

MAXIMUM TEMPERATURE RANGE

Thermocouple Grade

-32 to 4208°F

-0 to 2320°C

Extension Grade

32 to 1600°F

0 to 870°C

LIMITS OF ERROR

(whichever is greater)

Standard: 4.5°C to 425°C

1.0% to 2320°C

Special: Not Established

COMMENTS, BARE WIRE ENVIRONMENT:

Vacuum, Inert; Hydrogen; Beware of Embrittlement; Not Practical Below 750°F;

Not for Oxidizing Atmosphere

TEMPERATURE IN DEGREES °F

REFERENCE JUNCTION AT 32°F

°F

Tungsten-5% Rhenium

vs.

Tungsten-26% Rhenium



IEC color code

ANSI color code

Revised Thermocouple Reference Tables

TYPE
Reference Tables
ANSI/ASTM E-230

C

Thermoelectric Voltage in Millivolts

°F	0	1	2	3	4	5	6	7	8	9	10	°F	1500	1510	1520	1530	1540	1550	1560	1570	1580	1590	1600	1610	1620	1630	1640	1650	1660	1670	1680	1690	1700	1710	1720	1730	1740	1750	1760	1770	1780	1790	1800	1810	1820	1830	1840	1850	1860	1870	1880	1890	1900	1910	1920	1930	1940	1950	1960	1970	1980	1990																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																						
1000	9.393	9.404	9.414	9.425	9.436	9.447	9.458	9.469	9.480	9.490	9.501	1000	14.792	14.803	14.814	14.824	14.835	14.846	14.856	14.867	14.878	14.888	14.889	1500	14.899	14.910	14.920	14.931	14.941	14.952	14.963	14.973	14.984	14.995	15.005	1510	15.005	15.016	15.027	15.037	15.048	15.058	15.069	15.080	15.090	15.101	15.112	1520	15.112	15.122	15.133	15.143	15.154	15.165	15.175	15.186	15.196	15.207	15.218	1530	15.218	15.228	15.239	15.250	15.260	15.271	15.281	15.292	15.303	15.313	15.324	1540	15.324	15.334	15.345	15.356	15.366	15.377	15.387	15.398	15.408	15.419	15.430	1550	15.430	15.440	15.451	15.461	15.472	15.483	15.493	15.504	15.514	15.525	15.535	1560	15.535	15.546	15.557	15.567	15.578	15.588	15.599	15.609	15.620	15.631	15.641	1570	15.641	15.652	15.662	15.673	15.683	15.694	15.704	15.715	15.726	15.736	15.747	1580	15.747	15.757	15.768	15.778	15.789	15.799	15.810	15.821	15.831	15.842	15.852	1590	15.852	15.863	15.873	15.884	15.894	15.905	15.915	15.926	15.936	15.947	15.957	1600	15.957	15.968	15.979	15.989	16.000	16.010	16.021	16.031	16.042	16.052	16.063	1610	16.063	16.073	16.084	16.094	16.105	16.115	16.126	16.136	16.147	16.157	16.168	1620	16.168	16.178	16.189	16.199	16.210	16.220	16.231	16.241	16.252	16.262	16.273	1630	16.273	16.283	16.294	16.304	16.315	16.325	16.336	16.346	16.357	16.367	16.377	1640	16.377	16.388	16.398	16.409	16.419	16.430	16.440	16.451	16.461	16.472	16.482	1650	16.482	16.493	16.503	16.514	16.524	16.534	16.545	16.555	16.566	16.576	16.587	1660	16.587	16.597	16.608	16.618	16.628	16.639	16.649	16.660	16.670	16.681	16.691	1670	16.691	16.702	16.712	16.722	16.733	16.743	16.754	16.764	16.775	16.785	16.795	1680	16.795	16.806	16.816	16.827	16.837	16.847	16.858	16.868	16.879	16.889	16.899	1690	16.899	16.910	16.920	16.931	16.941	16.952	16.962	16.972	16.983	16.993	17.003	1700	17.003	17.014	17.024	17.035	17.045	17.055	17.066	17.076	17.087	17.097	17.107	1710	17.107	17.118	17.128	17.138	17.149	17.159	17.170	17.180	17.190	17.201	17.211	1720	17.211	17.221	17.232	17.242	17.252	17.263	17.273	17.284	17.294	17.304	17.315	1730	17.315	17.325	17.335	17.346	17.356	17.366	17.377	17.387	17.397	17.408	17.418	1740	17.418	17.428	17.439	17.449	17.459	17.470	17.480	17.490	17.501	17.511	17.521	1750	17.521	17.532	17.542	17.552	17.563	17.573	17.583	17.593	17.604	17.614	17.624	1760	17.624	17.635	17.645	17.655	17.666	17.676	17.686	17.696	17.707	17.717	17.727	1770	17.727	17.738	17.748	17.758	17.768	17.779	17.789	17.799	17.810	17.820	17.830	1780	17.830	17.840	17.851	17.861	17.871	17.881	17.892	17.902	17.912	17.922	17.933	1790	17.933	17.943	17.953	17.964	17.974	17.984	17.994	18.005	18.015	18.025	18.035	1800	18.035	18.045	18.056	18.066	18.076	18.086	18.097	18.107	18.117	18.127	18.138	1810	18.138	18.148	18.158	18.168	18.178	18.189	18.199	18.209	18.219	18.230	18.240	1820	18.240	18.250	18.260	18.270	18.281	18.291	18.301	18.311	18.321	18.332	18.342	1830	18.342	18.352	18.362	18.372	18.383	18.393	18.403	18.413	18.423	18.433	18.444	1840	18.444	18.454	18.464	18.474	18.484	18.495	18.505	18.515	18.525	18.535	18.545	1850	18.545	18.556	18.566	18.576	18.586	18.596	18.606	18.616	18.627	18.637	18.647	1860	18.647	18.657	18.667	18.677	18.687	18.698	18.708	18.718	18.728	18.738	18.748	1870	18.748	18.758	18.769	18.779	18.789	18.799	18.809	18.819	18.829	18.839	18.849	1880	18.849	18.860	18.870	18.880	18.890	18.900	18.910	18.920	18.930	18.940	18.951	1890	18.951	18.961	18.971	18.981	18.991	19.001	19.011	19.021	19.031	19.041	19.051	1900	19.051	19.062	19.072	19.082	19.092	19.102	19.112	19.122	19.132	19.142	19.152	1910	19.152	19.162	19.172	19.182	19.192	19.202	19.212	19.223	19.233	19.243	19.253	1920	19.253	19.263	19.273	19.283	19.293	19.303	19.313	19.323	19.333	19.343	19.353	1930	19.353	19.363	19.373	19.383	19.393	19.403	19.413	19.423	19.433	19.443	19.453	1940	19.453	19.463	19.473	19.483	19.493	19.503	19.513	19.523	19.533	19.543	19.553	1950	19.553	19.563	19.573	19.583	19.593	19.603	19.613	19.623	19.633	19.643	19.653	1960	19.653	19.663	19.673	19.683	19.693	19.703	19.713	19.723	19.733	19.743	19.753	1970	19.753	19.763	19.773	19.783	19.793	19.803	19.813	19.823	19.833	19.842	19.852	1980	19.852	19.862	19.872	19.882	19.892	19.902	19.912	19.922	19.932	19.942	19.952	1990

MAXIMUM TEMPERATURE RANGE

Thermocouple Grade

-32 to 4208°F

-0 to 2320°C

Extension Grade

32 to 1600°F

0 to 870°C

LIMITS OF ERROR

(whichever is greater)

Standard: 4.5°C to 425°C

1.0% to 2320°C

Special: Not Established

COMMENTS, BARE WIRE ENVIRONMENT:

Vacuum, Inert; Hydrogen; Beware of Embrittlement; Not Practical Below 750°F;

Not for Oxidizing Atmosphere

TEMPERATURE IN DEGREES °F

REFERENCE JUNCTION AT 32°F

°F

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



IEC color code

ANSI color code

Revised Thermocouple Reference Tables

TYPE C

Reference Tables ANSI/ASTM E-230

Thermoelectric Voltage in Millivolts

Table with 11 columns (°F 0-10 °F) and multiple rows of thermoelectric voltage data for Type C thermocouples.

Table with 11 columns (°F 0-10 °F) and multiple rows of thermoelectric voltage data for Type C thermocouples.

°F 0 1 2 3 4 5 6 7 8 9 10 °F

°F 0 1 2 3 4 5 6 7 8 9 10 °F

Revised Thermocouple Reference Tables

TYPE

Reference Tables
ANSI/ASTM
E-230

C

ANSI color code

IEC color code



Extension Grade

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

MAXIMUM TEMPERATURE RANGE

Thermocouple Grade

-32 to 4208°F

-0 to 2320°C

Extension Grade

32 to 1600°F

0 to 870°C

LIMITS OF ERROR

(whichever is greater)

Standard: 4.5°C to 425°C

1.0% to 2320°C

Special: Not Established

COMMENTS, BARE WIRE ENVIRONMENT:

Vacuum, Inert; Hydrogen; Beware of

Embrittlement; Not Practical Below 750°F;

Not for Oxidizing Atmosphere

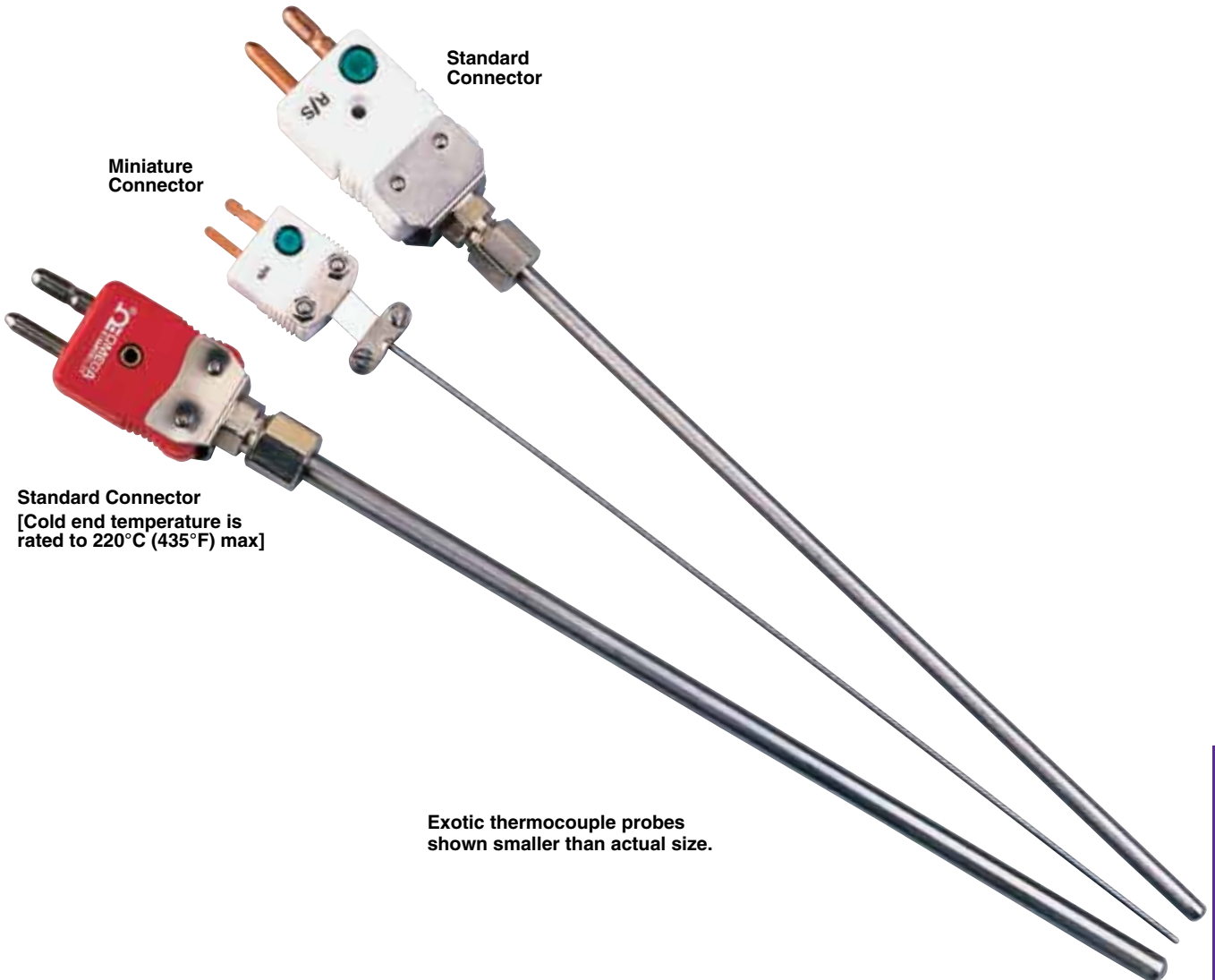
TEMPERATURE IN DEGREES °F

REFERENCE JUNCTION AT 32°F

Thermoelectric Voltage in Millivolts

°F	0	1	2	3	4	5	6	7	8	9	10	°F
4000	35.987	35.993	35.998	36.004	36.010	36.016	36.021	36.027	36.033	36.039	36.044	4000
4010	36.044	36.050	36.056	36.062	36.067	36.073	36.079	36.084	36.090	36.096	36.102	4010
4020	36.102	36.107	36.113	36.119	36.124	36.130	36.136	36.142	36.147	36.153	36.159	4020
4030	36.159	36.164	36.170	36.176	36.181	36.187	36.193	36.198	36.204	36.210	36.215	4030
4040	36.215	36.221	36.226	36.232	36.238	36.243	36.249	36.255	36.260	36.266	36.271	4040
4050	36.271	36.277	36.283	36.288	36.294	36.300	36.305	36.311	36.316	36.322	36.327	4050
4060	36.327	36.333	36.339	36.344	36.350	36.355	36.361	36.366	36.372	36.378	36.383	4060
4070	36.383	36.389	36.394	36.400	36.405	36.411	36.416	36.422	36.427	36.433	36.438	4070
4080	36.438	36.444	36.449	36.455	36.460	36.466	36.471	36.477	36.482	36.488	36.493	4080
4090	36.493	36.499	36.504	36.510	36.515	36.521	36.526	36.532	36.537	36.543	36.548	4090
°F	0	1	2	3	4	5	6	7	8	9	10	°F

°F	0	1	2	3	4	5	6	7	8	9	10	°F
4100	36.548	36.553	36.559	36.564	36.570	36.575	36.581	36.586	36.591	36.597	36.602	4100
4110	36.602	36.608	36.613	36.619	36.624	36.629	36.635	36.640	36.645	36.651	36.656	4110
4120	36.656	36.662	36.667	36.672	36.678	36.683	36.688	36.694	36.699	36.704	36.710	4120
4130	36.710	36.715	36.721	36.726	36.731	36.737	36.742	36.747	36.752	36.758	36.763	4130
4140	36.763	36.768	36.774	36.779	36.784	36.790	36.795	36.800	36.805	36.811	36.816	4140
4150	36.816	36.821	36.826	36.832	36.837	36.842	36.848	36.853	36.858	36.863	36.868	4150
4160	36.868	36.874	36.879	36.884	36.889	36.895	36.900	36.905	36.910	36.915	36.921	4160
4170	36.921	36.926	36.931	36.936	36.941	36.947	36.952	36.957	36.962	36.967	36.972	4170
4180	36.972	36.978	36.983	36.988	36.993	36.998	37.003	37.008	37.014	37.019	37.024	4180
4190	37.024	37.029	37.034	37.039	37.044	37.049	37.055	37.060	37.065	37.070	37.075	4190
4200	37.075											4200
°F	0	1	2	3	4	5	6	7	8	9	10	°F



Exotic thermocouple probes shown smaller than actual size.