

WIRE MATERIALS GUIDE

for materials
commonly found
in welded lead-in
wires.

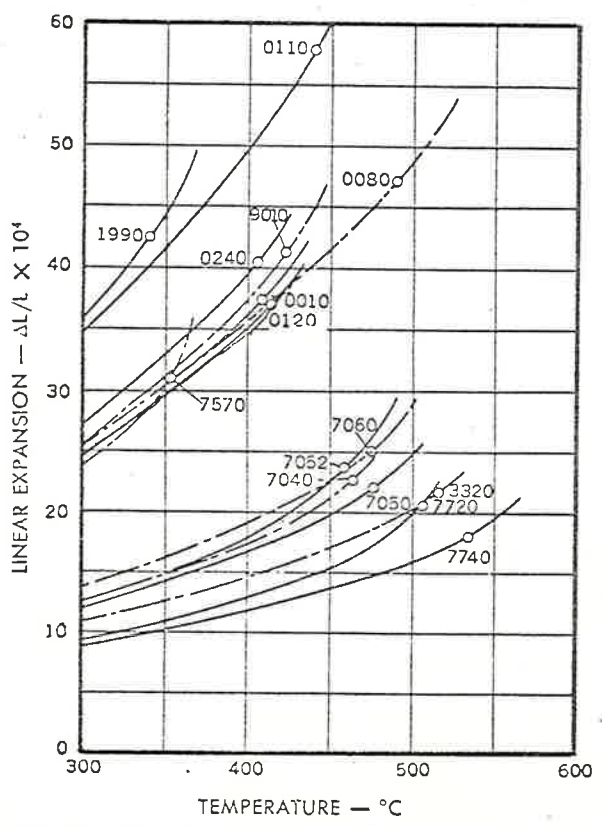
GTE SYLVANIA
INCORPORATED

PARTS DIVISION
BANGOR WELD PLANT

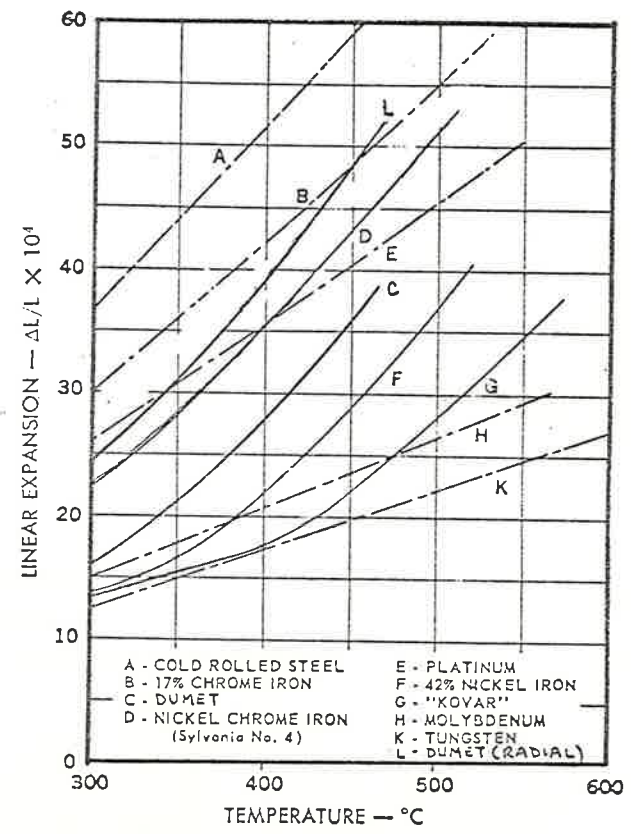
Material	Tensile Strength, PSI		Yield Strength, PSI Annealed	% Elong. in 2" Annealed	Specific Gravity g/cm ³	Thermal Conductivity cal/sec./sq.cm/cm ² /°C	Resistivity Microhm cm	Coeff. of Linear Thermal Expansion u/4°C x 10 ⁻⁶ 20°C - 400°C		% Ni	% Fe	% Cr	% Mn	% Cu	% C	% Si	% S	% Other
	Annealed	Hard						u/4°C	u/4°C									
#42 Alloy	70,000 Min.	120-160,000	50,000 Min.	35	8.12	.038	64.8	6.3-6.9	41-43	Bal			.75-1.25		.15 Max	.30 Max	.020 Max	.02 Max P
#52 Alloy	70,000 Min.	120-160,000	50,000 Min.	35	8.25	.0286	43.3	9.8	51	Bal								
Copper (Oxygen free)	30-40,000	55- 65,000	20,000 Max.	25*	8.94	.93	1.73	16.6										99.95
Copper (Nickel Plated 4% by Weight)	35-45,000	55- 65,000	20,000 Max.	25*	8.93	-	-	-										
Dumet (42% Ni-19% Cu Clad) (Copper Alloy 122)	70-85,000	120-160,000	40-60,000	16*	8.3	.04	9.6	6.3-6.9 Axial 8.3-9.0 Radial	41-43	Bal			.75-1.25		.15 Max	.30 Max	.020 Max	.02 Max P
Dumet (42% Ni-22% Cu Clad) (Copper Alloy 102)	70-85,000	120-160,000	40-60,000	16*	8.4	.04	9.6	6.3-6.9 axial 8.5-9.5 radial	41-43	Bal			.75-1.25		.15 Max	.30 Max	.020 Max	.02 Max P
Dumet (46% Ni-22% Cu Clad) (Copper Alloy 122)	70-85,000	120-160,000	40-60,000	16*	8.3	.04	9.6	7.4-8.0 axial 9.2-9.9 radial	45.2-46.8									
Evanohm	100,000	200,000	65,000	35	8.1	.020	134	14	75		20		2.5					2.5 Al
Everdur 1010 (Alloy 655)	60,000 Min.	145,000	30,000 Max.	60	8.53	.09	24.6	18.6					97		3 Nom			
Kulgrid (28% Ni Clad) (Nickel 200) (Cu Alloy 102)	40-55,000	65-85,000	15,000-50,000	10-40*	8.89	-	2.2	13.1	28% (Nickel Clad)				99.22 Min**					
Molybdenum	80,000	200,000	-	-	10.2	.34	5.3	5.5										
Platinum Clad (25%) Molybdenum	75,000	150,000	-	-	10.97	-	-	-										25% Pt, 75% Mo
Monel	70-110,000	130-210,000	30,000-65,000	25-45*	8.84	.062 (0-100°C)	48.2	12.5	63-70	2.50 Max			2.00 Max	Bal	.30 Max	.50 Max	.024 Max	.50 Al
Nickel 205	60-95,000	115-160,000	20,000-60,000	15-50	8.89	.145 (0-100°C)	10	13	99.0 Min	.40 Max			.35 Max	.25 Max	.15 Max	.35 Max	.01 Max	
Nickel 211	60-110,000	125-175,000	25,000-75,000	10-50	8.78	-	18.3	13.3	93.7 Min	.75 Max			4.25-5.25	.25 Max	.20 Max	.15 Max	.015 Max	
Rodar/Kovar	65,000	150,000	50,000	30	8.36	.05	48.9	4.6-5.2	28.5-29.5	Bal								16.5-17.5 Co
Steel 1006	60,000	160,000	40,000	30	7.86	.108	9.71	12.1		Bal			.35 Max		.08 Max	.05		.04P
Copper Clad Steel (30% Conductivity)	60,000	120,000	40,000	30	8.1	-	5.9	-		Bal			.50 Max	28.0	.06 Max	.05 Max		.04P
Copper Clad Steel (40% Conductivity)	45-65,000	85-120,000	30,000-45,000	30	8.2	-	4.4	-		Bal			.30-.50	35.0	.06 Max	.05 Max		.04 Max P
Copper Clad Steel (70% Conductivity)	40-60,000	120,000 Max	25,000-40,000	20*	8.6	-	-	-		Bal			.5 Max	70.0	.06 Max	.05 Max		.04 Max P
Nickel Plated Steel	50-65,000	100-130,000	30,000-45,000	30	7.93	.18	12.6	12.1		Bal			.35 Max		.06 Max	.05 Max		.04 Max P
Stainless Steel 305	75-100,000	280-330,000	35,000-60,000	45	7.94	.039	73	9.6	10-13	Bal	17.0-19.0		2.00 Max		.12 Max	1.00 Max		
Stainless Steel 430	85-100,000	140-180,000	40,000-60,000	35	7.72	.26	60	5.0	.50 Max	Bal	14.0-18.0		1.00 Max		.12 Max	1.00 Max		
Tungsten	-	-	-	-	19.3	.36	5.5	4.4										
Zirconium Copper (Amzirc)	35-45,000	65-80,000	15-25,000	50	8.89	.876	1.86	18.0						Bal				.10-.20 Zr.

*Elongation in 10"
**72% Of Core

THERMAL EXPANSION OF COMMON GLASS AND METAL SEALING COMBINATIONS



Thermal expansion of sealing glasses. Circle denotes normal setting point. Zero expansion at 25°C. Corning glass numbers are indicated.



Thermal expansion of metals and alloys. Zero expansion at 25°C.



PRECISION MATERIALS GROUP / PARTS DIVISION / WARREN, PA. 16365

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