

Properties of Neyoro® G

The high gold content alloy for high precision applications. Neyoro G is a high gold content alloy containing platinum, silver and copper. It is resistant to tarnish and corrosion has high strength and hardness and relatively low electrical resistivity. These properties make it exceptionally useful as a sliding contact or slip ring and also as a resistance wire. Neyoro G responds to heat treatment. Age hardening increases its strength and hardness and decreases resistivity, while annealing has the opposite effect. Neyoro G meets ASTM Standard specification B541 for gold electrical contact alloy.

Properties of Neyoro G	Annealed	Stress-Relieved	HT-A (Age-Hardened from Annealed Cond.)	HT-CW (Age-Hardened from Work-Hardened Cond.)
Resistivity, nominal, ohm-cmf	135	125	87	87
microhm cm	22.4	20.8	14.5	14.5
Density, nominal grams/cc	15.9	15.9	15.9	15.9
Dwt./cu. in.	167.5	167.5	167.5	167.5
Solidus Temperature,				
nominal, F	1700	1700	1700	1700
C	925	925	925	925
Coefficient Of Linear Expansion Nominal				
/F (70 - 212F)	7x10 ⁻⁶	7x10 ⁻⁶	7x10 ⁻⁶	7x10 ⁻⁶
/C (20 - 100C)	12.6x10 ⁻⁶	12.6x10 ⁻⁶	12.6x10 ⁻⁶	12.6x10 ⁻⁶
Thermal emf vs. Platinum, (0 - 100C), uv/C nominal	3	4	4	4
Fatigue strength (rotating - bending) at 10(8) cycles, psi	-	35,000	-	30,000
Modulus of Elasticity, psi, nominal	16x10 ⁶	16x10 ⁶	16x10 ⁶	16x10 ⁶
Wire Properties				
Proportional Limit, psi, nominal	70,000	120,000	115,000	130,000
Ultimate Tensile Strength, psi				
.004 - .020 dia.	85,000-110,000*	130,000-170,000*	130,000-165,000*	150,000-200,000*
.021 - .080 dia.	80,000-110,000*	130,000-170,000*	130,000-165,000*	145,000-195,000*
Elongation, % in 2"				
.004 - .020 dia.	20 min.	5-15*	7-14*	2-10*
.021 - .080 dia.	16 min.	4-14*	5-14*;	2-10*
Knoop Hardness,** (100-gram load) (50-gram under .005 dia.)				
.004 - .020 dia.	180-240*	270-340*	280-350*	310-380*
.021 - .080 dia.	180-240*	270-340*	270-340*	290-370*
Properties of Neyoro G	Annealed	Stress-Relieved	HT-A (Age-Hardened from Annealed Cond.)	HT-CW (Age-Hardened from Work-Hardened Cond.)
Vickers Hardness,+ (100-gram load) (50-gram under .005 dia.)				
.004 - .020 dia.	180-250*	270-340*	285-360*	290-370*
.021 - .080 dia. Headed	180-250*	270-340*	285-360*	290-370*
Strip, Ribbon and Rolled Shape Properties				
Proportional Limit, psi, nominal	65,000	-	115,000	130,000
Ultimate Tensile Strength, psi				
Strip .003 - .020 thick	85,000-115,000	125,000-165,000	125,000-155,000	140,000-180,000
Elongation, % in 2**				
Strip .003 - .020 thick	12 min.	3-16*	3-12*	2-10*
Ribbon (rolled from wire)	20 min.	-	3-12*	2-10*
Knoop Hardness (100-gram load) (50-gram under .005 thick)				
.003 - .020 thick	200-250*	270-340*	270-340*	290-370*
Vickers Hardness (100-gram load) (50-gram under .005 thick)				
.003 - .020 thick	180-250*	270-340*	275-340*	290-370*

* The limits of all properties apply only to the sizes specified.

**The values shown are for raw material produced by nominal processes. In fabricating of certain parts, an additional solution anneal is necessary to relieve forming and bending stresses. This additional batch anneal will result in tensile strengths 10,000 psi lower than stated and hardness 10 numbers lower than those stated.

+Forming or bending is not recommended for this "temper" of alloy.

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