	0.184	0.188	0.191	0.194	0.198	0.201	0.205	0.208	0.212	0.215	0.21
100	0.218	0.222	0.225	0.229	0.232	0.236	0.239	0.243	0.246	0.250	0.25
110	0.254	0.257	0.261	0.264	0.268	0.271	0.275	0.278	0.282	0.286	0.28
120	0.289	0.293	0.296	0.300	0.304	0.307	0.311	0.315	0.318	0.322	0.32
130	0.326	0.329	0.333	0.337	0.340	0.344	0.348	0.352	0.355	0.359	0.36
140	0.363	0.366	0.370	0.374	0.378	0.382	0.385	0.389	0.393	0.397	0.40
150	0.400	0.404	0.408	0.412	0.416	0.420	0.423	0.427	0.431	0.435	0.43
160	0.439	0.443	0.447	0.450	0.454	0.458	0.462	0.466	0.470	0.474	0.47
170	0.478	0.482	0.486	0.489	0.493	0.497	0.501	0.505	0.509	0.513	0.51
180	0.517	0.521	0.525	0.529	0.533	0.537	0.541	0.545	0.549	0.553	0.55
190	0.557	0.561	0.565	0.569	0.573	0.578	0.582	0.586	0.590	0.594	0.59
200	0.598	0.602	0.606	0.610	0.614	0.618	0.623	0.627	0.631	0.635	0.63
210	0.639	0.643	0.647	0.652	0.656	0.660	0.664	0.668	0.672	0.677	0.68
220	0.681	0.685	0.689	0.693	0.698	0.702	0.706	0.710	0.715	0.719	0.72
230	0.723	0.727	0.732	0.736	0.740	0.744	0.749	0.753	0.757	0.761	0.76
240	0.766	0.770	0.774	0.779	0.783	0.787	0.792	0.796	0.800	0.805	0.80
250	0.809	0.813	0.818	0.822	0.826	0.831	0.835	0.839	0.844	0.848	0.85
260	0.853	0.857	0.861	0.866	0.870	0.875	0.879	0.883	0.888	0.892	0.89
270	0.897	0.901	0.906	0.910	0.915	0.919	0.923	0.928	0.932	0.937	0.94
280	0.941	0.946	0.950	0.955	0.959	0.964	0.968	0.973	0.977	0.982	0.98
290	0.986	0.991	0.995	1.000	1.005	1.009	1.014	1.018	1.023	1.027	1.03
300	1.032	1.036	1.041	1.046	1.050	1.055	1.059	1.064	1.069	1.073	1.07
310	1.078	1.082	1.087	1.092	1.096	1.101	1.105	1.110	1.115	1.119	1.12
320	1.124	1.129	1.133	1.138	1.143	1.147	1.152	1.157	1.161	1.166	1.17
330	1.171	1.175	1.180	1.185	1.190	1.194	1.199	1.204	1.208	1.213	1.21
340	1.218	1.223	1.227	1.232	1.237	1.242	1.246	1.251	1.256	1.261	1.26
350	1.265	1.270	1.275	1.280	1.284	1.289	1.294	1.299	1.304	1.308	1.31
360	1.313	1.318	1.323	1.328	1.332	1.337	1.342	1.347	1.352	1.356	1.36
370	1.361	1.366	1.371	1.376	1.381	1.386	1.390	1.395	1.400	1.405	1.41
380	1.410	1.415	1.420	1.425	1.429	1.434	1.439	1.444	1.449	1.454	1.45
390	1.459	1.464	1.469	1.473	1.478	1.483	1.488	1.493	1.498	1.503	1.50
400	1.508	1.513	1.518	1.523	1.528	1.533	1.538	1.543	1.548	1.553	1.55
410	1.558	1.563	1.568	1.572	1.577	1.582	1.587	1.592	1.597	1.602	1.60
420	1.607	1.612	1.617	1.622	1.627	1.632	1.638	1.643	1.648	1.653	1.65
430	1.658	1.663	1.668	1.673	1.678	1.683	1.688	1.693	1.698	1.703	1.70
440	1.708	1.713	1.718	1.723	1.728	1.733	1.739	1.744	1.749	1.754	1.75
450	1.759	1.764	1.769	1.774	1.779	1.784	1.790	1.795	1.800	1.805	1.81
460	1.810	1.815	1.820	1.825	1.831	1.836	1.841	1.846	1.851	1.856	1.86
470	1.861	1.867	1.872	1.877	1.882	1.887	1.892	1.898	1.903	1.908	1.91
480	1.913	1.918	1.923	1.929	1.934	1.939	1.944	1.949	1.955	1.960	1.96
490	1.965	1.970	1.975	1.981	1.986	1.991	1.996	2.002	2.007	2.012	2.01
500	2.017	2.022	2.028	2.033	2.038	2.043	2.049	2.054	2.059	2.064	2.07
510	2.070	2.075	2.080	2.085	2.091	2.096	2.101	2.107	2.112	2.117	2.12
520	2.122	2.128	2.133	2.138	2.144	2.149	2.154	2.159	2.165	2.170	2.17
530	2.175	2.181	2.186	2.191	2.197	2.202	2.207	2.213	2.218	2.223	2.22
540	2.229	2.234	2.239	2.245	2.250	2.255	2.261	2.266	2.271	2.277	2.28
°F	0	1	2	3	4	5	6	7	8	9	10

ITS-90 Table for type R thermocouple											
°F	0	1	2	3	4	5	6	7	8	9	10
Thermoelectric Voltage in mV											
550	2.282	2.287	2.293	2.298	2.304	2.309	2.314	2.320	2.325	2.330	2.33
560	2.336	2.341	2.347	2.352	2.357	2.363	2.368	2.374	2.379	2.384	2.39
570	2.390	2.395	2.401	2.406	2.411	2.417	2.422	2.428	2.433	2.438	2.44
580	2.444	2.449	2.455	2.460	2.466	2.471	2.477	2.482	2.487	2.493	2.49
590	2.498	2.504	2.509	2.515	2.520	2.526	2.531	2.537	2.542	2.547	2.55
600	2.553	2.558	2.564	2.569	2.575	2.580	2.586	2.591	2.597	2.602	2.60
610	2.608	2.613	2.619	2.624	2.630	2.635	2.641	2.646	2.652	2.657	2.66
620	2.663	2.668	2.674	2.679	2.685	2.690	2.696	2.701	2.707	2.713	2.71
630	2.718	2.724	2.729	2.735	2.740	2.746	2.751	2.757	2.762	2.768	2.77
640	2.773	2.779	2.785	2.790	2.796	2.801	2.807	2.812	2.818	2.824	2.82
650	2.829	2.835	2.840	2.846	2.851	2.857	2.863	2.868	2.874	2.879	2.88
660	2.885	2.891	2.896	2.902	2.907	2.913	2.919	2.924	2.930	2.935	2.94
670	2.941	2.947	2.952	2.958	2.964	2.969	2.975	2.980	2.986	2.992	2.99
680	2.997	3.003	3.009	3.014	3.020	3.026	3.031	3.037	3.042	3.048	3.05
690	3.054	3.059	3.065	3.071	3.076	3.082	3.088	3.093	3.099	3.105	3.11
700	3.110	3.116	3.122	3.127	3.133	3.139	3.144	3.150	3.156	3.161	3.16
710	3.167	3.173	3.179	3.184	3.190	3.196	3.201	3.207	3.213	3.218	3.22
720	3.224	3.230	3.236	3.241	3.247	3.253	3.258	3.264	3.270	3.276	3.28
730	3.281	3.287	3.293	3.298	3.304	3.310	3.316	3.321	3.327	3.333	3.33
740	3.339	3.344	3.350	3.356	3.362	3.367	3.373	3.379	3.385	3.390	3.39
750	3.396	3.402	3.408	3.413	3.419	3.425	3.431	3.437	3.442	3.448	3.45
760	3.454	3.460	3.466	3.471	3.477	3.483	3.489	3.494	3.500	3.506	3.51
770	3.512	3.517	3.523	3.529	3.535	3.541	3.546	3.552	3.558	3.564	3.57
780	3.570	3.576	3.581	3.587	3.593	3.599	3.605	3.610	3.616	3.622	3.62
790	3.628	3.634	3.640	3.645	3.651	3.657	3.663	3.669	3.675	3.680	3.68
800	3.686	3.692	3.698	3.704	3.710	3.716	3.721	3.727	3.733	3.739	3.74
810	3.745	3.751	3.757	3.762	3.768	3.774	3.780	3.786	3.792	3.798	3.80
820	3.803	3.809	3.815	3.821	3.827	3.833	3.839	3.845	3.851	3.856	3.86
830	3.862	3.868	3.874	3.880	3.886	3.892	3.898	3.904	3.909	3.915	3.92
840	3.921	3.927	3.933	3.939	3.945	3.951	3.957	3.963	3.969	3.975	3.98
850	3.980	3.986	3.992	3.998	4.004	4.010	4.016	4.022	4.028	4.034	4.04
860	4.040	4.046	4.052	4.058	4.064	4.069	4.075	4.081	4.087	4.093	4.09
870	4.099	4.105	4.111	4.117	4.123	4.129	4.135	4.141	4.147	4.153	4.15
880	4.159	4.165	4.171	4.177	4.183	4.189	4.195	4.201	4.207	4.213	4.21
890	4.219	4.225	4.231	4.237	4.243	4.249	4.255	4.2			

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ITS-90 Table for type R thermocouple											
°F	0	1	2	3	4	5	6	7	8	9	10
Thermoelectric Voltage in mV											
1200	6.144	6.151	6.157	6.164	6.170	6.176	6.183	6.189	6.196	6.202	6.20
1210	6.209	6.215	6.222	6.228	6.235	6.241	6.247	6.254	6.260	6.267	6.27
1220	6.273	6.280	6.286	6.293	6.299	6.306	6.312	6.319	6.325	6.332	6.33
1230	6.338	6.345	6.351	6.358	6.364	6.370	6.377	6.383	6.390	6.396	6.40
1240	6.403	6.409	6.416	6.422	6.429	6.435	6.442	6.448	6.455	6.461	6.46
1250	6.468	6.474	6.481	6.488	6.494	6.501	6.507	6.514	6.520	6.527	6.53
1260	6.533	6.540	6.546	6.553	6.559	6.566	6.572	6.579	6.585	6.592	6.59
1270	6.598	6.605	6.612	6.618	6.625	6.631	6.638	6.644	6.651	6.657	6.66
1280	6.664	6.671	6.677	6.684	6.690	6.697	6.703	6.710	6.716	6.723	6.73
1290	6.730	6.736	6.743	6.749	6.756	6.762	6.769	6.776	6.782	6.789	6.79
1300	6.795	6.802	6.809	6.815	6.822	6.828	6.835	6.841	6.848	6.855	6.86
1310	6.861	6.868	6.874	6.881	6.888	6.894	6.901	6.907	6.914	6.921	6.92
1320	6.927	6.934	6.941	6.947	6.954	6.960	6.967	6.974	6.980	6.987	6.99
1330	6.994	7.000	7.007	7.013	7.020	7.027	7.033	7.040	7.047	7.053	7.06
1340	7.060	7.067	7.073	7.080	7.086	7.093	7.100	7.106	7.113	7.120	7.12
1350	7.126	7.133	7.140	7.146	7.153	7.160	7.166	7.173	7.180	7.186	7.19
1360	7.193	7.200	7.206	7.213	7.220	7.226	7.233	7.240	7.247	7.253	7.26
1370	7.260	7.267	7.273	7.280	7.287	7.293	7.300	7.307	7.313	7.320	7.32
1380	7.327	7.334	7.340	7.347	7.354	7.360	7.367	7.374	7.381	7.387	7.39
1390	7.394	7.401	7.407	7.414	7.421	7.428	7.434	7.441	7.448	7.454	7.46
1400	7.461	7.468	7.475	7.481	7.488	7.495	7.502	7.508	7.515	7.522	7.52
1410	7.529	7.535	7.542	7.549	7.556	7.562	7.569	7.576	7.583	7.589	7.59
1420	7.596	7.603	7.610	7.616	7.623	7.630	7.637	7.644	7.650	7.657	7.66
1430	7.664	7.671	7.677	7.684	7.691	7.698	7.705	7.711	7.718	7.725	7.73
1440	7.732	7.739	7.745	7.752	7.759	7.766	7.772	7.779	7.786	7.793	7.80
1450	7.800	7.807	7.813	7.820	7.827	7.834	7.841	7.847	7.854	7.861	7.86
1460	7.868	7.875	7.882	7.888	7.895	7.902	7.909	7.916	7.922	7.929	7.93
1470	7.936	7.943	7.950	7.957	7.964	7.970	7.977	7.984	7.991	7.998	8.00
1480	8.005	8.011	8.018	8.025	8.032	8.039	8.046	8.053	8.059	8.066	8.07
1490	8.073	8.080	8.087	8.094	8.101	8.108	8.114	8.121	8.128	8.135	8.14
1500	8.142	8.149	8.156	8.163	8.169	8.176	8.183	8.190	8.197	8.204	8.21
1510	8.211	8.218	8.225	8.232	8.238	8.245	8.252	8.259	8.266	8.273	8.28
1520	8.280	8.287	8.294	8.301	8.308	8.314	8.321	8.328	8.335	8.342	8.34
1530	8.349	8.356	8.363	8.370	8.377	8.384	8.391	8.398	8.405	8.411	8.41
1540	8.418	8.425	8.432	8.439	8.446	8.453	8.460	8.467	8.474	8.481	8.48
1550	8.488	8.495	8.502	8.509	8.516	8.523	8.530	8.537	8.544	8.551	8.55
1560	8.557	8.564	8.571	8.578	8.585	8.592	8.599	8.606	8.613	8.620	8.62
1570	8.627	8.634	8.641	8.648	8.655	8.662	8.669	8.676	8.683	8.690	8.69
1580	8.697	8.704	8.711	8.718	8.725	8.732	8.739	8.746	8.753	8.760	8.76
1590	8.767	8.774	8.781	8.788	8.795	8.802	8.809	8.816	8.823	8.830	8.83
1600	8.837	8.844	8.852	8.859	8.866	8.873	8.880	8.887	8.894	8.901	8.90
1610	8.908	8.915	8.922	8.929	8.936	8.943	8.950	8.957	8.964	8.971	8.97
1620	8.978	8.985	8.992	8.999	9.007	9.014	9.021	9.028	9.035	9.042	9.04
1630	9.049	9.056	9.063	9.070	9.077	9.084	9.091	9.098	9.106	9.113	9.12
1640	9.120	9.127	9.134	9.141	9.148	9.155	9.162	9.169	9.176	9.184	9.19
1650	9.191	9.198	9.205	9.212	9.219	9.226	9.233	9.240	9.248	9.255	9.26
1660	9.262	9.269	9.276	9.283	9.290	9.297	9.304	9.312	9.319	9.326	9.33
1670	9.333	9.340	9.347	9.354	9.361	9.369	9.376	9.383	9.390	9.397	9.40
1680	9.404	9.411	9.419	9.426	9.433	9.440	9.447	9.454	9.461	9.469	9.47
1690	9.476	9.483	9.490	9.497	9.504	9.512	9.519	9.526	9.533	9.540	9.54
1700	9.547	9.555	9.562	9.569	9.576	9.583	9.590	9.598	9.605	9.612	9.61
1710	9.619	9.626	9.634	9.641	9.648	9.655	9.662	9.670	9.677	9.684	9.69
1720	9.691	9.698	9.706	9.713	9.720	9.727	9.734	9.742	9.749	9.756	9.76
1730	9.763	9.770	9.778	9.785	9.792	9.799	9.806	9.814	9.821	9.828	9.83
1740	9.835	9.843	9.850	9.857	9.864	9.872	9.879	9.886	9.893	9.900	9.90
1750	9.908	9.915	9.922	9.929	9.937	9.944	9.951	9.958	9.966	9.973	9.98
1760	9.980	9.987	9.995	10.002	10.009	10.016	10.024	10.031	10.038	10.046	10.05
1770	10.053	10.060	10.067	10.075	10.082	10.089	10.096	10.104	10.111	10.118	10.12
1780	10.126	10.133	10.140	10.147	10.155	10.162	10.169	10.177	10.184	10.191	10.19
1790	10.198	10.206	10.213	10.220	10.228	10.235	10.242	10.250	10.257	10.264	10.27
1800	10.271	10.279	10.286	10.293	10.301	10.308	10.315	10.323	10.330	10.337	10.34
1810	10.345	10.352	10.359	10.367	10.374	10.381	10.389	10.396	10.403	10.411	10.41
1820	10.418	10.425	10.433	10.440	10.447	10.455	10.462	10.469	10.477	10.484	10.49
1830	10.491	10.499	10.506	10.513	10.521	10.528	10.535	10.543	10.550	10.557	10.56
1840	10.565	10.572	10.580	10.587	10.594	10.602	10.609	10.616	10.624	10.631	10.63
°F	0	1	2	3	4	5	6	7	8	9	10

ITS-90 Table for type R thermocouple											
°F	0	1	2	3	4	5	6	7	8	9	10
Thermoelectric Voltage in mV											
1850	10.638	10.646	10.653	10.661	10.668	10.675	10.683	10.690	10.698	10.705	10.71
1860	10.712	10.720	10.727	10.734	10.742	10.749	10.757	10.764	10.771	10.779	10.78
1870	10.786	10.794	10.801	10.808	10.816	10.823	10.831	10.838	10.845	10.853	10.86
1880	10.860	10.868	10.875	10.883	10.890	10.897	10.905	10.912	10.920	10.927	10.93
1890	10.934	10.942	10.949	10.957	10.964	10.972	10.979	10.986	10.994	11.001	11.00
1900	11.009	11.016	11.024	11.031	11.039	11.046	11.053	11.061	11.068	11.076	11.08
1910	11.083	11.091	11.098	11.106	11.113	11.121	11.128	11.135	11.143	11.150	11.15
1920	11.158	11.165	11.173	11.180	11.188	11.195	11.203	11.210	11.218	11.225	11.23
1930	11.233	11.240	11.247	11.255	11.262	11.270	11.277	11.285	11.292	11.300	11.30
1940	11.307	11.315	11.322	11.330	11.337	11.345	11.352	11.360	11.367	11.375	11.38
1950	11.382	11.390	11.397	11.405	11.412	11.420	11.427	11.435	11.442	11.450	11.45
1960	11.457	11.465	11.472	11.480	11.487	11.495	11.502	11.510	11.518	11.525	11.53
1970	11.533	11.540	11.548	11.555	11.563	11.570	11.578	11.585	11.593	11.600	11.60
1980	11.608	11.615	11.623	11.631	11.638	11.646	11.653	11.661	11.668	11.676	11.68
1990	11.683	11.691	11.698	11.706	11.714	11.721	11.729	11.736	11.744	11.751	11.75
2000	11.759	11.766	11.774	11.782	11.789	11.797	11.804	11.812	11.819	11.827	11.83
2010	11.834	11.842	11.850	11.857	11.865	11.872	11.880	11.888	11.895	11.903	11.91
2020	11.910	11.918	11.925	11.933	11.941	11.948	11.956	11.963	11.971	11.979	11.98
2030	11.986	11.994	12.001	12.009	12.016	12.024	12.032	12.039	12.047	12.054	12.06
2040	12.062	12.070	12.077	12.085	12.092	12.100	12.108	12.115	12.123	12.131	12.13
2050	12.138	12.146	12.153	12.161	12.169	12.176	12.184	12.191	12.199	12.207	12.21
2060	12.214	12.222	12.230	12.237	12.245	12.252	12.260	12.268	12.275	12.283	12.29
2070	12.291	12.298	12.306	12.313	12.321	12.329	12.336	12.344	12.352	12.359	12.36
2080	12.367	12.375	12.382	12.390	12.397	12.405	12.413	12.420	12.428	12.436	12.44
2090	12.443	12.451	12.459	12.466	12.474	12.482	12.489	12.497	12.505	12.512	12.52
2100	12.520	12.528	12.535	12.543	12.551	12.558	12.566	12.574	12.581	12.589	12.59
2110	12.597	12.604	12.612	12.620	12.627	12.635	12.643	12.650	12.658	12.666	12.67
2120	12.673	12.681	12.689	12.696	12.704	12.712	12.719	12.727	12.735	12.742	12.75
2130	12.750										

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ITS-90 Table for type R thermocouple											
°F	0	1	2	3	4	5	6	7	8	9	10
Thermoelectric Voltage in mV											
2500	15.632	15.640	15.648	15.655	15.663	15.671	15.679	15.687	15.695	15.703	15.71
2510	15.710	15.718	15.726	15.734	15.742	15.750	15.758	15.765	15.773	15.781	15.78
2520	15.789	15.797	15.805	15.812	15.820	15.828	15.836	15.844	15.852	15.860	15.86
2530	15.867	15.875	15.883	15.891	15.899	15.907	15.915	15.922	15.930	15.938	15.94
2540	15.946	15.954	15.962	15.969	15.977	15.985	15.993	16.001	16.009	16.017	16.02
2550	16.024	16.032	16.040	16.048	16.056	16.064	16.071	16.079	16.087	16.095	16.10
2560	16.103	16.111	16.119	16.126	16.134	16.142	16.150	16.158	16.166	16.174	16.18
2570	16.181	16.189	16.197	16.205	16.213	16.221	16.228	16.236	16.244	16.252	16.26
2580	16.260	16.268	16.276	16.283	16.291	16.299	16.307	16.315	16.323	16.330	16.33
2590	16.338	16.346	16.354	16.362	16.370	16.378	16.385	16.393	16.401	16.409	16.41
2600	16.417	16.425	16.432	16.440	16.448	16.456	16.464	16.472	16.480	16.487	16.49
2610	16.495	16.503	16.511	16.519	16.527	16.534	16.542	16.550	16.558	16.566	16.57
2620	16.574	16.582	16.589	16.597	16.605	16.613	16.621	16.629	16.636	16.644	16.65
2630	16.652	16.660	16.668	16.676	16.683	16.691	16.699	16.707	16.715	16.723	16.73
2640	16.731	16.738	16.746	16.754	16.762	16.770	16.778	16.785	16.793	16.801	16.80
2650	16.809	16.817	16.825	16.832	16.840	16.848	16.856	16.864	16.872	16.879	16.88
2660	16.887	16.895	16.903	16.911	16.919	16.926	16.934	16.942	16.950	16.958	16.96
2670	16.966	16.973	16.981	16.989	16.997	17.005	17.013	17.020	17.028	17.036	17.04
2680	17.044	17.052	17.060	17.067	17.075	17.083	17.091	17.099	17.107	17.114	17.12
2690	17.122	17.130	17.138	17.146	17.154	17.161	17.169	17.177	17.185	17.193	17.20
2700	17.200	17.208	17.216	17.224	17.232	17.240	17.247	17.255	17.263	17.271	17.27
2710	17.279	17.286	17.294	17.302	17.310	17.318	17.326	17.333	17.341	17.349	17.35
2720	17.357	17.365	17.373	17.380	17.388	17.396	17.404	17.412	17.419	17.427	17.43
2730	17.435	17.443	17.451	17.458	17.466	17.474	17.482	17.490	17.498	17.505	17.51
2740	17.513	17.521	17.529	17.537	17.544	17.552	17.560	17.568	17.576	17.583	17.59
2750	17.591	17.599	17.607	17.615	17.622	17.630	17.638	17.646	17.654	17.661	17.66
2760	17.669	17.677	17.685	17.693	17.700	17.708	17.716	17.724	17.732	17.739	17.74
2770	17.747	17.755	17.763	17.771	17.778	17.786	17.794	17.802	17.810	17.817	17.82
2780	17.825	17.833	17.841	17.849	17.856	17.864	17.872	17.880	17.888	17.895	17.90
2790	17.903	17.911	17.919	17.926	17.934	17.942	17.950	17.958	17.965	17.973	17.98
2800	17.981	17.989	17.997	18.004	18.012	18.020	18.028	18.035	18.043	18.051	18.05
2810	18.059	18.067	18.074	18.082	18.090	18.098	18.105	18.113	18.121	18.129	18.13
2820	18.137	18.144	18.152	18.160	18.168	18.175	18.183	18.191	18.199	18.206	18.21
2830	18.214	18.222	18.230	18.238	18.245	18.253	18.261	18.269	18.276	18.284	18.29
2840	18.292	18.300	18.307	18.315	18.323	18.331	18.338	18.346	18.354	18.362	18.36
2850	18.369	18.377	18.385	18.393	18.400	18.408	18.416	18.424	18.431	18.439	18.44
2860	18.447	18.455	18.462	18.470	18.478	18.486	18.493	18.501	18.509	18.517	18.52
2870	18.524	18.532	18.540	18.548	18.555	18.563	18.571	18.579	18.586	18.594	18.60
2880	18.602	18.610	18.617	18.625	18.633	18.640	18.648	18.656	18.664	18.671	18.67
2890	18.679	18.687	18.695	18.702	18.710	18.718	18.725	18.733	18.741	18.749	18.75
2900	18.756	18.764	18.772	18.779	18.787	18.795	18.803	18.810	18.818	18.826	18.83
2910	18.834	18.841	18.849	18.857	18.864	18.872	18.880	18.887	18.895	18.903	18.91
2920	18.911	18.918	18.926	18.934	18.941	18.949	18.957	18.965	18.972	18.980	18.98
2930	18.988	18.995	19.003	19.011	19.018	19.026	19.034	19.042	19.049	19.057	19.06
2940	19.065	19.072	19.080	19.088	19.095	19.103	19.111	19.118	19.126	19.134	19.14
2950	19.141	19.149	19.157	19.165	19.172	19.180	19.188	19.195	19.203	19.211	19.21
2960	19.218	19.226	19.234	19.241	19.249	19.257	19.264	19.272	19.280	19.287	19.29
2970	19.295	19.303	19.310	19.318	19.326	19.333	19.341	19.349	19.356	19.364	19.37
2980	19.372	19.379	19.387	19.395	19.402	19.410	19.418	19.425	19.433	19.440	19.44
2990	19.448	19.456	19.463	19.471	19.479	19.486	19.494	19.502	19.509	19.517	19.52
3000	19.525	19.532	19.540	19.547	19.555	19.563	19.570	19.578	19.586	19.593	19.60
3010	19.601	19.609	19.616	19.624	19.631	19.639	19.647	19.654	19.662	19.670	19.67
3020	19.677	19.685	19.692	19.700	19.708	19.715	19.723	19.730	19.738	19.746	19.75
3030	19.753	19.761	19.769	19.776	19.784	19.791	19.799	19.807	19.814	19.822	19.82
3040	19.829	19.837	19.845	19.852	19.860	19.867	19.875	19.882	19.890	19.898	19.90
3050	19.905	19.913	19.920	19.928	19.936	19.943	19.951	19.958	19.966	19.973	19.98
3060	19.981	19.989	19.996	20.004	20.011	20.019	20.026	20.034	20.041	20.049	20.05
3070	20.056	20.064	20.072	20.079	20.087	20.094	20.102	20.109	20.117	20.124	20.13
3080	20.132	20.139	20.147	20.154	20.162	20.169	20.177	20.184	20.192	20.199	20.20
3090	20.207	20.214	20.222	20.229	20.237	20.244	20.252	20.259	20.266	20.274	20.28
3100	20.281	20.289	20.296	20.304	20.311	20.319	20.326	20.333	20.341	20.348	20.35
3110	20.356	20.363	20.371	20.378	20.385	20.393	20.400	20.407	20.415	20.422	20.43
3120	20.430	20.437	20.444	20.452	20.459	20.466	20.474	20.481	20.488	20.496	20.50
3130	20.503	20.510	20.518	20.525	20.532	20.540	20.547	20.554	20.562	20.569	20.57
3140	20.576	20.583	20.591	20.598	20.605	20.612	20.620	20.627	20.634	20.641	20.64
°F	0	1	2	3	4	5	6	7	8	9	10

ITS-90 Table for type R thermocouple											
°F	0	1	2	3	4	5	6	7	8	9	10
Thermoelectric Voltage in mV											
3150	20.649	20.656	20.663	20.670	20.678	20.685	20.692	20.699	20.706	20.714	20.72
3160	20.721	20.728	20.735	20.742	20.749	20.756	20.764	20.771	20.778	20.785	20.79
3170	20.792	20.799	20.806	20.813	20.821	20.828	20.835	20.842	20.849	20.856	20.86
3180	20.863	20.870	20.877	20.884	20.891	20.898	20.905	20.912	20.919	20.926	20.93
3190	20.933	20.940	20.947	20.954	20.961	20.968	20.975	20.982	20.989	20.996	21.00
3200	21.003	21.010	21.016	21.023	21.030	21.037	21.044	21.051	21.058	21.065	21.07
3210	21.071	21.078	21.085	21.092	21.099						
°F	0	1	2	3	4	5	6	7	8	9	10
ITS-90 Table for type R thermocouple											
°C	-10	-9	-8	-7	-6	-5	-4	-3	-2	-1	0
Thermoelectric Voltage in mV											
-40	-0.226	-0.223	-0.219	-0.215	-0.211	-0.208	-0.204	-0.200	-0.196	-0.192	-0.18
-30	-0.188	-0.184	-0.180	-0.175	-0.171	-0.167	-0.163	-0.158	-0.154	-0.150	-0.14
-20	-0.145	-0.141	-0.137	-0.132	-0.128	-0.123	-0.119	-0.114	-0.109	-0.105	-0.10
-10	-0.100	-0.095	-0.091	-0.086	-0.081	-0.076	-0.071	-0.066	-0.061	-0.056	-0.05
0	-0.051	-0.046	-0.041	-0.036	-0.031	-0.026	-0.021	-0.016	-0.011	-0.005	0.00
°C	-10	-9	-8	-7	-6	-5	-4	-3	-2	-1	0
ITS-90 Table for type R thermocouple											
°C	0	1	2	3	4	5	6	7	8	9	10
Thermoelectric Voltage in mV											
0	0.000	0.005	0.011	0.016	0.021	0.027	0.032	0.038	0.043	0.049	0.05
10	0.054	0.060	0.065	0.071	0.077	0.082	0.088	0.094	0.100	0.105	0.11
20	0.111	0.117	0.123	0.129	0.135	0.141	0.147	0.153	0.159	0.165	0.17
30	0.171	0.177	0.183	0.189	0.195	0.201	0.207	0.214	0.220	0.226	0.23
40	0.232	0.239	0.245	0.251	0.258	0.264	0.271	0.277	0.284	0.290	0.29
50	0.296	0.303	0.310	0.316	0.323	0.329	0.336	0.343	0.349	0.356	0.36
60	0.363	0.369	0.376	0.383	0.390	0.397	0.403	0.410	0.417	0.424	0.43
70	0.431	0.438	0.445	0.452	0.459	0.466	0.473	0.480	0.487	0.494	0.50
80	0.501	0.508	0.516	0.523	0.530	0.537	0.544	0.552	0.559	0.566	0.57
90	0.573	0.581	0.588	0.595	0.603						

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ITS-90 Table for type R thermocouple
 °C -10 -9 -8 -7 -6 -5 -4 -3 -2 -1 0
 °C 0 1 2 3 4 5 6 7 8 9 10
 Thermolectric Voltage in mV

400	3.408	3.418	3.428	3.439	3.449	3.460	3.470	3.480	3.491	3.501	3.51
410	3.512	3.522	3.533	3.543	3.553	3.564	3.574	3.585	3.595	3.606	3.61
420	3.616	3.627	3.637	3.648	3.658	3.669	3.679	3.690	3.700	3.711	3.72
430	3.721	3.732	3.742	3.753	3.764	3.774	3.785	3.795	3.806	3.816	3.82
440	3.827	3.838	3.848	3.859	3.869	3.880	3.891	3.901	3.912	3.922	3.93
450	3.933	3.944	3.954	3.965	3.976	3.986	3.997	4.008	4.018	4.029	4.04
460	4.040	4.050	4.061	4.072	4.083	4.093	4.104	4.115	4.125	4.136	4.14
470	4.147	4.158	4.168	4.179	4.190	4.201	4.211	4.222	4.233	4.244	4.25
480	4.255	4.265	4.276	4.287	4.298	4.309	4.319	4.330	4.341	4.352	4.36
490	4.363	4.373	4.384	4.395	4.406	4.417	4.428	4.439	4.449	4.460	4.47
500	4.471	4.482	4.493	4.504	4.515	4.526	4.537	4.548	4.558	4.569	4.58
510	4.580	4.591	4.602	4.613	4.624	4.635	4.646	4.657	4.668	4.679	4.69
520	4.690	4.701	4.712	4.723	4.734	4.745	4.756	4.767	4.778	4.789	4.80
530	4.800	4.811	4.822	4.833	4.844	4.855	4.866	4.877	4.888	4.899	4.91
540	4.910	4.922	4.933	4.944	4.955	4.966	4.977	4.988	4.999	5.010	5.02
550	5.021	5.033	5.044	5.055	5.066	5.077	5.088	5.099	5.111	5.122	5.13
560	5.133	5.144	5.155	5.166	5.178	5.189	5.200	5.211	5.222	5.234	5.24
570	5.245	5.256	5.267	5.279	5.290	5.301	5.312	5.323	5.335	5.346	5.35
580	5.357	5.369	5.380	5.391	5.402	5.414	5.425	5.436	5.448	5.459	5.47
590	5.470	5.481	5.493	5.504	5.515	5.527	5.538	5.549	5.561	5.572	5.58
600	5.583	5.595	5.606	5.618	5.629	5.640	5.652	5.663	5.674	5.686	5.69
610	5.697	5.709	5.720	5.731	5.743	5.754	5.766	5.777	5.789	5.800	5.81
620	5.812	5.823	5.834	5.846	5.857	5.869	5.880	5.892	5.903	5.915	5.92
630	5.926	5.938	5.949	5.961	5.972	5.984	5.995	6.007	6.018	6.030	6.04
640	6.041	6.053	6.065	6.076	6.088	6.099	6.111	6.122	6.134	6.146	6.15
650	6.157	6.169	6.180	6.192	6.204	6.215	6.227	6.238	6.250	6.262	6.27
660	6.273	6.285	6.297	6.308	6.320	6.332	6.343	6.355	6.367	6.378	6.39
670	6.390	6.402	6.413	6.425	6.437	6.448	6.460	6.472	6.484	6.495	6.50
680	6.507	6.519	6.531	6.542	6.554	6.566	6.578	6.589	6.601	6.613	6.62
690	6.625	6.636	6.648	6.660	6.672	6.684	6.695	6.707	6.719	6.731	6.74
700	6.743	6.755	6.766	6.778	6.790	6.802	6.814	6.826	6.838	6.849	6.86
710	6.861	6.873	6.885	6.897	6.909	6.921	6.933	6.945	6.956	6.968	6.98
720	6.980	6.992	7.004	7.016	7.028	7.040	7.052	7.064	7.076	7.088	7.10
730	7.100	7.112	7.124	7.136	7.148	7.160	7.172	7.184	7.196	7.208	7.22
740	7.220	7.232	7.244	7.256	7.268	7.280	7.292	7.304	7.316	7.328	7.34
750	7.340	7.352	7.364	7.376	7.388	7.401	7.413	7.425	7.437	7.449	7.46
760	7.461	7.473	7.485	7.498	7.510	7.522	7.534	7.546	7.558	7.570	7.58
770	7.583	7.595	7.607	7.619	7.631	7.644	7.656	7.668	7.680	7.692	7.70
780	7.705	7.717	7.729	7.741	7.753	7.766	7.778	7.790	7.802	7.815	7.82
790	7.827	7.839	7.851	7.864	7.876	7.888	7.901	7.913	7.925	7.938	7.95
800	7.950	7.962	7.974	7.987	7.999	8.011	8.024	8.036	8.048	8.061	8.07
810	8.073	8.086	8.098	8.110	8.123	8.135	8.147	8.160	8.172	8.185	8.19
820	8.197	8.209	8.222	8.234	8.247	8.259	8.272	8.284	8.296	8.309	8.32
830	8.321	8.334	8.346	8.359	8.371	8.384	8.396	8.409	8.421	8.434	8.44
840	8.446	8.459	8.471	8.484	8.496	8.509	8.521	8.534	8.546	8.559	8.57
850	8.571	8.584	8.597	8.609	8.622	8.634	8.647	8.659	8.672	8.685	8.69
860	8.697	8.710	8.722	8.735	8.748	8.760	8.773	8.785	8.798	8.811	8.82
870	8.823	8.836	8.849	8.861	8.874	8.887	8.899	8.912	8.925	8.937	8.95
880	8.950	8.963	8.975	8.988	9.001	9.014	9.026	9.039	9.052	9.065	9.07
890	9.077	9.090	9.103	9.115	9.128	9.141	9.154	9.167	9.179	9.192	9.20
900	9.205	9.218	9.230	9.243	9.256	9.269	9.282	9.294	9.307	9.320	9.33
910	9.333	9.346	9.359	9.371	9.384	9.397	9.410	9.423	9.436	9.449	9.46
920	9.461	9.474	9.487	9.500	9.513	9.526	9.539	9.552	9.565	9.578	9.59
930	9.590	9.603	9.616	9.629	9.642	9.655	9.668	9.681	9.694	9.707	9.72
940	9.720	9.733	9.746	9.759	9.772	9.785	9.798	9.811	9.824	9.837	9.85
950	9.850	9.863	9.876	9.889	9.902	9.915	9.928	9.941	9.954	9.967	9.98
960	9.980	9.993	10.006	10.019	10.032	10.046	10.059	10.072	10.085	10.098	10.11
970	10.111	10.124	10.137	10.150	10.163	10.177	10.190	10.203	10.216	10.229	10.24
980	10.242	10.255	10.268	10.282	10.295	10.308	10.321	10.334	10.347	10.361	10.37
990	10.374	10.387	10.400	10.413	10.427	10.440	10.453	10.466	10.480	10.493	10.50

°C 0 1 2 3 4 5 6 7 8 9 10

ITS-90 Table for type R thermocouple
 °C -10 -9 -8 -7 -6 -5 -4 -3 -2 -1 0
 °C 0 1 2 3 4 5 6 7 8 9 10
 Thermolectric Voltage in mV

1000	10.506	10.519	10.532	10.546	10.559	10.572	10.585	10.599	10.612	10.625	10.63
1010	10.638	10.652	10.665	10.678	10.692	10.705	10.718	10.731	10.745	10.758	10.77
1020	10.771	10.785	10.798	10.811	10.825	10.838	10.851	10.865	10.878	10.891	10.90
1030	10.905	10.918	10.932	10.945	10.958	10.972	10.985	10.998	11.012	11.025	11.03
1040	11.039	11.052	11.065	11.079	11.092	11.106	11.119	11.132	11.146	11.159	11.17
1050	11.173	11.186	11.200	11.213	11.227	11.240	11.253	11.267	11.280	11.294	11.30
1060	11.307	11.321	11.334	11.348	11.361	11.375	11.388	11.402	11.415	11.429	11.44
1070	11.442	11.456	11.469	11.483	11.496	11.510	11.524	11.537	11.551	11.564	11.57
1080	11.578	11.591	11.605	11.618	11.632	11.646	11.659	11.673	11.686	11.700	11.71
1090	11.714	11.727	11.741	11.754	11.768	11.782	11.795	11.809	11.822	11.836	11.85
1100	11.850	11.863	11.877	11.891	11.904	11.918	11.931	11.945	11.959	11.972	11.98
1110	11.986	12.000	12.013	12.027	12.041	12.054	12.068	12.082	12.096	12.109	12.12
1120	12.123	12.137	12.150	12.164	12.178	12.191	12.205	12.219	12.233	12.246	12.26
1130	12.260	12.274	12.288	12.301	12.315	12.329	12.342	12.356	12.370	12.384	12.39
1140	12.397	12.411	12.425	12.439	12.453	12.466	12.480	12.494	12.508	12.521	12.53
1150	12.535	12.549	12.563	12.577	12.590	12.604	12.618	12.632	12.646	12.659	12.67
1160	12.673	12.687	12.701	12.715	12.729	12.742	12.756	12.770	12.784	12.798	12.81
1170	12.812	12.826	12.839	12.853	12.867	12.881	12.895	12.909	12.922	12.936	12.95
1180	12.950	12.964	12.978	12.992	13.006	13.019	13.033	13.047	13.061	13.075	13.08
1190	13.089	13.103	13.117	13.131	13.145	13.158	13.172	13.186	13.200	13.214	13.22
1200	13.228	13.242	13.256	13.270	13.284	13.298	13.311	13.325	13.339	13.353	13.36
1210	13.367	13.381	13.395	13.409	13.423	13.437	13.451	13.465	13.479	13.493	13.50
1220	13.507	13.521	13.535	13.549	13.563	13.577	13.590	13.604	13.618	13.632	13.64
1230	13.646	13.660	13.674	13.688	13.702	13.716	13.730	13.744	13.758	13.772	13.78
1240	13.786	13.800	13.814	13.828	13.842	13.856	13.870	13.884	13.898	13.912	13.92

°C 0 1 2 3 4 5 6 7 8 9 10

ITS-90 Table for type S thermocouple
 °F 0 1 2 3 4 5 6 7 8 9 10
 Thermolectric Voltage in mV

550	2.212	2.217	2.222	2.227	2.232	2.237	2.242	2.247	2.252	2.257	2.26
560	2.262	2.267	2.272	2.277	2.283	2.288	2.293	2.298	2.303	2.308	2.31
570	2.313	2.318	2.323	2.328	2.333	2.338	2.343	2.348	2.354	2.359	2.36
580	2.364	2.369	2.374	2.379	2.384	2.389	2.394	2.399	2.404	2.410	2.41
590	2.415	2.420	2.425	2.430	2.435	2.440	2.445	2.450	2.455	2.461	2.46
600	2.466	2.471	2.476	2.481	2.486	2.491	2.496	2.502	2.507	2.512	2.51
610	2.517	2.522	2.527	2.532	2.537	2.543	2.548	2.553	2.558	2.563	2.56
620	2.568	2.574									

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ITS-90 Table for type S thermocouple											
°F	0	1	2	3	4	5	6	7	8	9	10
Thermoelectric Voltage in mV											
850	3.786	3.791	3.796	3.802	3.807	3.813	3.818	3.823	3.829	3.834	3.84
860	3.840	3.845	3.851	3.856	3.862	3.867	3.872	3.878	3.883	3.889	3.89
870	3.894	3.900	3.905	3.910	3.916	3.921	3.927	3.932	3.938	3.943	3.94
880	3.949	3.954	3.959	3.965	3.970	3.976	3.981	3.987	3.992	3.998	4.00
890	4.003	4.009	4.014	4.020	4.025	4.030	4.036	4.041	4.047	4.052	4.05
900	4.058	4.063	4.069	4.074	4.080	4.085	4.091	4.096	4.102	4.107	4.11
910	4.113	4.118	4.123	4.129	4.134	4.140	4.145	4.151	4.156	4.162	4.16
920	4.167	4.173	4.178	4.184	4.189	4.195	4.200	4.206	4.211	4.217	4.22
930	4.222	4.228	4.233	4.239	4.244	4.250	4.255	4.261	4.266	4.272	4.27
940	4.277	4.283	4.288	4.294	4.299	4.305	4.310	4.316	4.321	4.327	4.33
950	4.332	4.338	4.343	4.349	4.355	4.360	4.366	4.371	4.377	4.382	4.38
960	4.388	4.393	4.399	4.404	4.410	4.415	4.421	4.426	4.432	4.437	4.44
970	4.443	4.449	4.454	4.460	4.465	4.471	4.476	4.482	4.487	4.493	4.49
980	4.498	4.504	4.510	4.515	4.521	4.526	4.532	4.537	4.543	4.548	4.55
990	4.554	4.559	4.565	4.571	4.576	4.582	4.587	4.593	4.598	4.604	4.61
1000	4.610	4.615	4.621	4.626	4.632	4.637	4.643	4.648	4.654	4.660	4.66
1010	4.665	4.671	4.676	4.682	4.688	4.693	4.699	4.704	4.710	4.715	4.72
1720	20.488	20.502	20.515	20.528	20.541	20.554	20.567	20.581	20.594	20.607	20.62
1730	20.620	20.633	20.646	20.659	20.672	20.685	20.698	20.711	20.724	20.736	20.74
1740	20.749	20.762	20.775	20.788	20.801	20.813	20.826	20.839	20.852	20.864	20.87
1750	20.877	20.890	20.902	20.915	20.928	20.940	20.953	20.965	20.978	20.990	21.00
1760	21.003	21.015	21.027	21.040	21.052	21.065	21.077	21.089	21.101		
°C	0	1	2	3	4	5	6	7	8	9	10
ITS-90 Table for type S thermocouple											
°F	-10	-9	-8	-7	-6	-5	-4	-3	-2	-1	0
Thermoelectric Voltage in mV											
-50			-0.236	-0.233	-0.231	-0.229	-0.227	-0.224	-0.222	-0.220	-0.21
-40	-0.218	-0.215	-0.213	-0.211	-0.208	-0.206	-0.204	-0.201	-0.199	-0.197	-0.19
-30	-0.194	-0.192	-0.190	-0.187	-0.185	-0.182	-0.180	-0.178	-0.175	-0.173	-0.17
-20	-0.170	-0.168	-0.165	-0.163	-0.160	-0.158	-0.155	-0.153	-0.150	-0.148	-0.14
-10	-0.145	-0.142	-0.140	-0.137	-0.135	-0.132	-0.129	-0.127	-0.124	-0.122	-0.11
0	-0.119	-0.116	-0.114	-0.111	-0.108	-0.106	-0.103	-0.100	-0.097	-0.095	-0.09
50											
60											
70											
80											
90											
100											
110											
120											
130											
140											
150											
160											
170											
180											
190											
200											
210											
220											
230											
240											
°C	0	1	2	3	4	5	6	7	8	9	10

ITS-90 Table for type S thermocouple											
°F	0	1	2	3	4	5	6	7	8	9	10
Thermoelectric Voltage in mV											
150	0.402	0.406	0.410	0.414	0.417	0.421	0.425	0.429	0.433	0.436	0.44
160	0.440	0.444	0.448	0.452	0.456	0.459	0.463	0.467	0.471	0.475	0.47
170	0.479	0.483	0.487	0.490	0.494	0.498	0.502	0.506	0.510	0.514	0.51
180	0.518	0.522	0.526	0.530	0.534	0.538	0.541	0.545	0.549	0.553	0.55
190	0.557	0.561	0.565	0.569	0.573	0.577	0.581	0.585	0.589	0.593	0.59
200	0.597	0.601	0.605	0.609	0.613	0.617	0.622	0.626	0.630	0.634	0.63
210	0.638	0.642	0.646	0.650	0.654	0.658	0.662	0.666	0.670	0.675	0.67
220	0.679	0.683	0.687	0.691	0.695	0.699	0.703	0.708	0.712	0.716	0.72
230	0.720	0.724	0.728	0.732	0.737	0.741	0.745	0.749	0.753	0.758	0.76
240	0.762	0.766	0.770	0.774	0.779	0.783	0.787	0.791	0.795	0.800	0.80
250	0.804	0.808	0.812	0.817	0.821	0.825	0.829	0.834	0.838	0.842	0.84
260	0.847	0.851	0.855	0.859	0.864	0.868	0.872	0.877	0.881	0.885	0.88
270	0.889	0.894	0.898	0.902	0.907	0.911	0.915	0.920	0.924	0.928	0.93
280	0.933	0.937	0.942	0.946	0.950	0.955	0.959	0.963	0.968	0.972	0.97
290	0.977	0.981	0.985	0.990	0.994	0.998	1.003	1.007	1.012	1.016	1.02
300	1.021	1.025	1.029	1.034	1.038	1.043	1.047	1.052	1.056	1.061	1.06
310	1.065	1.069	1.074	1.078	1.083	1.087	1.092	1.096	1.101	1.105	1.11
320	1.110	1.114	1.119	1.123	1.128	1.132	1.137	1.141	1.146	1.150	1.15
330	1.155	1.159	1.164	1.168	1.173	1.177	1.182	1.186	1.191	1.196	1.20
340	1.200	1.205	1.209	1.214	1.218	1.223	1.227	1.232	1.237	1.241	1.24
350	1.246	1.250	1.255	1.260	1.264	1.269	1.273	1.278	1.283	1.287	1.29
360	1.292	1.296	1.301	1.306	1.310	1.315	1.319	1.324	1.329	1.333	1.33
370	1.338	1.343	1.347	1.352	1.357	1.361	1.366	1.371	1.375	1.380	1.38
380	1.385	1.389	1.394	1.399	1.403	1.408	1.413	1.417	1.422	1.427	1.43
390	1.431	1.436	1.441	1.445	1.450	1.455	1.460	1.464	1.469	1.474	1.47
400	1.478	1.483	1.488	1.493	1.497	1.502	1.507	1.512	1.516	1.521	1.52
410	1.526	1.531	1.535	1.540	1.545	1.550	1.554	1.559	1.564	1.569	1.57
420	1.573	1.578	1.583	1.588	1.592	1.597	1.602	1.607	1.612	1.616	1.62
430	1.621	1.626	1.631	1.636	1.640	1.645	1.650	1.655	1.660	1.664	1.66
440	1.669	1.674	1.679	1.684	1.689	1.693	1.698	1.703	1.708	1.713	1.71
450	1.718	1.722	1.727	1.732	1.737	1.742	1.747	1.752	1.756	1.761	1.76
460	1.766	1.771	1.776	1.781	1.786	1.790	1.795	1.800	1.805	1.810	1.81
470	1.815	1.820	1.825	1.829	1.834	1.839	1.844	1.849	1.854	1.859	1.86
480	1.864	1.869	1.874	1.878	1.883	1.888	1.893	1.898	1.903	1.908	1.91
490	1.913	1.918	1.923	1.928	1.933	1.938	1.942	1.947	1.952	1.957	1.96
500	1.962	1.967	1.972	1.977	1.982	1.987	1.992	1.997	2.002	2.007	2.01
510	2.012	2.017	2.022	2.027	2.032	2.037	2.042	2.047	2.052	2.057	2.06
520	2.062	2.067	2.072	2.076	2.081	2.086	2.091	2.096	2.101	2.106	2.11
530	2.111	2.116	2.121	2.126	2.131	2.136	2.141	2.147	2.152	2.157	2.16
540	2.162	2.167	2.172	2.177	2.182	2.187	2.192	2.197	2.202	2.207	2.21
550	2.212	2.217	2.222	2.227	2.232	2.237	2.242	2.247	2.252	2.257	2.26
560	2.262	2.267	2.272	2.277	2.283	2.288	2.293	2.298	2.303	2.308	2.31
570	2.313	2.318	2.323	2.328	2.333	2.338	2.343	2.348	2.354	2.359	2.36
580	2.364	2.369	2.374	2.379	2.384	2.389	2.394	2.399	2.404	2.410	2.41
590	2.415	2.420	2.425	2.430	2.435	2.440	2.445	2.450	2.455	2.461	2.46
600	2.466	2.471	2.476	2.481	2.486	2.491	2.496	2.502	2.507	2.512	2.51
610	2.517	2.522	2.527	2.532	2.537	2.543	2.548	2.553	2.558	2.563	2.56
620	2.568	2.574	2.579	2.584	2.589	2.594	2.599	2.604	2.610	2.615	2.62
630	2.620	2.625	2.630	2.635	2.641	2.646	2.651	2.656	2.661	2.666	2.67
640	2.672	2.677	2.682	2.687	2.692	2.697	2.703	2.708	2.713	2.718	2.72
650	2.723	2.729	2.734	2.739	2.744	2.749	2.755	2.760	2.765	2.770	2.77
660	2.775	2.781	2.786	2.791	2.796	2.801	2.807	2.812	2.817	2.822	2.82
670	2.827	2.833	2.838	2.843	2.848	2.854	2.859	2.864	2.869	2.874	2.88
680	2.880	2.885	2.890	2.895	2.901	2.906	2.911	2.916	2.922	2.927	2.93
690	2.932	2.937	2.943	2.948	2.953	2.958	2.964	2.969	2.974	2.979	2.98
700	2.985	2.990	2.995	3.000	3.006	3.011	3.016	3.021	3.027	3.032	3.03
710	3.037	3.042	3.048	3.053	3.058	3.063	3.069	3.074	3.079	3.085	3.09
720	3.090										

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ITS-90 Table for type S thermocouple											
°F	0	1	2	3	4	5	6	7	8	9	10
Thermoelectric Voltage in mV											
800	3.516	3.521	3.527	3.532	3.537	3.543	3.548	3.553	3.559	3.564	3.57
810	3.570	3.575	3.580	3.586	3.591	3.596	3.602	3.607	3.613	3.618	3.62
820	3.623	3.629	3.634	3.640	3.645	3.650	3.656	3.661	3.667	3.672	3.67
830	3.677	3.683	3.688	3.694	3.699	3.704	3.710	3.715	3.721	3.726	3.73
840	3.731	3.737	3.742	3.748	3.753	3.758	3.764	3.769	3.775	3.780	3.78
850	3.786	3.791	3.796	3.802	3.807	3.813	3.818	3.823	3.829	3.834	3.84
860	3.840	3.845	3.851	3.856	3.862	3.867	3.872	3.878	3.883	3.889	3.89
870	3.894	3.900	3.905	3.910	3.916	3.921	3.927	3.932	3.938	3.943	3.94
880	3.949	3.954	3.959	3.965	3.970	3.976	3.981	3.987	3.992	3.998	4.00
890	4.003	4.009	4.014	4.020	4.025	4.030	4.036	4.041	4.047	4.052	4.05
900	4.058	4.063	4.069	4.074	4.080	4.085	4.091	4.096	4.102	4.107	4.11
910	4.113	4.118	4.123	4.129	4.134	4.140	4.145	4.151	4.156	4.162	4.16
920	4.167	4.173	4.178	4.184	4.189	4.195	4.200	4.206	4.211	4.217	4.22
930	4.222	4.228	4.233	4.239	4.244	4.250	4.255	4.261	4.266	4.272	4.27
940	4.277	4.283	4.288	4.294	4.299	4.305	4.310	4.316	4.321	4.327	4.33
950	4.332	4.338	4.343	4.349	4.355	4.360	4.366	4.371	4.377	4.382	4.38
960	4.388	4.393	4.399	4.404	4.410	4.415	4.421	4.426	4.432	4.437	4.44
970	4.443	4.449	4.454	4.460	4.465	4.471	4.476	4.482	4.487	4.493	4.49
980	4.498	4.504	4.510	4.515	4.521	4.526	4.532	4.537	4.543	4.548	4.55
990	4.554	4.559	4.565	4.571	4.576	4.582	4.587	4.593	4.598	4.604	4.61
1000	4.610	4.615	4.621	4.626	4.632	4.637	4.643	4.648	4.654	4.660	4.66
1010	4.665	4.671	4.676	4.682	4.688	4.693	4.699	4.704	4.710	4.715	4.72
1020	4.721	4.727	4.732	4.738	4.743	4.749	4.755	4.760	4.766	4.771	4.77
1030	4.777	4.782	4.788	4.794	4.799	4.805	4.810	4.816	4.822	4.827	4.83
1040	4.833	4.838	4.844	4.850	4.855	4.861	4.866	4.872	4.878	4.883	4.88
1050	4.889	4.895	4.900	4.906	4.911	4.917	4.923	4.928	4.934	4.939	4.94
1060	4.945	4.951	4.956	4.962	4.968	4.973	4.979	4.984	4.990	4.996	5.00
1070	5.001	5.007	5.013	5.018	5.024	5.030	5.035	5.041	5.046	5.052	5.05
1080	5.058	5.063	5.069	5.075	5.080	5.086	5.092	5.097	5.103	5.109	5.11
1090	5.114	5.120	5.125	5.131	5.137	5.142	5.148	5.154	5.159	5.165	5.17
1100	5.171	5.176	5.182	5.188	5.193	5.199	5.205	5.210	5.216	5.222	5.22
1110	5.227	5.233	5.239	5.244	5.250	5.256	5.261	5.267	5.273	5.278	5.28
1120	5.284	5.290	5.295	5.301	5.307	5.312	5.318	5.324	5.330	5.335	5.34
1130	5.341	5.347	5.352	5.358	5.364	5.369	5.375	5.381	5.386	5.392	5.39
1140	5.398	5.404	5.409	5.415	5.421	5.426	5.432	5.438	5.443	5.449	5.45
1150	5.455	5.461	5.466	5.472	5.478	5.483	5.489	5.495	5.501	5.506	5.51
1160	5.512	5.518	5.523	5.529	5.535	5.541	5.546	5.552	5.558	5.563	5.56
1170	5.569	5.575	5.581	5.586	5.592	5.598	5.604	5.609	5.615	5.621	5.62
1180	5.627	5.632	5.638	5.644	5.649	5.655	5.661	5.667	5.672	5.678	5.68
1190	5.684	5.690	5.695	5.701	5.707	5.713	5.718	5.724	5.730	5.736	5.74
1200	5.741	5.747	5.753	5.759	5.764	5.770	5.776	5.782	5.788	5.793	5.79
1210	5.799	5.805	5.811	5.816	5.822	5.828	5.834	5.839	5.845	5.851	5.85
1220	5.857	5.863	5.868	5.874	5.880	5.886	5.891	5.897	5.903	5.909	5.91
1230	5.915	5.920	5.926	5.932	5.938	5.944	5.949	5.955	5.961	5.967	5.97
1240	5.972	5.978	5.984	5.990	5.996	6.001	6.007	6.013	6.019	6.025	6.03
1250	6.030	6.036	6.042	6.048	6.054	6.060	6.065	6.071	6.077	6.083	6.08
1260	6.089	6.094	6.100	6.106	6.112	6.118	6.124	6.129	6.135	6.141	6.14
1270	6.147	6.153	6.158	6.164	6.170	6.176	6.182	6.188	6.193	6.199	6.20
1280	6.205	6.211	6.217	6.223	6.228	6.234	6.240	6.246	6.252	6.258	6.26
1290	6.264	6.269	6.275	6.281	6.287	6.293	6.299	6.305	6.310	6.316	6.32
1300	6.322	6.328	6.334	6.340	6.346	6.351	6.357	6.363	6.369	6.375	6.38
1310	6.381	6.387	6.392	6.398	6.404	6.410	6.416	6.422	6.428	6.434	6.43
1320	6.439	6.445	6.451	6.457	6.463	6.469	6.475	6.481	6.486	6.492	6.49
1330	6.498	6.504	6.510	6.516	6.522	6.528	6.534	6.539	6.545	6.551	6.55
1340	6.557	6.563	6.569	6.575	6.581	6.587	6.593	6.598	6.604	6.610	6.61
1350	6.616	6.622	6.628	6.634	6.640	6.646	6.652	6.658	6.664	6.669	6.67
1360	6.675	6.681	6.687	6.693	6.699	6.705	6.711	6.717	6.723	6.729	6.73
1370	6.735	6.741	6.746	6.752	6.758	6.764	6.770	6.776	6.782	6.788	6.79
1380	6.794	6.800	6.806	6.812	6.818	6.824	6.830	6.836	6.842	6.847	6.85
1390	6.853	6.859	6.865	6.871	6.877	6.883	6.889	6.895	6.901	6.907	6.91
1400	6.913	6.919	6.925	6.931	6.937	6.943	6.949	6.955	6.961	6.967	6.97
1410	6.973	6.979	6.985	6.991	6.997	7.003	7.008	7.014	7.020	7.026	7.03
1420	7.032	7.038	7.044	7.050	7.056	7.062	7.068	7.074	7.080	7.086	7.09
1430	7.092	7.098	7.104	7.110	7.116	7.122	7.128	7.134	7.140	7.146	7.15
1440	7.152	7.158	7.164	7.170	7.176	7.182	7.188	7.194	7.200	7.206	7.21

ITS-90 Table for type S thermocouple											
°F	0	1	2	3	4	5	6	7	8	9	10
Thermoelectric Voltage in mV											
1450	7.212	7.218	7.224	7.230	7.236	7.242	7.249	7.255	7.261	7.267	7.27
1460	7.273	7.279	7.285	7.291	7.297	7.303	7.309	7.315	7.321	7.327	7.33
1470	7.333	7.339	7.345	7.351	7.357	7.363	7.369	7.375	7.381	7.387	7.39
1480	7.393	7.399	7.405	7.411	7.418	7.424	7.430	7.436	7.442	7.448	7.45
1490	7.454	7.460	7.466	7.472	7.478	7.484	7.490	7.496	7.502	7.508	7.51
1500	7.514	7.521	7.527	7.533	7.539	7.545	7.551	7.557	7.563	7.569	7.57
1510	7.575	7.581	7.587	7.593	7.600	7.606	7.612	7.618	7.624	7.630	7.63
1520	7.636	7.642	7.648	7.654	7.660	7.667	7.673	7.679	7.685	7.691	7.69
1530	7.697	7.703	7.709	7.715	7.721	7.728	7.734	7.740	7.746	7.752	7.75
1540	7.758	7.764	7.770	7.776	7.783	7.789	7.795	7.801	7.807	7.813	7.81
1550	7.819	7.825	7.832	7.838	7.844	7.850	7.856	7.862	7.868	7.874	7.88
1560	7.881	7.887	7.893	7.899	7.905	7.911	7.917	7.923	7.930	7.936	7.94
1570	7.942	7.948	7.954	7.960	7.966	7.973	7.979	7.985	7.991	7.997	8.00
1580	8.003	8.010	8.016	8.022	8.028	8.034	8.040	8.047	8.053	8.059	8.06
1590	8.065	8.071	8.077	8.083	8.090	8.096	8.102	8.108	8.114	8.121	8.12
1600	8.127	8.133	8.139	8.145	8.151	8.158	8.164	8.170	8.176	8.182	8.18
1610	8.189	8.195	8.201	8.207	8.213	8.219	8.226	8.232	8.238	8.244	8.25
1620	8.250	8.257	8.263	8.269	8.275	8.281	8.288	8.294	8.300	8.306	8.31
1630	8.312	8.319	8.325	8.331	8.337	8.343	8.350	8.356	8.362	8.368	8.37
1640	8.375	8.381	8.387	8.393	8.399	8.406	8.412	8.418	8.424	8.431	8.43
1650	8.437	8.443	8.449	8.455	8.462	8.468	8.474	8.480	8.487	8.493	8.49
1660	8.499	8.505	8.512	8.518	8.524	8.530	8.537	8.543	8.549	8.555	8.56
1670	8.562	8.568	8.574	8.580	8.587	8.593	8.599	8.605	8.612	8.618	8.62
1680	8.624	8.630	8.637	8.643	8.649	8.655	8.662	8.668	8.674	8.680	8.68
1690	8.687	8.693	8.699	8.706	8.712	8.718	8.724	8.731	8.737	8.743	8.74
1700	8.749	8.756	8.762	8.768	8.775	8.781	8.787	8.793	8.800	8.806	8.81
1710	8.812	8.819	8.825	8.831	8.837	8.844	8.850	8.856	8.863	8.869	8.87
1720	8.875	8.882	8.888	8.894	8.900	8.907	8.913	8.919	8.926	8.932	8.93
1730	8.938	8.945	8.951	8.957	8.964	8.970	8.976	8.983	8.989	8.995	9.00
1740	9.001	9.008	9.014	9.020	9.027	9.033	9.039	9.046	9.052	9.058	9.06
1750	9.065	9.071	9.077	9.084	9.090	9.096	9.103	9.109	9.115	9.122	9.12
1760	9.128	9.134	9.141	9.147	9.153	9.160	9.166	9.172	9.179	9.185	9.19
1770	9.192	9.198	9								

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ITS-90 Table for type S thermocouple											
°F	0	1	2	3	4	5	6	7	8	9	10
Thermoelectric Voltage in mV											
2100	11.338	11.345	11.351	11.358	11.364	11.371	11.378	11.384	11.391	11.398	11.40
2110	11.404	11.411	11.418	11.424	11.431	11.437	11.444	11.451	11.457	11.464	11.47
2120	11.471	11.477	11.484	11.491	11.497	11.504	11.511	11.517	11.524	11.531	11.53
2130	11.537	11.544	11.550	11.557	11.564	11.570	11.577	11.584	11.590	11.597	11.60
2140	11.604	11.610	11.617	11.624	11.630	11.637	11.644	11.650	11.657	11.664	11.67
2150	11.670	11.677	11.684	11.690	11.697	11.704	11.710	11.717	11.724	11.730	11.73
2160	11.737	11.744	11.750	11.757	11.764	11.770	11.777	11.784	11.790	11.797	11.80
2170	11.804	11.810	11.817	11.824	11.830	11.837	11.844	11.850	11.857	11.864	11.87
2180	11.870	11.877	11.884	11.890	11.897	11.904	11.910	11.917	11.924	11.931	11.93
2190	11.937	11.944	11.951	11.957	11.964	11.971	11.977	11.984	11.991	11.997	12.00
2200	12.004	12.011	12.017	12.024	12.031	12.037	12.044	12.051	12.058	12.064	12.07
2210	12.071	12.078	12.084	12.091	12.098	12.104	12.111	12.118	12.124	12.131	12.13
2220	12.138	12.145	12.151	12.158	12.165	12.171	12.178	12.185	12.191	12.198	12.20
2230	12.205	12.211	12.218	12.225	12.232	12.238	12.245	12.252	12.258	12.265	12.27
2240	12.272	12.278	12.285	12.292	12.299	12.305	12.312	12.319	12.325	12.332	12.33
2250	12.339	12.346	12.352	12.359	12.366	12.372	12.379	12.386	12.392	12.399	12.40
2260	12.406	12.413	12.419	12.426	12.433	12.439	12.446	12.453	12.460	12.466	12.47
2270	12.473	12.480	12.486	12.493	12.500	12.507	12.514	12.520	12.527	12.533	12.54
2280	12.540	12.547	12.554	12.560	12.567	12.574	12.580	12.587	12.594	12.601	12.60
2290	12.607	12.614	12.621	12.627	12.634	12.641	12.648	12.654	12.661	12.668	12.67
2300	12.675	12.681	12.688	12.695	12.701	12.708	12.715	12.722	12.728	12.735	12.74
2310	12.742	12.748	12.755	12.762	12.769	12.775	12.782	12.789	12.796	12.802	12.80
2320	12.809	12.816	12.822	12.829	12.836	12.843	12.849	12.856	12.863	12.870	12.87
2330	12.876	12.883	12.890	12.896	12.903	12.910	12.917	12.923	12.930	12.937	12.94
2340	12.944	12.950	12.957	12.964	12.971	12.977	12.984	12.991	12.997	13.004	13.01
2350	13.011	13.018	13.024	13.031	13.038	13.045	13.051	13.058	13.065	13.072	13.07
2360	13.078	13.085	13.092	13.098	13.105	13.112	13.119	13.125	13.132	13.139	13.14
2370	13.146	13.152	13.159	13.166	13.173	13.179	13.186	13.193	13.199	13.206	13.21
2380	13.213	13.220	13.226	13.233	13.240	13.247	13.253	13.260	13.267	13.274	13.28
2390	13.280	13.287	13.294	13.301	13.307	13.314	13.321	13.328	13.334	13.341	13.34
2400	13.348	13.354	13.361	13.368	13.375	13.381	13.388	13.395	13.402	13.408	13.41
2410	13.415	13.422	13.429	13.435	13.442	13.449	13.456	13.462	13.469	13.476	13.48
2420	13.483	13.489	13.496	13.503	13.510	13.516	13.523	13.530	13.537	13.543	13.55
2430	13.550	13.557	13.563	13.570	13.577	13.584	13.590	13.597	13.604	13.611	13.61
2440	13.617	13.624	13.631	13.638	13.644	13.651	13.658	13.665	13.671	13.678	13.68
2450	13.685	13.692	13.698	13.705	13.712	13.719	13.725	13.732	13.739	13.746	13.75
2460	13.752	13.759	13.766	13.773	13.779	13.786	13.793	13.800	13.806	13.813	13.82
2470	13.820	13.826	13.833	13.840	13.847	13.853	13.860	13.867	13.874	13.880	13.88
2480	13.887	13.894	13.901	13.907	13.914	13.921	13.928	13.934	13.941	13.948	13.95
2490	13.955	13.961	13.968	13.975	13.982	13.988	13.995	14.002	14.009	14.015	14.02
2500	14.022	14.029	14.036	14.042	14.049	14.056	14.063	14.069	14.076	14.083	14.08
2510	14.089	14.096	14.103	14.110	14.116	14.123	14.130	14.137	14.143	14.150	14.15
2520	14.157	14.164	14.170	14.177	14.184	14.191	14.197	14.204	14.211	14.218	14.22
2530	14.224	14.231	14.238	14.245	14.251	14.258	14.265	14.272	14.278	14.285	14.29
2540	14.292	14.298	14.305	14.312	14.319	14.325	14.332	14.339	14.346	14.352	14.35
2550	14.359	14.366	14.373	14.379	14.386	14.393	14.400	14.406	14.413	14.420	14.42
2560	14.426	14.433	14.440	14.447	14.453	14.460	14.467	14.474	14.480	14.487	14.49
2570	14.494	14.501	14.507	14.514	14.521	14.528	14.534	14.541	14.548	14.554	14.56
2580	14.561	14.568	14.575	14.581	14.588	14.595	14.602	14.608	14.615	14.622	14.62
2590	14.629	14.635	14.642	14.649	14.655	14.662	14.669	14.676	14.682	14.689	14.69
2600	14.696	14.703	14.709	14.716	14.723	14.729	14.736	14.743	14.750	14.756	14.76
2610	14.763	14.770	14.777	14.783	14.790	14.797	14.803	14.810	14.817	14.824	14.83
2620	14.830	14.837	14.844	14.851	14.857	14.864	14.871	14.877	14.884	14.891	14.89
2630	14.898	14.904	14.911	14.918	14.925	14.931	14.938	14.945	14.951	14.958	14.96
2640	14.965	14.972	14.978	14.985	14.992	14.998	15.005	15.012	15.019	15.025	15.03
2650	15.032	15.039	15.045	15.052	15.059	15.066	15.072	15.079	15.086	15.092	15.09
2660	15.099	15.106	15.113	15.119	15.126	15.133	15.139	15.146	15.153	15.160	15.16
2670	15.166	15.173	15.180	15.186	15.193	15.200	15.207	15.213	15.220	15.227	15.23
2680	15.233	15.240	15.247	15.254	15.260	15.267	15.274	15.280	15.287	15.294	15.30
2690	15.300	15.307	15.314	15.321	15.327	15.334	15.341	15.347	15.354	15.361	15.36
2700	15.367	15.374	15.381	15.388	15.394	15.401	15.408	15.414	15.421	15.428	15.43
2710	15.434	15.441	15.448	15.455	15.461	15.468	15.475	15.481	15.488	15.495	15.50
2720	15.501	15.508	15.515	15.521	15.528	15.535	15.542	15.548	15.555	15.562	15.56
2730	15.568	15.575	15.582	15.588	15.595	15.602	15.608	15.615	15.622	15.628	15.63
2740	15.635	15.642	15.649	15.655	15.662	15.669	15.675	15.682	15.689	15.695	15.70

ITS-90 Table for type S thermocouple											
°F	0	1	2	3	4	5	6	7	8	9	10
Thermoelectric Voltage in mV											
2750	15.702	15.709	15.715	15.722	15.729	15.735	15.742	15.749	15.755	15.762	15.76
2760	15.769	15.775	15.782	15.789	15.795	15.802	15.809	15.815	15.822	15.829	15.83
2770	15.835	15.842	15.849	15.855	15.862	15.869	15.875	15.882	15.889	15.895	15.90
2780	15.902	15.909	15.915	15.922	15.929	15.935	15.942	15.949	15.955	15.962	15.96
2790	15.969	15.975	15.982	15.989	15.995	16.002	16.009	16.015	16.022	16.029	16.03
2800	16.035	16.042	16.049	16.055	16.062	16.069	16.075	16.082	16.089	16.095	16.10
2810	16.102	16.108	16.115	16.122	16.128	16.135	16.142	16.148	16.155	16.162	16.16
2820	16.168	16.175	16.182	16.188	16.195	16.202	16.208	16.215	16.221	16.228	16.23
2830	16.235	16.241	16.248	16.255	16.261	16.268	16.275	16.281	16.288	16.294	16.30
2840	16.301	16.308	16.314	16.321	16.328	16.334	16.341	16.347	16.354	16.361	16.36
2850	16.367	16.374	16.381	16.387	16.394	16.400	16.407	16.414	16.420	16.427	16.43
2860	16.434	16.440	16.447	16.453	16.460	16.467	16.473	16.480	16.486	16.493	16.50
2870	16.500	16.506	16.513	16.520	16.526	16.533	16.539	16.546	16.553	16.559	16.56
2880	16.566	16.572	16.579	16.586	16.592	16.599	16.605	16.612	16.619	16.625	16.63
2890	16.632	16.638	16.645	16.652	16.658	16.665	16.671	16.678	16.685	16.691	16.69
2900	16.698	16.704	16.711	16.718	16.724	16.731	16.737	16.744	16.751	16.757	16.76
2910	16.764	16.770	16.777	16.783	16.790	16.797	16.803	16.810	16.816	16.823	16.82
2920	16.829	16.836	16.843	16.849	16.856	16.862	16.869	16.876	16.882	16.889	16.89
2930	16.895	16.902	16.908	16.915	16.922	16.928	16.935	16.941	16.948	16.954	16.96
2940	16.961	16.967	16.974	16.981	16.987	16.994	17.000	17.007	17.013	17.020	17.02
2950	17.026	17.033	17.040	17.046	17.053	17.059	17.066	17.072	17.079	17.085	17.09
2960	17.092	17.099	17.105	17.112	17.118	17.125	17.131	17.138	17.144	17.151	17.15
2970	17.157	17.164	17.171	17.177	17.184	17.190	17.197	17.203	17.210	17.216	17.22
2980	17.223	17.229	17.236	17.242	17.249	17.255	17.262	17.268	17.275	17.282	17.28

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ITS-90 Table for type S thermocouple											
°C	0	1	2	3	4	5	6	7	8	9	10
600	5.239	5.249	5.259	5.269	5.280	5.290	5.300	5.310	5.320	5.331	5.34
610	5.341	5.351	5.361	5.372	5.382	5.392	5.402	5.413	5.423	5.433	5.44
620	5.443	5.454	5.464	5.474	5.485	5.495	5.505	5.515	5.526	5.536	5.54
630	5.546	5.557	5.567	5.577	5.588	5.598	5.608	5.618	5.629	5.639	5.64
640	5.649	5.660	5.670	5.680	5.691	5.701	5.712	5.722	5.732	5.743	5.75
650	5.753	5.763	5.774	5.784	5.794	5.805	5.815	5.826	5.836	5.846	5.85
660	5.857	5.867	5.878	5.888	5.898	5.909	5.919	5.930	5.940	5.950	5.96
670	5.961	5.971	5.982	5.992	6.003	6.013	6.024	6.034	6.044	6.055	6.06
680	6.065	6.076	6.086	6.097	6.107	6.118	6.128	6.139	6.149	6.160	6.17
690	6.170	6.181	6.191	6.202	6.212	6.223	6.233	6.244	6.254	6.265	6.27
700	6.275	6.286	6.296	6.307	6.317	6.328	6.338	6.349	6.360	6.370	6.38
710	6.381	6.391	6.402	6.412	6.423	6.434	6.444	6.455	6.465	6.476	6.48
720	6.486	6.497	6.508	6.518	6.529	6.539	6.550	6.561	6.571	6.582	6.59
730	6.593	6.603	6.614	6.624	6.635	6.646	6.656	6.667	6.678	6.688	6.69
740	6.699	6.710	6.720	6.731	6.742	6.752	6.763	6.774	6.784	6.795	6.80
750	6.806	6.817	6.827	6.838	6.849	6.859	6.870	6.881	6.892	6.902	6.91
760	6.913	6.924	6.934	6.945	6.956	6.967	6.977	6.988	6.999	7.010	7.02
770	7.020	7.031	7.042	7.053	7.064	7.074	7.085	7.096	7.107	7.117	7.12
780	7.128	7.139	7.150	7.161	7.172	7.182	7.193	7.204	7.215	7.226	7.23
790	7.236	7.247	7.258	7.269	7.280	7.291	7.302	7.312	7.323	7.334	7.34
800	7.345	7.356	7.367	7.378	7.388	7.399	7.410	7.421	7.432	7.443	7.45
810	7.454	7.465	7.476	7.487	7.497	7.508	7.519	7.530	7.541	7.552	7.56
820	7.563	7.574	7.585	7.596	7.607	7.618	7.629	7.640	7.651	7.662	7.67
830	7.673	7.684	7.695	7.706	7.717	7.728	7.739	7.750	7.761	7.772	7.78
840	7.783	7.794	7.805	7.816	7.827	7.838	7.849	7.860	7.871	7.882	7.89
850	7.893	7.904	7.915	7.926	7.937	7.948	7.959	7.970	7.981	7.992	8.00
860	8.003	8.014	8.026	8.037	8.048	8.059	8.070	8.081	8.092	8.103	8.11
870	8.114	8.125	8.137	8.148	8.159	8.170	8.181	8.192	8.203	8.214	8.22
880	8.226	8.237	8.248	8.259	8.270	8.281	8.293	8.304	8.315	8.326	8.33
890	8.337	8.348	8.360	8.371	8.382	8.393	8.404	8.416	8.427	8.438	8.44
900	8.449	8.460	8.472	8.483	8.494	8.505	8.517	8.528	8.539	8.550	8.56
910	8.562	8.573	8.584	8.595	8.607	8.618	8.629	8.640	8.652	8.663	8.67
920	8.674	8.685	8.697	8.708	8.719	8.731	8.742	8.753	8.765	8.776	8.78
930	8.787	8.798	8.810	8.821	8.832	8.844	8.855	8.866	8.878	8.889	8.90
940	8.900	8.912	8.923	8.935	8.946	8.957	8.969	8.980	8.991	9.003	9.01
950	9.014	9.025	9.037	9.048	9.060	9.071	9.082	9.094	9.105	9.117	9.12
960	9.128	9.139	9.151	9.162	9.174	9.185	9.197	9.208	9.219	9.231	9.24
970	9.242	9.254	9.265	9.277	9.288	9.300	9.311	9.323	9.334	9.345	9.35
980	9.357	9.368	9.380	9.391	9.403	9.414	9.426	9.437	9.449	9.460	9.47
990	9.472	9.483	9.495	9.506	9.518	9.529	9.541	9.552	9.564	9.576	9.58
1000	9.587	9.599	9.610	9.622	9.633	9.645	9.656	9.668	9.680	9.691	9.70
1010	9.703	9.714	9.726	9.737	9.749	9.761	9.772	9.784	9.795	9.807	9.81
1020	9.819	9.830	9.842	9.853	9.865	9.877	9.888	9.900	9.911	9.923	9.93
1030	9.935	9.946	9.958	9.970	9.981	9.993	10.005	10.016	10.028	10.040	10.05
1040	10.051	10.063	10.075	10.086	10.098	10.110	10.121	10.133	10.145	10.156	10.16
1050	10.168	10.180	10.191	10.203	10.215	10.227	10.238	10.250	10.262	10.273	10.28
1060	10.285	10.297	10.309	10.320	10.332	10.344	10.356	10.367	10.379	10.391	10.40
1070	10.403	10.414	10.426	10.438	10.450	10.461	10.473	10.485	10.497	10.509	10.52
1080	10.520	10.532	10.544	10.556	10.567	10.579	10.591	10.603	10.615	10.626	10.63
1090	10.638	10.650	10.662	10.674	10.686	10.697	10.709	10.721	10.733	10.745	10.75
1100	10.757	10.768	10.780	10.792	10.804	10.816	10.828	10.839	10.851	10.863	10.87
1110	10.875	10.887	10.899	10.911	10.922	10.934	10.946	10.958	10.970	10.982	10.99
1120	10.994	11.006	11.017	11.029	11.041	11.053	11.065	11.077	11.089	11.101	11.11
1130	11.113	11.125	11.136	11.148	11.160	11.172	11.184	11.196	11.208	11.220	11.23
1140	11.232	11.244	11.256	11.268	11.280	11.291	11.303	11.315	11.327	11.339	11.35
1150	11.351	11.363	11.375	11.387	11.399	11.411	11.423	11.435	11.447	11.459	11.47
1160	11.471	11.483	11.495	11.507	11.519	11.531	11.542	11.554	11.566	11.578	11.59
1170	11.590	11.602	11.614	11.626	11.638	11.650	11.662	11.674	11.686	11.698	11.71
1180	11.710	11.722	11.734	11.746	11.758	11.770	11.782	11.794	11.806	11.818	11.83
1190	11.830	11.842	11.854	11.866	11.878	11.890	11.902	11.914	11.926	11.939	11.95
1200	11.951	11.963	11.975	11.987	11.999	12.011	12.023	12.035	12.047	12.059	12.07
1210	12.071	12.083	12.095	12.107	12.119	12.131	12.143	12.155	12.167	12.179	12.19
1220	12.191	12.203	12.216	12.228	12.240	12.252	12.264	12.276	12.288	12.300	12.31
1230	12.312	12.324	12.336	12.348	12.360	12.372	12.384	12.397	12.409	12.421	12.43
1240	12.433	12.445	12.457	12.469	12.481	12.493	12.505	12.517	12.529	12.542	12.55

ITS-90 Table for type S thermocouple											
°C	-10	-9	-8	-7	-6	-5	-4	-3	-2	-1	0
-40	-0.236	-0.232	-0.228	-0.224	-0.219	-0.215	-0.211	-0.207	-0.203	-0.199	-0.19
-30	-0.194	-0.190	-0.186	-0.181	-0.177	-0.173	-0.168	-0.164	-0.159	-0.155	-0.15
-20	-0.150	-0.146	-0.141	-0.136	-0.132	-0.127	-0.122	-0.117	-0.113	-0.108	-0.10
-10	-0.103	-0.098	-0.093	-0.088	-0.083	-0.078	-0.073	-0.068	-0.063	-0.058	-0.05
0	-0.053	-0.048	-0.042	-0.037	-0.032	-0.027	-0.021	-0.016	-0.011	-0.005	0.00
°C	-10	-9	-8	-7	-6	-5	-4	-3	-2	-1	0
ITS-90 Table for type S thermocouple											
°C	0	1	2	3	4	5	6	7	8	9	10
0	0.000	0.005	0.011	0.016	0.022	0.027	0.033	0.038	0.044	0.050	0.05
10	0.055	0.061	0.067	0.072	0.078	0.084	0.090	0.095	0.101	0.107	0.11
20	0.113	0.119	0.125	0.131	0.137	0.143	0.149	0.155	0.161	0.167	0.17
30	0.173	0.179	0.185	0.191	0.197	0.204	0.210	0.216	0.222	0.229	0.23
40	0.235	0.241	0.248	0.254	0.260	0.267	0.273	0.280	0.286	0.292	0.29
50	0.299	0.305	0.312	0.319	0.325	0.332	0.338	0.345	0.352	0.358	0.36
60	0.365	0.372	0.378	0.385	0.392	0.399	0.405	0.412	0.419	0.426	0.43
70	0.433	0.440	0.446	0.453	0.460	0.467	0.474	0.481	0.488	0.495	0.50
80	0.502	0.509	0.516	0.523	0.530	0.538	0.545	0.552	0.559	0.566	0.57
90	0.573	0.580	0.588	0.595	0.602	0.609	0.617	0.624	0.631	0.639	0.64
100	0.646	0.653	0.661	0.668	0.675	0.683	0.690	0.698	0.705	0.713	0.72
110	0.720	0.727	0.735	0.743	0.750	0.758	0.765	0.773	0.780	0.788	0.79
120	0.795	0.803	0.811	0.818	0.826	0.834	0.841	0.849	0.857	0.865	0.87
130	0.872	0.880	0.888	0.896	0.903	0.911	0.919	0.927	0.935	0.942	0.95
140	0.950	0.958	0.966	0.974	0.982	0.990	0.998	1.006	1.013	1.021	1.02
150	1.029	1.037	1.045	1.053	1.061	1.069	1.077	1.085	1.094	1.102	1.11
160	1.110	1.118	1.126	1.134	1.142	1.150	1.158	1.167	1.175	1.183	1.19
170	1.191	1.199	1.207	1.216	1.224	1.232	1.240	1.249	1.257	1.265	1.27
180	1.273	1.282	1.290	1.298	1.307	1.315	1.323	1.332	1.340	1.348	1.35
190	1.357	1.365	1.373	1.382	1.390	1.399	1.407	1.415	1.424	1.432	1.44
200	1.441	1.449	1.458	1.466	1.475	1.483	1.492	1.500	1.509	1.517	1.52
210	1.526	1.534	1.543	1.551	1.560	1.569	1.577	1.586	1.594	1.603	1.61
220	1.612	1.620	1.62								

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ITS-90 Table for type S thermocouple											
°C	0	1	2	3	4	5	6	7	8	9	10
Thermoelectric Voltage in mV											
1250	12.554	12.566	12.578	12.590	12.602	12.614	12.626	12.638	12.650	12.662	12.67
1260	12.675	12.687	12.699	12.711	12.723	12.735	12.747	12.759	12.771	12.783	12.79
1270	12.796	12.808	12.820	12.832	12.844	12.856	12.868	12.880	12.892	12.905	12.91
1280	12.917	12.929	12.941	12.953	12.965	12.977	12.989	13.001	13.014	13.026	13.03
1290	13.038	13.050	13.062	13.074	13.086	13.098	13.111	13.123	13.135	13.147	13.15
1300	13.159	13.171	13.183	13.195	13.208	13.220	13.232	13.244	13.256	13.268	13.28
1310	13.280	13.292	13.305	13.317	13.329	13.341	13.353	13.365	13.377	13.390	13.40
1320	13.402	13.414	13.426	13.438	13.450	13.462	13.474	13.487	13.499	13.511	13.52
1330	13.523	13.535	13.547	13.559	13.572	13.584	13.596	13.608	13.620	13.632	13.64
1340	13.644	13.657	13.669	13.681	13.693	13.705	13.717	13.729	13.742	13.754	13.76
1350	13.766	13.778	13.790	13.802	13.814	13.826	13.839	13.851	13.863	13.875	13.88
1360	13.887	13.899	13.911	13.924	13.936	13.948	13.960	13.972	13.984	13.996	14.00
1370	14.009	14.021	14.033	14.045	14.057	14.069	14.081	14.094	14.106	14.118	14.13
1380	14.130	14.142	14.154	14.166	14.178	14.191	14.203	14.215	14.227	14.239	14.25
1390	14.251	14.263	14.276	14.288	14.300	14.312	14.324	14.336	14.348	14.360	14.37
1400	14.373	14.385	14.397	14.409	14.421	14.433	14.445	14.457	14.470	14.482	14.49
1410	14.494	14.506	14.518	14.530	14.542	14.554	14.567	14.579	14.591	14.603	14.61
1420	14.615	14.627	14.639	14.651	14.664	14.676	14.688	14.700	14.712	14.724	14.73
1430	14.736	14.748	14.760	14.773	14.785	14.797	14.809	14.821	14.833	14.845	14.85
1440	14.857	14.869	14.881	14.894	14.906	14.918	14.930	14.942	14.954	14.966	14.97
1450	14.978	14.990	15.002	15.015	15.027	15.039	15.051	15.063	15.075	15.087	15.09
1460	15.099	15.111	15.123	15.135	15.148	15.160	15.172	15.184	15.196	15.208	15.22
1470	15.220	15.232	15.244	15.256	15.268	15.280	15.292	15.304	15.317	15.329	15.34
1480	15.341	15.353	15.365	15.377	15.389	15.401	15.413	15.425	15.437	15.449	15.46
1490	15.461	15.473	15.485	15.497	15.509	15.521	15.534	15.546	15.558	15.570	15.58
1500	15.582	15.594	15.606	15.618	15.630	15.642	15.654	15.666	15.678	15.690	15.70
1510	15.702	15.714	15.726	15.738	15.750	15.762	15.774	15.786	15.798	15.810	15.82
1520	15.822	15.834	15.846	15.858	15.870	15.882	15.894	15.906	15.918	15.930	15.94
1530	15.942	15.954	15.966	15.978	15.990	16.002	16.014	16.026	16.038	16.050	16.06
1540	16.062	16.074	16.086	16.098	16.110	16.122	16.134	16.146	16.158	16.170	16.18
1550	16.182	16.194	16.205	16.217	16.229	16.241	16.253	16.265	16.277	16.289	16.30
1560	16.301	16.313	16.325	16.337	16.349	16.361	16.373	16.385	16.396	16.408	16.42
1570	16.420	16.432	16.444	16.456	16.468	16.480	16.492	16.504	16.516	16.527	16.53
1580	16.539	16.551	16.563	16.575	16.587	16.599	16.611	16.623	16.634	16.646	16.65
1590	16.658	16.670	16.682	16.694	16.706	16.718	16.729	16.741	16.753	16.765	16.77
1600	16.777	16.789	16.801	16.812	16.824	16.836	16.848	16.860	16.872	16.883	16.89
1610	16.895	16.907	16.919	16.931	16.943	16.954	16.966	16.978	16.990	17.002	17.01
1620	17.013	17.025	17.037	17.049	17.061	17.072	17.084	17.096	17.108	17.120	17.13
1630	17.131	17.143	17.155	17.167	17.178	17.190	17.202	17.214	17.225	17.237	17.24
1640	17.249	17.261	17.272	17.284	17.296	17.308	17.319	17.331	17.343	17.355	17.36
1650	17.366	17.378	17.390	17.401	17.413	17.425	17.437	17.448	17.460	17.472	17.48
1660	17.483	17.495	17.507	17.518	17.530	17.542	17.553	17.565	17.577	17.588	17.60
1670	17.600	17.612	17.623	17.635	17.647	17.658	17.670	17.682	17.693	17.705	17.71
1680	17.717	17.728	17.740	17.751	17.763	17.775	17.786	17.798	17.809	17.821	17.83
1690	17.832	17.844	17.855	17.867	17.878	17.890	17.901	17.913	17.924	17.936	17.94
1700	17.947	17.959	17.970	17.982	17.993	18.004	18.016	18.027	18.039	18.050	18.06
1710	18.061	18.073	18.084	18.095	18.107	18.118	18.129	18.140	18.152	18.163	18.17
1720	18.174	18.185	18.196	18.208	18.219	18.230	18.241	18.252	18.263	18.274	18.28
1730	18.285	18.297	18.308	18.319	18.330	18.341	18.352	18.362	18.373	18.384	18.39
1740	18.395	18.406	18.417	18.428	18.439	18.449	18.460	18.471	18.482	18.493	18.50
1750	18.503	18.514	18.525	18.535	18.546	18.557	18.567	18.578	18.588	18.599	18.60
1760	18.609	18.620	18.630	18.641	18.651	18.661	18.672	18.682	18.693		

ITS-90 Table for type T thermocouple													
°F	-10	-9	-8	-7	-6	-5	-4	-3	-2	-1	0		
Thermoelectric Voltage in mV													
-450									-6.258	-6.257	-6.256	-6.255	-6.25
-440	-6.254	-6.253	-6.252	-6.251	-6.250	-6.248	-6.247	-6.245	-6.244	-6.242	-6.24	-6.24	
-430	-6.240	-6.238	-6.236	-6.234	-6.232	-6.230	-6.227	-6.225	-6.222	-6.220	-6.21	-6.21	
-420	-6.217	-6.215	-6.212	-6.209	-6.206	-6.203	-6.200	-6.197	-6.194	-6.191	-6.18	-6.18	
-410	-6.187	-6.184	-6.180	-6.177	-6.173	-6.170	-6.166	-6.162	-6.158	-6.154	-6.15	-6.15	
-400	-6.150	-6.146	-6.141	-6.137	-6.133	-6.128	-6.124	-6.119	-6.115	-6.110	-6.10	-6.10	
-390	-6.105	-6.100	-6.095	-6.090	-6.085	-6.080	-6.075	-6.069	-6.064	-6.059	-6.05	-6.05	
-380	-6.053	-6.047	-6.042	-6.036	-6.030	-6.025	-6.019	-6.013	-6.007	-6.001	-5.99	-5.99	
-370	-5.994	-5.988	-5.982	-5.976	-5.969	-5.963	-5.956	-5.950	-5.943	-5.937	-5.93	-5.93	
-360	-5.930	-5.923	-5.916	-5.909	-5.902	-5.896	-5.888	-5.881	-5.874	-5.867	-5.86	-5.86	
-350	-5.860	-5.853	-5.845	-5.838	-5.830	-5.823	-5.815	-5.808	-5.800	-5.792	-5.79	-5.79	
-340	-5.785	-5.777	-5.769	-5.761	-5.753	-5.745	-5.737	-5.729	-5.721	-5.713	-5.70	-5.70	
-330	-5.705	-5.697	-5.688	-5.680	-5.672	-5.663	-5.655	-5.646	-5.638	-5.629	-5.62	-5.62	
-320	-5.620	-5.612	-5.603	-5.594	-5.585	-5.577	-5.568	-5.559	-5.550	-5.541	-5.53	-5.53	
-310	-5.532	-5.523	-5.513	-5.504	-5.495	-5.486	-5.476	-5.467	-5.458	-5.448	-5.43	-5.43	
-300	-5.439	-5.429	-5.420	-5.410	-5.400	-5.391	-5.381	-5.371	-5.361	-5.351	-5.34	-5.34	
-290	-5.341	-5.332	-5.322	-5.312	-5.301	-5.291	-5.281	-5.271	-5.261	-5.250	-5.24	-5.24	
-280	-5.240	-5.230	-5.219	-5.209	-5.198	-5.188	-5.177	-5.167	-5.156	-5.145	-5.13	-5.13	
-270	-5.135	-5.124	-5.113	-5.102	-5.091	-5.081	-5.070	-5.059	-5.048	-5.036	-5.02	-5.02	
-260	-5.025	-5.014	-5.003	-4.992	-4.980	-4.969	-4.958	-4.946	-4.935	-4.923	-4.91	-4.91	
-250	-4.912	-4.900	-4.889	-4.877	-4.865	-4.854	-4.842	-4.830	-4.818	-4.806	-4.79	-4.79	
-240	-4.794	-4.783	-4.771	-4.759	-4.746	-4.734	-4.722	-4.710	-4.698	-4.685	-4.67	-4.67	
-230	-4.673	-4.661	-4.648	-4.636	-4.624	-4.611	-4.599	-4.586	-4.573	-4.561	-4.54	-4.54	
-220	-4.548	-4.535	-4.523	-4.510	-4.497	-4.484	-4.471	-4.458	-4.445	-4.432	-4.41	-4.41	
-210	-4.419	-4.406	-4.393	-4.380	-4.366	-4.353	-4.340	-4.326	-4.313	-4.300	-4.28	-4.28	
-200	-4.286	-4.273	-4.259	-4.246	-4.232	-4.218	-4.205	-4.191	-4.177	-4.163	-4.14	-4.14	
-190	-4.149	-4.136	-4.122	-4.108	-4.094	-4.080	-4.066	-4.052	-4.037	-4.023	-4.00	-4.00	
-180	-4.009	-3.995	-3.980	-3.966	-3.952	-3.937	-3.923	-3.908	-3.894	-3.879	-3.86	-3.86	
-170	-3.865	-3.850	-3.836	-3.821	-3.806	-3.791	-3.777	-3.762	-3.747	-3.732	-3.71	-3.71	
-160	-3.717	-3.702	-3.687	-3.672	-3.657	-3.642	-3.626	-3.611	-3.596	-3.581	-3.56	-3.56	
-150	-3.565	-3.550	-3.535	-3.519	-3.504	-3.488	-3.473	-3.457	-3.441	-3.426	-3.41	-3.41	
-140	-3.410	-3.394	-3.379	-3.363	-3.347	-3.331	-3.315	-3.299	-3.283	-3.267	-3.25	-3.25	
-130	-3.251	-3.235	-3.219	-3.203	-3.187	-3.171	-3.154	-3.138	-3.122	-3.105	-3.08	-3.08	
-120	-3.089	-3.072	-3.056	-3.040	-3.023	-3.006	-2.990	-2.973	-2.956	-2.940	-2.92	-2.92	
-110	-2.923	-2.906	-2.889	-2.873	-2.856	-2.839	-2.822	-2.805	-2.788	-2.771	-2.75	-2.75	
-100	-2.754	-2.737	-2.719	-2.702	-2.685	-2.668	-2.651	-2.633	-2.616	-2.598	-2.58	-2.58	
-90	-2.581	-2.564	-2.546	-2.529	-2.511	-2.493	-2.476	-2.458	-2.440	-2.423	-2.40	-2.40	
-80	-2.405	-2.387	-2.369	-2.351	-2.334	-2.316	-2.298	-2.280	-2.262	-2.244			

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ITS-90 °F	Table for type T thermocouple										
	Thermoelectric Voltage in mV										
	0	1	2	3	4	5	6	7	8	9	10
150	2.712	2.737	2.761	2.786	2.810	2.835	2.860	2.884	2.909	2.934	2.95
160	2.958	2.983	3.008	3.033	3.058	3.082	3.107	3.132	3.157	3.182	3.20
170	3.207	3.232	3.257	3.282	3.307	3.333	3.358	3.383	3.408	3.433	3.45
180	3.459	3.484	3.509	3.534	3.560	3.585	3.610	3.636	3.661	3.687	3.71
190	3.712	3.738	3.763	3.789	3.814	3.840	3.866	3.891	3.917	3.943	3.96
200	3.968	3.994	4.020	4.046	4.071	4.097	4.123	4.149	4.175	4.201	4.22
210	4.227	4.253	4.279	4.305	4.331	4.357	4.383	4.409	4.435	4.461	4.48
220	4.487	4.513	4.540	4.566	4.592	4.618	4.645	4.671	4.697	4.724	4.75
230	4.750	4.776	4.803	4.829	4.856	4.882	4.909	4.935	4.962	4.988	5.01
240	5.015	5.042	5.068	5.095	5.122	5.148	5.175	5.202	5.228	5.255	5.28
250	5.282	5.309	5.336	5.363	5.389	5.416	5.443	5.470	5.497	5.524	5.55
260	5.551	5.578	5.605	5.632	5.660	5.687	5.714	5.741	5.768	5.795	5.82
270	5.823	5.850	5.877	5.904	5.932	5.959	5.986	6.014	6.041	6.068	6.09
280	6.096	6.123	6.151	6.178	6.206	6.233	6.261	6.288	6.316	6.343	6.37
290	6.371	6.399	6.426	6.454	6.482	6.510	6.537	6.565	6.593	6.621	6.64
300	6.648	6.676	6.704	6.732	6.760	6.788	6.816	6.844	6.872	6.900	6.92
310	6.928	6.956	6.984	7.012	7.040	7.068	7.096	7.124	7.152	7.181	7.20
320	7.209	7.237	7.265	7.294	7.322	7.350	7.378	7.407	7.435	7.463	7.49
330	7.492	7.520	7.549	7.577	7.606	7.634	7.663	7.691	7.720	7.748	7.77
340	7.777	7.805	7.834	7.863	7.891	7.920	7.949	7.977	8.006	8.035	8.06
350	8.064	8.092	8.121	8.150	8.179	8.208	8.237	8.266	8.294	8.323	8.35
360	8.352	8.381	8.410	8.439	8.468	8.497	8.526	8.555	8.585	8.614	8.64
370	8.643	8.672	8.701	8.730	8.759	8.789	8.818	8.847	8.876	8.906	8.93
380	8.935	8.964	8.994	9.023	9.052	9.082	9.111	9.141	9.170	9.200	9.22
390	9.229	9.259	9.288	9.318	9.347	9.377	9.406	9.436	9.466	9.495	9.52
400	9.525	9.555	9.584	9.614	9.644	9.673	9.703	9.733	9.763	9.793	9.82
410	9.822	9.852	9.882	9.912	9.942	9.972	10.002	10.032	10.062	10.092	10.12
420	10.122	10.152	10.182	10.212	10.242	10.272	10.302	10.332	10.362	10.392	10.42
430	10.423	10.453	10.483	10.513	10.543	10.574	10.604	10.634	10.664	10.695	10.72
440	10.725	10.755	10.786	10.816	10.847	10.877	10.907	10.938	10.968	10.999	11.02
450	11.029	11.060	11.090	11.121	11.151	11.182	11.213	11.243	11.274	11.304	11.33
460	11.335	11.366	11.396	11.427	11.458	11.489	11.519	11.550	11.581	11.612	11.64
470	11.643	11.673	11.704	11.735	11.766	11.797	11.828	11.859	11.890	11.921	11.95
480	11.951	11.982	12.013	12.044	12.075	12.106	12.138	12.169	12.200	12.231	12.26
490	12.262	12.293	12.324	12.355	12.386	12.418	12.449	12.480	12.511	12.543	12.57
500	12.574	12.605	12.636	12.668	12.699	12.730	12.762	12.793	12.824	12.856	12.88
510	12.887	12.919	12.950	12.982	13.013	13.045	13.076	13.108	13.139	13.171	13.20
520	13.202	13.234	13.265	13.297	13.328	13.360	13.392	13.423	13.455	13.487	13.51
530	13.518	13.550	13.582	13.614	13.645	13.677	13.709	13.741	13.772	13.804	13.83
540	13.836	13.868	13.900	13.932	13.964	13.995	14.027	14.059	14.091	14.123	14.15
550	14.155	14.187	14.219	14.251	14.283	14.315	14.347	14.379	14.411	14.444	14.47
560	14.476	14.508	14.540	14.572	14.604	14.636	14.669	14.701	14.733	14.765	14.79
570	14.797	14.830	14.862	14.894	14.926	14.959	14.991	15.023	15.056	15.088	15.12
580	15.121	15.153	15.185	15.218	15.250	15.283	15.315	15.347	15.380	15.412	15.44
590	15.445	15.477	15.510	15.543	15.575	15.608	15.640	15.673	15.705	15.738	15.77
600	15.771	15.803	15.836	15.869	15.901	15.934	15.967	15.999	16.032	16.065	16.09
610	16.098	16.130	16.163	16.196	16.229	16.262	16.295	16.327	16.360	16.393	16.42
620	16.426	16.459	16.492	16.525	16.558	16.591	16.624	16.657	16.690	16.723	16.75
630	16.756	16.789	16.822	16.855	16.888	16.921	16.954	16.987	17.020	17.053	17.08
640	17.086	17.120	17.153	17.186	17.219	17.252	17.286	17.319	17.352	17.385	17.41
650	17.418	17.452	17.485	17.518	17.552	17.585	17.618	17.652	17.685	17.718	17.75
660	17.752	17.785	17.819	17.852	17.886	17.919	17.952	17.986	18.019	18.053	18.08
670	18.086	18.120	18.153	18.187	18.221	18.254	18.288	18.321	18.355	18.389	18.42
680	18.422	18.456	18.490	18.523	18.557	18.591	18.624	18.658	18.692	18.725	18.75
690	18.759	18.793	18.827	18.861	18.894	18.928	18.962	18.996	19.030	19.064	19.09
700	19.097	19.131	19.165	19.199	19.233	19.267	19.301	19.335	19.369	19.403	19.43
710	19.437	19.471	19.505	19.539	19.573	19.607	19.641	19.675	19.709	19.743	19.77
720	19.777	19.811	19.845	19.879	19.913	19.947	19.982	20.016	20.050	20.084	20.11
730	20.118	20.152	20.187	20.221	20.255	20.289	20.323	20.358	20.392	20.426	20.46
740	20.460	20.495	20.529	20.563	20.597	20.632	20.666	20.700	20.735	20.769	20.80
750	20.803	20.838	20.872								

ITS-90 °C	Table for type T thermocouple										
	Thermoelectric Voltage in mV										
	-10	-9	-8	-7	-6	-5	-4	-3	-2	-1	0
-260	-6.258	-6.256	-6.255	-6.253	-6.251	-6.248	-6.245	-6.242	-6.239	-6.236	-6.23
-250	-6.232	-6.228	-6.223	-6.219	-6.214	-6.209	-6.204	-6.198	-6.193	-6.187	-6.18
-240	-6.180	-6.174	-6.167	-6.160	-6.153	-6.146	-6.138	-6.130	-6.122	-6.114	-6.10
-230	-6.105	-6.096	-6.087	-6.078	-6.068	-6.059	-6.049	-6.038	-6.028	-6.017	-6.00
-220	-6.007	-5.996	-5.985	-5.973	-5.962	-5.950	-5.938	-5.926	-5.914	-5.901	-5.88
-210	-5.888	-5.876	-5.863	-5.850	-5.836	-5.823	-5.809	-5.795	-5.782	-5.767	-5.75
-200	-5.753	-5.739	-5.724	-5.710	-5.695	-5.680	-5.665	-5.650	-5.634	-5.619	-5.60
-190	-5.603	-5.587	-5.571	-5.555	-5.539	-5.523	-5.506	-5.489	-5.473	-5.456	-5.43
-180	-5.439	-5.421	-5.404	-5.387	-5.369	-5.351	-5.334	-5.316	-5.297	-5.279	-5.26
-170	-5.261	-5.242	-5.224	-5.205	-5.186	-5.167	-5.148	-5.128	-5.109	-5.089	-5.07
-160	-5.070	-5.050	-5.030	-5.010	-4.989	-4.969	-4.949	-4.928	-4.907	-4.886	-4.86
-150	-4.865	-4.844	-4.823	-4.802	-4.780	-4.759	-4.737	-4.715	-4.693	-4.671	-4.64
-140	-4.648	-4.626	-4.604	-4.581	-4.558	-4.535	-4.512	-4.489	-4.466	-4.443	-4.41
-130	-4.419	-4.395	-4.372	-4.348	-4.324	-4.300	-4.275	-4.251	-4.226	-4.202	-4.17
-120	-4.177	-4.152	-4.127	-4.102	-4.077	-4.052	-4.026	-4.000	-3.975	-3.949	-3.92
-110	-3.923	-3.897	-3.871	-3.844	-3.818	-3.791	-3.765	-3.738	-3.711	-3.684	-3.65
-100	-3.657	-3.629	-3.602	-3.574	-3.547	-3.519	-3.491	-3.463	-3.435	-3.407	-3.37
-90	-3.379	-3.350	-3.322	-3.293	-3.264	-3.235	-3.206	-3.177	-3.148	-3.118	-3.08
-80	-3.089	-3.059	-3.030	-3.000	-2.970	-2.940	-2.910	-2.879	-2.848	-2.818	-2.78
-70	-2.788	-2.757	-2.726	-2.695	-2.664	-2.633	-2.602	-2.571	-2.539	-2.507	-2.47
-60	-2.476	-2.444	-2.412	-2.380	-2.348	-2.316	-2.283	-2.251	-2.218	-2.186	-2.15
-50	-2.153	-2.120	-2.087	-2.054	-2.021	-1.987	-1.954	-1.920	-1.887	-1.853	-1.81
-40	-1.819	-1.785	-1.751	-1.717	-1.683	-1.648	-1.614	-1.579	-1.545	-1.510	-1.47
-30	-1.475	-1.440	-1.405	-1.370	-1.335	-1.299	-1.264	-1.228	-1.192	-1.157	-1.12
-20	-1.121	-1.085	-1.049	-1.013	-0.976	-0.940	-0.904	-0.867	-0.830	-0.794	-0.75
-10	-0.757	-0.720	-0.683	-0.646	-0.608	-0.571	-0.534	-0.496	-0.459	-0.421	-0.38
0	-0.383	-0.345	-0.307	-0.269	-0.231	-0.193	-0.154	-0.116	-0.077	-0.039	0.00
10	0.000	0.039	0.078	0.117	0.156	0.195	0.234	0.273	0.312	0.352	0.39
20	0.391	0.431	0.470	0.510	0.549	0.589	0.629	0.669	0.709	0.749	0.79
30	0.790	0.830	0.870	0.911	0.951	0.992	1.033	1.074	1.114	1.155	1.19
40	1.196	1.238	1.279	1.320	1.362	1.403	1.445	1.486	1.528	1.570	1.61
50	1.612	1.654	1.696	1.738	1.780	1.823	1.865	1.908	1.950	1.993	2.03
60	2.036	2.079	2.122	2.165	2.208	2.251	2.294	2.338	2.381	2.425	2.46
70	2.468	2.512	2.556	2.600	2.643	2.687	2.732	2.776	2.820	2.864	2.90
80	2.909	2.953	2.998	3.043	3						

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Standard Platinum Thermometer—Thermoelectric voltage as a function of temperature (°C), reference junction at 0°C

Thermoelectric Voltage in Microvolts											Thermoelectric Voltage in Microvolts												
°C	0	1	2	3	4	5	6	7	8	9	10	°C	0	1	2	3	4	5	6	7	8	9	10
0	0.0	0.1	1.2	18.9	24.8	30.7	36.6	42.5	48.4	54.3	60.2	60	600	600.0	601.8	603.6	605.4	607.2	609.0	610.8	612.6	614.4	616.2
10	61.8	61.7	73.2	81.7	88.2	94.7	101.2	107.7	114.2	120.7	127.2	130	616	615.5	617.3	619.1	620.9	622.7	624.5	626.3	628.1	629.9	631.7
20	128.5	128.1	141.8	148.8	158.2	167.6	177.0	186.4	195.8	205.2	214.6	218	632	631.5	633.3	635.1	636.9	638.7	640.5	642.3	644.1	645.9	647.7
30	187.9	187.1	212.8	218.5	234.5	241.1	247.4	253.8	260.2	266.6	273.0	276	648	647.5	649.3	651.1	652.9	654.7	656.5	658.3	660.1	661.9	663.7
40	271.1	270.8	298.1	298.7	321.3	328.9	331.8	334.7	337.6	340.5	343.4	346	664	663.5	665.3	667.1	668.9	670.7	672.5	674.3	676.1	677.9	679.7
50	347.8	347.8	368.5	371.3	391.8	397.1	398.5	399.9	401.3	402.7	404.1	407	680	679.5	681.3	683.1	684.9	686.7	688.5	690.3	692.1	693.9	695.7
60	427.6	427.8	438.5	438.5	462.1	468.5	468.8	470.2	471.6	473.0	474.4	478	696	695.5	697.3	699.1	700.9	702.7	704.5	706.3	708.1	709.9	711.7
70	510.6	510.8	521.5	521.5	548.0	554.2	554.2	555.6	557.0	558.4	559.8	564	712	711.5	713.3	715.1	716.9	718.7	720.5	722.3	724.1	725.9	727.7
80	596.6	596.4	611.2	611.2	640.0	646.0	646.0	647.4	648.8	650.2	651.6	656	728	727.5	729.3	731.1	732.9	734.7	736.5	738.3	740.1	741.9	743.7
90	685.8	685.8	704.0	704.0	735.0	741.0	741.0	742.4	743.8	745.2	746.6	752	744	743.5	745.3	747.1	748.9	750.7	752.5	754.3	756.1	757.9	759.7
100	777.9	777.9	797.7	797.7	831.0	837.0	837.0	838.4	839.8	841.2	842.6	848	760	759.5	761.3	763.1	764.9	766.7	768.5	770.3	772.1	773.9	775.7
110	872.3	872.3	893.2	893.2	928.0	934.0	934.0	935.4	936.8	938.2	939.6	946	768	767.5	769.3	771.1	772.9	774.7	776.5	778.3	780.1	781.9	783.7
120	970.8	970.8	992.8	992.8	1029.0	1035.0	1035.0	1036.4	1037.8	1039.2	1040.6	1048	776	775.5	777.3	779.1	780.9	782.7	784.5	786.3	788.1	789.9	791.7
130	1071.3	1071.3	1094.2	1094.2	1132.0	1138.0	1138.0	1139.4	1140.8	1142.2	1143.6	1152	784	783.5	785.3	787.1	788.9	790.7	792.5	794.3	796.1	797.9	799.7
140	1174.1	1174.1	1198.8	1198.8	1238.0	1244.0	1244.0	1245.4	1246.8	1248.2	1249.6	1258	792	791.5	793.3	795.1	796.9	798.7	800.5	802.3	804.1	805.9	807.7
150	1279.8	1279.8	1305.3	1305.3	1346.0	1352.0	1352.0	1353.4	1354.8	1356.2	1357.6	1366	800	799.5	801.3	803.1	804.9	806.7	808.5	810.3	812.1	813.9	815.7
160	1388.0	1388.0	1414.0	1414.0	1456.0	1462.0	1462.0	1463.4	1464.8	1466.2	1467.6	1476	808	799.5	801.3	803.1	804.9	806.7	808.5	810.3	812.1	813.9	815.7
170	1498.7	1498.7	1525.0	1525.0	1568.0	1574.0	1574.0	1575.4	1576.8	1578.2	1579.6	1588	816	815.5	817.3	819.1	820.9	822.7	824.5	826.3	828.1	829.9	831.7
180	1611.8	1611.8	1638.4	1638.4	1682.0	1688.0	1688.0	1689.4	1690.8	1692.2	1693.6	1702	824	823.5	825.3	827.1	828.9	830.7	832.5	834.3	836.1	837.9	839.7
190	1727.2	1727.2	1754.0	1754.0	1798.0	1804.0	1804.0	1805.4	1806.8	1808.2	1809.6	1818	832	831.5	833.3	835.1	836.9	838.7	840.5	842.3	844.1	845.9	847.7
200	1844.1	1844.1	1871.0	1871.0	1916.0	1922.0	1922.0	1923.4	1924.8	1926.2	1927.6	1936	840	839.5	841.3	843.1	844.9	846.7	848.5	850.3	852.1	853.9	855.7
210	1962.1	1962.1	1989.0	1989.0	2034.0	2040.0	2040.0	2041.4	2042.8	2044.2	2045.6	2054	848	847.5	849.3	851.1	852.9	854.7	856.5	858.3	860.1	861.9	863.7
220	2081.4	2081.4	2108.0	2108.0	2154.0	2160.0	2160.0	2161.4	2162.8	2164.2	2165.6	2174	856	855.5	857.3	859.1	860.9	862.7	864.5	866.3	868.1	869.9	871.7
230	2201.8	2201.8	2228.0	2228.0	2274.0	2280.0	2280.0	2281.4	2282.8	2284.2	2285.6	2294	864	863.5	865.3	867.1	868.9	870.7	872.5	874.3	876.1	877.9	879.7
240	2323.0	2323.0	2349.0	2349.0	2396.0	2402.0	2402.0	2403.4	2404.8	2406.2	2407.6	2416	872	871.5	873.3	875.1	876.9	878.7	880.5	882.3	884.1	885.9	887.7
250	2445.1	2445.1	2471.0	2471.0	2518.0	2524.0	2524.0	2525.4	2526.8	2528.2	2529.6	2538	880	879.5	881.3	883.1	884.9	886.7	888.5	890.3	892.1	893.9	895.7
260	2568.1	2568.1	2594.0	2594.0	2642.0	2648.0	2648.0	2649.4	2650.8	2652.2	2653.6	2662	888	887.5	889.3	891.1	892.9	894.7	896.5	898.3	900.1	901.9	903.7
270	2692.1	2692.1	2718.0	2718.0	2766.0	2772.0	2772.0	2773.4	2774.8	2776.2	2777.6	2786	896	895.5	897.3	899.1	900.9	902.7	904.5	906.3	908.1	909.9	911.7
280	2817.1	2817.1	2843.0	2843.0	2892.0	2898.0	2898.0	2899.4	2900.8	2902.2	2903.6	2912	904	899.5	901.3	903.1	904.9	906.7	908.5	910.3	912.1	913.9	915.7
290	2942.1	2942.1	2968.0	2968.0	3018.0	3024.0	3024.0	3025.4	3026.8	3028.2	3029.6	3038	912	911.5	913.3	915.1	916.9	918.7	920.5	922.3	924.1	925.9	927.7
300	3067.1	3067.1	3093.0	3093.0	3144.0	3150.0	3150.0	3151.4	3152.8	3154.2	3155.6	3164	920	919.5	921.3	923.1	924.9	926.7	928.5	930.3	932.1	933.9	935.7
310	3192.1	3192.1	3218.0	3218.0	3270.0	3276.0	3276.0	3277.4	3278.8	3280.2	3281.6	3290	928	927.5	929.3	931.1	932.9	934.7	936.5	938.3	940.1	941.9	943.7
320	3317.1	3317.1	3343.0	3343.0	3396.0	3402.0	3402.0	3403.4	3404.8	3406.2	3407.6	3416	936	935.5	937.3	939.1	940.9	942.7	944.5	946.3	948.1	949.9	951.7
330	3442.1	3442.1	3468.0	3468.0	3522.0	3528.0	3528.0	3529.4	3530.8	3532.2	3533.6	3542	944	943.5	945.3	947.1	948.9	950.7	952.5	954.3	956.1	957.9	959.7
340	3567.1	3567.1	3593.0	3593.0	3648.0	3654.0	3654.0	3655.4	3656.8	3658.2	3659.6	3668	952	951.5	953.3	955.1	956.9	958.7	960.5	962.3	964.1	965.9	967.7
350	3692.1	3692.1	3718.0	3718.0	3774.0	3780.0	3780.0	3781.4	3782.8	3784.2	3785.6	3794	960	959.5	961.3	963.1	964.9	966.7	968.5	970.3	972.1	973.9	975.7
360	3817.1	3817.1	3843.0	3843.0	3900.0	3906.0	3906.0	3907.4	3908.8	3910.2	3911.6	3920	968	967.5	969.3	971.1	972.9	974.7	976.5	978.3	980.1	981.9	983.7
370	3942.1	3942.1	3968.0	3968.0	4026.0	4032.0	4032.0	4033.4	4034.8	4036.2	4037.6	4046	976	975.5	977.3	979.1	980.9	982.7	984.5	986.3	988.1	989.9	991.7
380	4067.1	4067.1	4093.0	4093.0	4152.0	4158.0	4158.0	4159.4	4160.8	4162.2	4163.6	4172	984	983.5	985.3	987.1	988.9	990.7	992.5	994.3	996.1	997.9	999.7
390	4192.1	4192.1	4218.0	4218.0	4278.0	4284.0	4284.0	4285.4	4286.8	4288.2	4289.6	4298	992	991.5	993.3	995.1	996.9	998.7	1000.5	1002.3	1004.1	1005.9	1007.7
400	4317.1	4317.1	4343.0	4343.0	4404.0	4410.0	4410.0	4411.4	4412.8	4414.2	4415.6	4424	1000	999.5	1001.3	1003.1	1004.9	1006.7	1008.5	1010.3	1012.1	1013.9	1015.7
410	4442.1	4442.1	4468.0	4468.0	4530.0	4536.0	4536.0	4537.4	4538.8	4540.2	4541.6	4550	1008	999.5	1001.3	1003.1	1004.9	1006.7	1008.5	1010.3	1012.1	1013.9	1015.7
420	4567.1	4567.1	4593.0	4593.0	4656.0	4662.0	4662.0	4663.4	4664.8	4666.2	4667.6	4676	1016	1015.5	1017.3	1019.1	1020.9	1022.7	1024.5	1026.3	1028.1	1029.9	1031.7
430	4692.1	4692.1	4718.0	4718.0	4782.0	4788.0	4788.0	4789.4	4790.8	4792.2	4793.6	4802	1024	1023.5	1025.3	1027.1	1028.9	1030.7	1032.5	1034.3	1036.1	1037.9	1039.7
440	4817.1	4817.1	4843.0	4843.0	4908.0	4914.0	4914.0	4915.4	4916.8	4918.2	4919.6	4928	1032	1031.5	1033.3	1035.1	1036.9	1038.7	1040.5	1042.3	1044.1	1045.9	1047.7
450	4942.1	4942.1	4968.0	4968.0	5034.0	5040.0	5040.0	5041.4	5042.8	5044.2	5045.6	5054	1040	1039.5	1041.3	1043.1	1044.9	1046.7	1048.5	1050.3	1052.1	1053.9	1055.7
460	5067.1	5067.1	5093.0	5093.0	5160.0	5166.0	5166.0	5167.4	5168.8	5170.2	5171.6	5180	1048	1047.5	1049.3	1051.1	1052.9	1054.7	1056.5	1058.3	1060.1	1061.9	1063.7
470	5192.1	5192.1	5218.0	5218.0	5286.0	5292.0	5292.0	5293.4	5294.8	5296.2	5297.6	5306	1056	1055.5	1057.3	1059.1	1060.9	1062.7	1064.5	1066.3	1068.1	1069.9	1071.7
480																							

To print, right click or press ctrl + P

TYPE - C THERMOCOUPLE, ITS-90 TABLE

Thermoelectric Voltage in Millivolts

°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
0	0.000	0.013	0.026	0.040	0.053	0.067	0.080	0.094	0.107	0.121	0.135	0	650	11.583	11.603	11.622	11.642	11.661	11.681	11.700	11.720	11.739	11.759	11.778	650
10	0.135	0.148	0.162	0.176	0.189	0.203	0.217	0.231	0.244	0.258	0.272	10	660	11.778	11.798	11.817	11.837	11.857	11.876	11.896	11.915	11.935	11.954	11.974	660
20	0.272	0.286	0.300	0.314	0.328	0.342	0.356	0.370	0.384	0.398	0.412	20	670	11.974	11.993	12.013	12.032	12.052	12.071	12.091	12.110	12.130	12.149	12.169	670
30	0.412	0.426	0.440	0.454	0.469	0.483	0.497	0.511	0.525	0.540	0.554	30	680	12.169	12.188	12.208	12.227	12.247	12.266	12.286	12.305	12.325	12.344	12.364	680
40	0.554	0.568	0.583	0.597	0.612	0.626	0.640	0.655	0.669	0.684	0.698	40	690	12.364	12.383	12.403	12.422	12.442	12.461	12.481	12.500	12.519	12.539	12.558	690
50	0.698	0.713	0.727	0.742	0.757	0.771	0.786	0.801	0.815	0.830	0.845	50	700	12.558	12.578	12.597	12.617	12.636	12.656	12.675	12.695	12.714	12.734	12.753	700
60	0.845	0.860	0.874	0.889	0.904	0.919	0.934	0.948	0.963	0.978	0.993	60	710	12.753	12.772	12.792	12.811	12.831	12.850	12.870	12.889	12.909	12.928	12.947	710
70	0.993	1.008	1.023	1.038	1.053	1.068	1.083	1.098	1.114	1.129	1.144	70	720	12.947	12.967	12.986	13.006	13.025	13.045	13.064	13.083	13.103	13.122	13.142	720
80	1.144	1.159	1.174	1.189	1.205	1.220	1.235	1.250	1.266	1.281	1.296	80	730	13.142	13.161	13.180	13.200	13.219	13.239	13.258	13.277	13.297	13.316	13.336	730
90	1.296	1.312	1.327	1.342	1.358	1.373	1.389	1.404	1.420	1.435	1.451	90	740	13.336	13.355	13.374	13.394	13.413	13.432	13.452	13.471	13.491	13.510	13.529	740
100	1.451	1.466	1.482	1.497	1.513	1.529	1.544	1.560	1.576	1.591	1.607	100	750	13.529	13.549	13.568	13.587	13.607	13.626	13.645	13.665	13.684	13.703	13.723	750
110	1.607	1.623	1.639	1.654	1.670	1.686	1.702	1.718	1.733	1.749	1.765	110	760	13.723	13.742	13.761	13.781	13.800	13.819	13.839	13.858	13.877	13.897	13.916	760
120	1.765	1.781	1.797	1.813	1.829	1.845	1.861	1.877	1.893	1.909	1.925	120	770	13.916	13.935	13.955	13.974	13.993	14.012	14.032	14.051	14.070	14.090	14.109	770
130	1.925	1.941	1.957	1.973	1.989	2.006	2.022	2.038	2.054	2.070	2.087	130	780	14.109	14.128	14.147	14.167	14.186	14.205	14.224	14.244	14.263	14.282	14.302	780
140	2.087	2.103	2.119	2.135	2.152	2.168	2.184	2.201	2.217	2.233	2.250	140	790	14.302	14.321	14.340	14.359	14.378	14.398	14.417	14.436	14.455	14.475	14.494	790
150	2.250	2.266	2.283	2.299	2.316	2.332	2.349	2.365	2.382	2.398	2.415	150	800	14.494	14.513	14.532	14.551	14.571	14.590	14.609	14.628	14.647	14.667	14.686	800
160	2.415	2.431	2.448	2.464	2.481	2.498	2.514	2.531	2.548	2.564	2.581	160	810	14.686	14.705	14.724	14.743	14.762	14.782	14.801	14.820	14.839	14.858	14.877	810
170	2.581	2.598	2.614	2.631	2.648	2.665	2.682	2.698	2.715	2.732	2.749	170	820	14.877	14.897	14.916	14.935	14.954	14.973	14.992	15.011	15.030	15.050	15.069	820
180	2.749	2.766	2.783	2.800	2.816	2.833	2.850	2.867	2.884	2.901	2.918	180	830	15.069	15.088	15.107	15.126	15.145	15.164	15.183	15.202	15.221	15.241	15.260	830
190	2.918	2.935	2.952	2.969	2.986	3.003	3.020	3.038	3.055	3.072	3.089	190	840	15.260	15.279	15.298	15.317	15.336	15.355	15.374	15.393	15.412	15.431	15.450	840
200	3.089	3.106	3.123	3.140	3.158	3.175	3.192	3.209	3.227	3.244	3.26	200	850	15.450	15.469	15.488	15.507	15.526	15.545	15.564	15.583	15.602	15.621	15.640	850
210	3.261	3.278	3.296	3.313	3.330	3.348	3.365	3.382	3.400	3.417	3.434	210	860	15.640	15.659	15.678	15.697	15.716	15.735	15.754	15.773	15.792	15.811	15.830	860
220	3.434	3.452	3.469	3.487	3.504	3.522	3.539	3.557	3.574	3.592	3.609	220	870	15.830	15.849	15.868	15.887	15.906	15.925	15.944	15.963	15.982	16.001	16.020	870
230	3.609	3.627	3.644	3.662	3.679	3.697	3.714	3.732	3.750	3.767	3.785	230	880	16.020	16.038	16.057	16.076	16.095	16.114	16.133	16.152	16.171	16.190	16.208	880
240	3.785	3.803	3.820	3.838	3.856	3.873	3.891	3.909	3.927	3.944	3.962	240	890	16.208	16.227	16.246	16.265	16.284	16.303	16.322	16.340	16.359	16.378	16.397	890
250	3.962	3.980	3.998	4.015	4.033	4.051	4.069	4.087	4.104	4.122	4.140	250	900	16.397	16.416	16.435	16.453	16.472	16.491	16.510	16.529	16.547	16.566	16.585	900
260	4.140	4.158	4.176	4.194	4.212	4.230	4.248	4.266	4.284	4.301	4.319	260	910	16.585	16.604	16.623	16.641	16.660	16.679	16.698	16.717	16.735	16.754	16.773	910
270	4.319	4.337	4.355	4.373	4.391	4.410	4.428	4.446	4.464	4.482	4.500	270	920	16.773	16.791	16.810	16.829	16.848	16.866	16.885	16.904	16.923	16.941	16.960	920
280	4.500	4.518	4.536	4.554	4.572	4.590	4.608	4.627	4.645	4.663	4.681	280	930	16.960	16.979	16.997	17.016	17.035	17.053	17.072	17.091	17.109	17.128	17.147	930
290	4.681	4.699	4.717	4.736	4.754	4.772	4.790	4.809	4.827	4.845	4.863	290	940	17.147	17.165	17.184	17.203	17.221	17.240	17.258	17.277	17.296	17.314	17.333	940
300	4.863	4.882	4.900	4.918	4.937	4.955	4.973	4.992	5.010	5.028	5.047	300	950	17.333	17.352	17.370	17.389	17.407	17.426	17.444	17.463	17.482	17.500	17.519	950
310	5.047	5.065	5.083	5.102	5.120	5.139	5.157	5.175	5.194	5.212	5.231	310	960	17.519	17.537	17.556	17.574	17.593	17.611	17.630	17.648	17.667	17.686	17.704	960
320	5.231	5.249	5.268	5.286	5.305	5.323	5.342	5.360	5.379	5.397	5.416	320	970	17.704	17.723	17.741	17.760	17.778	17.796	17.815	17.833	17.852	17.870	17.889	970
330	5.416	5.434	5.453	5.471	5.490	5.508	5.527	5.546	5.564	5.583	5.601	330	980	17.889	17.907	17.926	17.944	17.963	17.981	17.999	18.018	18.036	18.055	18.073	980
340	5.601	5.620	5.639	5.657	5.676	5.695	5.713	5.732	5.751	5.769	5.788	340	990	18.073	18.092	18.110	18.128	18.147	18.165	18.184	18.202	18.220	18.239	18.257	990
350	5.788	5.807	5.825	5.844	5.863	5.882	5.900	5.919	5.938	5.956	5.975	350	1000	18.257	18.275	18.294	18.312	18.330	18.349	18.367	18.385	18.404	18.422	18.440	1000
360	5.975	5.994	6.013	6.032	6.050	6.069	6.088	6.107	6.126	6.144	6.163	360	1010	18.440	18.459	18.477	18.495	18.513	18.532	18.550	18.568	18.587	18.605	18.623	1010
370	6.163	6.182	6.201	6.220	6.239	6.257	6.276	6.295	6.314	6.333	6.352	370	1020	18.623	18.641	18.660	18.678	18.696	18.714	18.732	18.751	18.769	18.787	18.805	1020
380	6.352	6.371	6.390	6.409	6.427	6.446	6.465	6.484	6.503	6.522	6.541	380	1030	18.805	18.824	18.842	18.860	18.878	18.896	18.914	18.933	18.951	18.969	18.987	1030
390	6.541	6.560	6.579	6.598	6.617	6.636	6.655	6.674	6.693	6.712	6.731	390	1040	18.987	19.005	19.023	19.041	19.060	19.078	19.096	19.114	19.132	19.150	19.168	1040
400	6.731	6.750	6.769	6.788	6.807	6.826	6.845	6.864	6.883	6.902	6.921	400	1050	19.168	19.186	19.204	19.223	19.241	19.259	19.277	19.295	19.313	19.331	19.349	1050
410	6.921	6.940	6.959	6.979	6.998	7.017	7.036	7.055	7.074	7.093	7.112	410	1060	19.349	19.367	19.385	19.403	19.421	19.439	19.457	19.475	19.493	19.511	19.529	1060
420	7.112	7.131	7.151	7.170	7.189	7.208	7.227	7.246	7.265	7.284	7.303	420	1070	19.529	19.547	19.565	19.583	19.601	19.619	19.637	19.655	19.673	19.691	19.709	1070
430	7.304	7.323	7.342	7.361	7.380	7.400	7.419	7.438	7.457	7.476	7.496	430	1080	19.709	19.727	19.744	19.762	19.780	19.798	19.816	19.834	19.852	19.870	19.888	1080
440	7.496	7.515	7.534	7.553	7.572	7.592	7.611	7.630	7.649	7.669	7.688	440	1090	19.888	19.905	19.923	19.941	19.959	19.977	19.995	20.013	20.030	20.04		

To print, right click or press ctrl + P

TYPE - C THERMOCOUPLE, ITS-90 TABLE

Thermoelectric Voltage in Millivolts

°C	0	1	2	3	4	5	6	7	8	9	10	°C
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
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	28.383	1600
1610	28.383	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	30.055	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	30.322	30.336	30.350	30.364	30.378	30.392	1740
1750	30.392	30.406	30.420	30.434	30.448	30.462	30.476	30.490	30.504	30.518	30.532	1750
1760	30.532	30.546	30.560	30.574	30.588	30.602	30.616	30.630	30.644	30.658	30.672	1760
1770	30.672	30.686	30.700	30.714	30.728	30.742	30.756	30.770	30.784	30.798	30.812	1770
1780	30.812	30.826	30.840	30.854	30.868	30.882	30.896	30.910	30.924	30.938	30.952	1780
1790	30.952	30.966	30.980	30.994	31.008	31.022	31.036	31.050	31.064	31.078	31.092	1790
1800	31.092	31.106	31.120	31.134	31.148	31.162	31.176	31.190	31.204	31.218	31.232	1800
1810	31.232	31.246	31.260	31.274	31.288	31.302	31.316	31.330	31.344	31.358	31.372	1810
1820	31.372	31.386	31.400	31.414	31.428	31.442	31.456	31.470	31.484	31.498	31.512	1820
1830	31.512	31.526	31.540	31.554	31.568	31.582	31.596	31.610	31.624	31.638	31.652	1830
1840	31.652	31.666	31.680	31.694	31.708	31.722	31.736	31.750	31.764	31.778	31.792	1840
1850	31.792	31.806	31.820	31.834	31.848	31.862	31.876	31.890	31.904	31.918	31.932	1850
1860	31.932	31.946	31.960	31.974	31.988	31.999	32.013	32.027	32.041	32.055	32.069	1860
1870	32.069	32.083	32.097	32.111	32.125	32.139	32.153	32.167	32.181	32.195	32.209	1870
1880	32.209	32.223	32.237	32.251	32.265	32.279	32.293	32.307	32.321	32.335	32.349	1880
1890	32.349	32.363	32.377	32.391	32.405	32.419	32.433	32.447	32.461	32.475	32.489	1890
1900	32.489	32.503	32.517	32.531	32.545	32.559	32.573	32.587	32.601	32.615	32.629	1900
1910	32.629	32.643	32.657	32.671	32.685	32.699	32.713	32.727	32.741	32.755	32.769	1910
1920	32.769	32.783	32.797	32.811	32.825	32.839	32.853	32.867	32.881	32.895	32.909	1920
1930	32.909	32.923	32.937	32.951	32.965	32.979	32.993	33.007	33.021	33.035	33.049	1930
1940	33.049	33.063	33.077	33.091	33.105	33.119	33.133	33.147	33.161	33.175	33.189	1940

°C	0	1	2	3	4	5	6	7	8	9	10	°C
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
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	34.154	34.166	34.178	34.190	34.202	34.214	34.226	34.238	34.250	34.262	2040
2050	34.262	34.274	34.286	34.298	34.310	34.322	34.334	34.346	34.358	34.370	34.382	2050
2060	34.382	34.394	34.406	34.418	34.430	34.442	34.454	34.466	34.478	34.490	34.502	2060
2070	34.502	34.514	34.526	34.538	34.550	34.562	34.574	34.586	34.598	34.610	34.622	2070
2080	34.610	34.622	34.634	34.646	34.658	34.670	34.682	34.694	34.706	34.718	34.730	2080
2090	34.722	34.734	34.746	34.758	34.770	34.782	34.794	34.806	34.818	34.830	34.842	2090
2100	34.830	34.842	34.854	34.866	34.878	34.890	34.902	34.914	34.926	34.938	34.950	2100
2110	34.950	34.962	34.974	34.986	34.998	35.010	35.022	35.034	35.046	35.058	35.070	2110
2120	35.070	35.082	35.094	35.106	35.118	35.130	35.142	35.154	35.166	35.178	35.190	2120
2130												