



Electroless Nickel (ENP) is a deposit of Nickel-Phosphorous alloy applied by chemical reduction, without application of electric current on metallic and non-metallic substances. The deposited alloy contains between 2% to 13%, by weight of Phosphorous. The percentage of Phosphorous in the deposit determines the physical and mechanical characteristics of the coating.

FEATURES

ENP coatings offer the following features.

THICKNESS UNIFORMITY -: ENP offers absolute uniformity even on complexly shaped parts. The thickness uniformity can have a tolerance as low as 1-2 micron.

HARDNESS AND ABRASION RESISTANCE -: ENP gives excellent hardness and abrasion resistance. As, deposited, the medium and high Phosphorous coatings have a hardness of 450-600 HV. ENP deposits can be further hardened by heat treatment upto hardness values as high as 1050-1100 HV. The Taber Wear Index of as deposited ENP is as low as 15. Heat treated ENP deposits gives Taber Wear Index as low as 5-10. Low Phosphorous ENP deposits give higher hardness and better abrasion resistance.

CORROSION RESISTANCE -: High Phosphorous ENP gives excellent corrosion resistance. The corrosion resistance of high Phosphorous ENP (25 Micron thick) as measured by salt spray test (ASTM B 117) is greater than 100 hours.

ADHESION -: The adhesion of ENP to base metals depends upon the reactivity of the metal. ENP gives excellent adhesion with ferrous non-stainless alloys. For materials like aluminum, special pretreatment is required.

ENP COATINGS ON ACTUATOR PINIONS (PROPERTIES)

COATING THICKNESS-----	20 - 25 MICRONS
PHOSPHOROUS CONTENT (BY WEIGHT)-----	10 - 12%
HARDNESS (AS DEPOSITED)-----	475 - 600 HV (100 gms load).
SALT SPRAY TEST (ASTM B117)-----	100 Hrs.

