MURPHY & READ SPRING MANUFACTURING CO.
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Common Material Properties

Common Names

Carbon Steels	Specification	Uses	Maximum Operating Temperature F	Maximum Operating Temperature C	Corrosion Resistance	Electrical Cond. % IACS	Minimum Tensile Strength (KSI)
Music Wire	ASTM A228	Most common carbon spring wire	250	120	Poor	7	230 - 399
Hard Drawn	ASTM A227	Used where economy is important / volume high	250	120	Poor	7	147 - 283
Oil Temper Wire	ASTM A229	More common in heavier springs	300	150	Poor	7	165 - 293
Alloy Steels							
Chrome Vanadium	ASTM A231	For shock loading applications	425	220	Poor	7	190 - 300
Chrome Silicon	ASTM A877	For high temperatures and high stress	475	245	Poor	5	235 - 300
Stainless Steels							
Type 302	ASTM A313 (302)	Most common spring temper stainless	500	260	Good	2	125 - 325
Type 316	ASTM A313 (316)	Higher corrosion resistance than 302	500	260	Better	2	110 - 245
17-7PH	ASTM A313 (631)	Higher tensile strength than 302 or 316	600	315	Good	2	235 - 335
Copper Based Alloys							
Phosphor Bronze	B159	Most common copper based alloy	200	93	Better	15	105 - 145
Beryllium Copper	B197	Higher tensile stength and conductivity	400	204	Better	21	150 - 230
Brass	B134	Lower cost and lower tensile strength	200	93	Good	17	120
Nickel Base Alloys							
Inconel® 600	ASTM B166	Elevated temperature, corrosion resistance	640	340	Best	1.5	170 - 230
Inconel® X-750	AMS 5699	Highest Temperatures, corrosion resistance	1020	550	Best	1	190 - 230 (Spg T)
Monel® 400	ASTM B164	Excellent corrosion resistance	450	230	Best	3.5	145 - 180
Monel® K500	QQN-281 C1	Excellent corrosion resistance, High/Low temp	500	260	Best	3	160 - 200
Hastloy® C276	ASTM B574	Excellent corrosion resistance, High Temperature	750	400	Best	1	205 - 250

The information and data presented herein are typical or average values and are not guarantee of maximum or minimum values.