

ELECTROLESS NICKEL TECHNICAL DATA

ENGINEERED SOLUTIONS IN SURFACE FINISHING



| Property | Low-Phosphorus | Mid-Phosphorus | High-Phosphorus |
|---|------------------------------------|---------------------------------------|---------------------------------------|
| COMPOSITION | 3 TO 4% P, BALANCE NI | 6 TO 9% P, BALANCE NI | 11 TO 12% P, BALANCE NI |
| STRUCTURE | MICRO- CRYSTALLINE | MIXED CRYSTALLINE AND AMORPHOUS | AMORPHOUS |
| INTERNAL STRESS | -10 MPA | +40 MPA | -20 MPA |
| FINAL MELTING POINT | 1275° C | 1000° C | 880° C |
| DENSITY | 8.6 G/CM ³ | 8.1 G/CM ³ | 7.8 G/CM ³ |
| COEFFICIENT OF THERMAL EXPANSION | 12.4 K ⁻¹ | 13 K ⁻¹ | 12.0 K ⁻¹ |
| ELECTRICAL RESISTIVITY | 30 μΩ-cm | 65 μΩ-cm | 100 μΩ-cm |
| THERMAL CONDUCTIVITY | 0.6 W/CM•K | 0.05 W/CM•K | 0.08 W/CM•K |
| SPECIFIC HEAT | 1,000 J/KG•K | ND | 460 J/KG•K |
| MAGNETIC COERCIVITY | 10,000 A/M | 110 A/M | 0 |
| TENSILE STRENGTH | 300 MPA | 900 MPA | 800 MPA |
| DUCTILITY | 0.70% | 0.70% | 1.50% |
| MODULUS OF ELASTICITY | 130 GPA | 100-120 GPA | 170 GPA |
| HARDNESS, AS DEPOSITED | 700 HVI00 | 600 HVI00 | 530 HVI00 |
| HARDNESS, HEAT TREATED | 960 HVI00 | 1000 HVI00 | 1050 HVI00 |
| COEFFICIENT OF FRICTION | ND | 0.38 | 0.45 |
| TABER WEAR INDEX, AS DEPOSITED | 11 MG/1,000 CYCLES | 16 MG/1,000 CYCLES | 19 MG/1,000 CYCLES |
| TABER WEAR INDEX, HEAT TREATED | 9 MG/1,000 CYCLES | 12 MG/1,000 CYCLES | 12 MG/1,000 CYCLES |
| CORROSION PROTECTION, SALT FOG RESISTANCE | 10-24 HOURS THICKNESS DEPENDENT | 10 - 192 HOURS THICKNESS DEPENDENT | 10 -1000 HOURS THICKNESS DEPENDENT |

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