

PROPIEDADES DE LOS MATERIALES

	Material	Nominal Analysis	Tensile Propeties		Torsional Propeties		Maximum Temperature		2 Rockwell Hardness	Method of manufacture chief Uses Special properties
			Minimum Tensile Strength psi x 10 ³	Modulus of elasticity E psi x 10 ⁶	Design Stress 1 % Minimum Tensile	Modulus in Torsion G psi x 10 ⁶	°F	°C		
High carbon spring Wire	Music Wire ASTM A 228	C 70-1.00% Mn .20 - 60%	230 - 399	30	45	11.5	250	121	C41-60	Cold draw high and uniform tensile. High quality springd and wire forms.
	HARD Draw Astm A 227	C 45-85% Mn .60 - 1.30%	CLI 147 - 283 CLII 171-324	30	40	11.5	250	121	C31-52	Cold draw Average stress applications Lower cost springs and wire forms.
	Oil Tempered AS TM A 230	C 65-1.00% Mn .20 - 1.30%	238-350	30	45	11.5	250	121	C41-60	Cold draw Higher quality springs and wire forms.
	Oil Tempered AS TM A 229	C 55-85% Mn .60 - 1.20%	CLI 165 - 293 CLII 191-324	30	45	11.5	250	121	C42-55	Cold draw and heat treated before fabrications. Used for shock load and moderately elevate temperture.
	Carbon Valve ASTM A 230	C .60 - 75% Mn .60 - 90%	215-240	30	45	11.5	250	121	C45-49	Cold draw and heat treated before fabrications. Good surface condition and uniform tensile.
Alloy steel Wire	Chorme Vanadium ASTM A 231	C .48-.53% Cr .80 - 1.10% V 15-15 Min%	190-300	30	45	11.5	425	218.5	C41-55	Cold draw and heat treated before fabrications. Used for shock load and moderately elevate temperture.
	Chorme Silicon ASTM A 401	C .15-.59% Cr .60 - 80% Si 1.20-1.60%	235-300	30	45	11.5	475	246	C48-55	Cold draw and heat treated before fabrications. Used for shock load and moderately elevate temperture.
Stainless steel Wire	AISI 302/304 ASTM A313	C .17-.19% Ni .8 - 10%	125-325	28	30-40	10	550	288	C35-45	Cold draw general purpose corrosion and heat resistant. Magnetic in spring temper.
	AISI 316 ASTM A313	Cr .16-.18% Ni .10 - 14% Al 2 - 3%	110-245	28	40	10	550	288	C35-45	Cold draw heat resistant and better corrosion resistance than 302. Magnetic in spring temper.
	17-7 PH ASTM A313	Cr .16-.18% Ni 6.5 - 7.5% Al .75 - 1.5%	Cond CH 253-335	29.5	45	11	650	343	C38-57	Cold draw and precipitation hardened after fabrication. High strength and general purpose corrosion resistance Slightly magnetic in spring temper.
Non-Ferrous Alloy Wire	Phosphor Bronze Gade A ASTM B 159	Cu 94-.96% Sn 4 - 6%	105-145	15	40	6.25	200	93.3	B98-104	Cold draw Good corrosion resistance and electrical conductivity
	Beryllium Copper ASTM B 197	Cu 98% Be 2%	150-230	18.5	45	7.0	400	204	C35-42	Cold draw and may be will hardened before fabrication. Good corrosion resistance and electrical conductivity. High physicals.
	Monel 400 AMS 7233	Ni 66% Cu 31.5% C/Fe	145-180	26	40	9.5	450	232	C23-32	Cold draw Good corrosion resistance at moderately elevated temperature.
	Monel K 500 QQ-N-286	Ni 65.0% Cu 29.5% C/Fe/Al/Ti	160-200	26	40	9.5	550	288	C23-35	Excellent corrosion resistance at moderately elevated temperature.
High Temperature Alloy Wire	A 286 Alloy	Ni 26.0% Cr 15% Fe 53%	160-200	29	35	10.4	950	510	C35-42	Cold draw and precipitation hardened after fabrication. Good corrosion resistance at elavated temperature.
	Inconel 600 QQ-W-390 3	Ni 76% Cr 15.8% Fe 7.2%	170-230	31	40	11.0	700	371	C35-45	Cold draw. Good corrosion resistance at elevated temperature.
	Inconel 718	Ni 52.5% Cr 18.6% Fe 18.5%	210-250	29	40	11.2	1100	593	C45-50	Cold draw and precipitation handened after fabrication. Good corrosion resistance at elaveted temperature.
	Inconel x 750 AMS 5698, 5699	Ni 73% Cr 15.5% Fe 6.75%	No. IT 155 Min. Seg. T 190-230	31	40	12	750-1100	399-593	C34-39 C42-48	Cold draw and precipitation handened after fabrication. Good corrosion resistance at elaveted temperature.



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