



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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For More Information

[Contact Us to discuss your application with one of our Materials Specialists.](#)