

THERMOCOUPLE WIRE SIZES, RESISTANCES, AND WEIGHTS

NOMINAL RESISTANCE AND WEIGHTS

BARE THERMOCOUPLE WIRE AND EXTENSION WIRE CONDUCTORS BASED ON OHMS PER FOOT AT 70°F

GAUGE	8		14		16		20		24		28		30		38	
B & S DIAMETER	.128		.064		.051		.032		.020		.012		.010		.004	
CONDUCTOR	RES.	FT.	RES.	FT.	RES.	FT.	RES.	FT.	RES.	FT.	RES.	FT.	RES.	FT.	RES.	FT.
Copper	.0006	20	.003	80	.004	127	.010	322	.026	816	.065	2076	.103	3296	.659	20970
Iron	.004	22	.015	91	.003	145	.059	365	.149	926	.376	2356	.598	3741	3.83	23740
Constantan	.018	20	.072	81	.114	128	.291	324	.725	821	1.85	2090	2.94	3318	18.7	21110
Chromel	.026	20	.104	82	.165	130	.415	329	1.05	834	2.70	2121	4.03	3368	27.04	21430
Alumel	.011	20	.043	83	.069	132	.113	334	.438	846	1.11	2153	1.76	3419	11.26	21750
#11 Alloy	.002	20	.007	80	.010	125	.027	322	.070	815	.175	2075	.275	3295	--	20955
Platinum	.004	.56	.016	2.22	.025	3.71	.066	9.17	.166	23.5	--	65.2	.633	93.9	4.15	587
Plat. - 6%	--	.58	--	2.31	--	3.85	--	9.54	--	24.4	--	67.8	--	97.6	--	610
Plat. - 10%	.007	.60	.028	2.37	.044	3.97	.119	9.82	.298	25.2	--	69.8	1.19	100.5	7.45	628
Plat. - 13%	.008	.61	.031	2.43	.049	4.06	.124	10.0	.312	25.7	--	71.4	1.25	102.8	7.80	642
Plat. - 30%	--	.68	--	2.70	--	4.51	--	11.2	--	28.6	--	79.1	--	114.3	--	715

NOTE: All footages stated are in pound units except platinum calibrations which are in troy ounce units

GAUGE CONSTRUCTION CIRCULAR MILS	14 16/26*	16 7/24	17 19/30	20 7/28
	4006	2828	1911	1119
CALIBRATION	RES.	RES.	RES.	RES.
Copper	.003	.004	.005	.009
Iron	.015	.021	.031	.054
Constantan	.073	.104	.165	.263
Chromel	.105	.150	.222	.380
Alumel	.004	.063	.094	.158

THERMOCOUPLE WIRE SIZE AND RESISTANCE TABLE RESISTANCE IN OHMS PER DOUBLE FOOT AT 68°F.

AWG NO.	DIAMETER (inches)	TYPE K Chromel / Alumel	TYPE J Iron / Constantan	TYPE T Copper / Constantan	TYPE E Chromel / Constantan	TYPE S Pt / Pt 10% Rh	TYPE R Pt / Pt 13% Rh	TYPE C* W5% Re / W26% Re	TYPE G* W / W26% Re	TYPE D* W3% Re / W25% Re
6	0.162	0.023	0.014	0.012	0.027	0.007	0.007	0.009	0.008	0.009
8	0.128	0.037	0.022	0.019	0.044	0.011	0.011	0.015	0.012	0.015
10	0.102	0.058	0.034	0.029	0.069	0.018	0.018	0.023	0.020	0.022
12	0.081	0.091	0.054	0.046	0.109	0.028	0.029	0.037	0.031	0.035
14	0.064	0.146	0.087	0.074	0.175	0.045	0.047	0.058	0.049	0.055
16	0.051	0.230	0.137	0.117	0.276	0.071	0.073	0.092	0.078	0.083
18	0.040	0.374	0.222	0.190	0.448	0.116	0.119	0.148	0.126	0.138
20	0.032	0.586	0.357	0.298	0.707	0.185	0.190	0.235	0.200	0.220
24	0.0201	1.490	0.878	0.7526	1.78	0.464	0.478	0.594	0.560	0.560
26	0.0159	2.381	1.405	1.204	2.836	0.740	0.760	0.945	0.803	0.890
30	0.0100	5.984	3.551	3.043	7.169	1.85	1.91	2.38	2.03	2.26
32	0.0080	9.524	5.599	4.758	11.31	1.96	3.04	3.8	3.22	3.60
34	0.0063	15.17	8.946	7.66	18.09	4.66	4.82	6.04	5.10	5.70
36	0.0050	24.08	14.20	12.17	28.76	7.40	7.64	9.6	8.16	9.10
38	0.0039	38.20	23.35	19.99	45.41	11.6	11.95	15.3	12.9	15.3
40	0.00315	60.88	37.01	31.64	73.57	18.6	19.3	24.4	20.6	23.0
44	0.0020	149.6	88.78	76.09	179.2	74.0	76.5	60.2	51.1	56.9
50	0.0010	598.4	355.1	304.3	716.9	185	191	240	204	227
56	0.00049	2408	1420	1217	2876	740	740	1000	850	945

BASE METAL THERMOCOUPLE WIRE FT. / LB.

ANSI CODE	WIRE TYPE	ELEMENT POLARITY	AWG	WIRE FT. / LB
JP	Iron	Positive (+)	8	22.8
			14	91.2
			20	365.0
			24	925.0
			28	2353.0
			30	3767.0
JN	Constantan	Negative (-)	8	20.2
			14	80.9
			20	324.0
			24	821.0
			28	2089.0
			30	3316.0
KP	Chromel	Positive (+)	8	21
			14	83
			20	331
			24	838
			28	2089
			30	3316
KN	Alumel	Negative (-)	8	21
			14	83
			20	331
			24	838
			28	2130
			30	3370
EP	Chromel	Positive (+)	20	328
			24	833
			30	3364
EN	Constantan	Negative (-)	20	324
			24	821
			30	3316
TP	Copper	Positive (+)	20	324
			24	820
			30	3294
TN	Constantan	Negative (-)	20	324
			24	821
			30	3316

HIGH TEMPERATURE THERMOCOUPLE WIRE

ANSI CODE	CODE TYPE	ELEMENT POLARITY	AWG	WIRE IN / T. OZ
SP	Pt-10% Rh	Positive (+)	16	46.4
			20	118.0
			24	302.2
			26	480.0
			28	715.2
SN	Pt	Negative (-)	16	43.3
			20	110.0
			24	281.6
			26	432.0
			28	666.6
RP	Pt-13% Rh	Positive (+)	16	47.4
			20	120.4
			24	308.3
			26	468.0
			28	729.8
RN	Pt	Negative (-)	16	43.3
			20	110.0
			24	281.6
			26	432.0
			28	666.6
BP	Pt-30% Rh	Positive (+)	16	52.7
			20	134.0
			24	343.1
			28	812.3
BN	Pt-6% Rh	Negative (-)	16	45.2
			20	114.8
			24	394.0
			28	695.8
CP	Tungsten 5% Rhenium	Positive (+)	24	308.7
CN	Tungsten 26% Rhenium	Negative (-)	24	304.3

Pt = Platinum
Rh = Rhodium