



## Electroless Nickel Plating

Electroless nickel plating is a unique plating process that does not require an external source of electrons for deposition as in traditional electrolytic plating. Rather, electroless nickel is a nickel-phosphorous alloy deposited by a chemical reduction (reaction) from hypophosphite on a catalytic substrate without the application of external current. Since there is no applied current during deposition, electroless nickel plating deposits are free from the common nonuniformity of traditional electrolytic deposits and can cover even extremely complex geometries with excellent uniformity.

Any portion of a part that is equally wetted by the electroless nickel solution will plate uniformly including interior or ID features. It is important to note that continual solution flow is required to maintain consistent deposition rates. As such, blind holes small inner diameters of tubing or fittings will often have reduced plating thickness. The co-deposited phosphorus in the electroless nickel plating deposit increases the lubricity over that of traditional nickel plating and the percentage of phosphorus in the coating also affects deposit properties such as magnetism, corrosion resistance and hardness. In addition, a post-plate baking at temperatures above 500F can transition electroless nickel deposits from an amorphous as-plated state to a crystalline structure, greatly increasing hardness.

### [CAPABILITIES](#) · [ASTM B 733 SPECIFICATIONS](#) · [ADDITIONAL INFORMATION](#)

#### CAPABILITIES

Substrates	<ul style="list-style-type: none"><li>Aluminum</li><li>Brass</li><li>Copper</li><li>Mild Steel</li><li>Stainless Steel</li></ul>
Plating Capabilities	<ul style="list-style-type: none"><li>Wire Plating</li><li>Rack Plating</li></ul>
Additional Capabilities	<ul style="list-style-type: none"><li>Hardness up to 1100 VHN with heat treatment</li><li>Parts Stripping</li><li>Parts-Cleaning Plugging</li></ul>
Underplating Options	<ul style="list-style-type: none"><li>Copper</li><li>Electrolytic Nickel</li></ul>
Standards Met	<ul style="list-style-type: none"><li>ASTM B 733</li><li>MIL-C-26074</li></ul>
Finish	<ul style="list-style-type: none"><li>Medium Phosphorus Electroless Nickel (<b>TYPE - IV</b>) <b>(6 -9 % Phosphorus)</b></li><li>High Phosphorus Electroless Nickel (<b>TYPE - V</b>) <b>(10 -12 % Phosphorus)</b></li></ul>

## ASTM B 733 SPECIFICATIONS

Hardness	<ul style="list-style-type: none"><li>• Medium Phosphorus Electroless Nickel  As plated, 550 – 650 VHN  Heat Treated to 400°C for 60 minutes, 900 – 1100 VHN</li><li>• High Phosphorus Electroless Nickel  As plated, 450 – 600 VHN  Heat Treated to 400°C for 60 minutes, 900 – 1100 VHN</li></ul>
Thickness Classes	<ul style="list-style-type: none"><li>• <b>Grade A – 0.0010-inch minimum deposit thickness</b></li><li>• <b>Grade B – 0.0005-inch minimum deposit thickness</b></li><li>• <b>Grade C – 0.0015-inch minimum deposit thickness</b></li></ul>
Post Treatment Classes	<ul style="list-style-type: none"><li>• N/A</li></ul>

## ADDITIONAL INFORMATION

Applications	<ul style="list-style-type: none"><li>• RF Cavity Filter &amp; Lids</li><li>• Automotive Precision Components</li><li>• Electric Bus Bars</li><li>• Electrical Contacts</li><li>• High-Tech Electronic Components</li></ul>
Industries Served	<ul style="list-style-type: none"><li>• Aerospace</li><li>• Automotive</li><li>• Telecommunications</li><li>• Tool &amp; Die</li></ul>
Certifications	<ul style="list-style-type: none"><li>• ISO 9001:2015 Certified</li><li>• ISO 14001:2015 Certified</li><li>• ISO 45001:2018 Certified</li></ul>

	<ul style="list-style-type: none"> <li>• RoHS Compliant</li> <li>• REACH Compliant</li> <li>• SA 8000:2014 Certified</li> </ul>
Quality System Features	<ul style="list-style-type: none"> <li>• Dedicated to company-wide continuous improvement</li> <li>• In-house testing facilities (<b>incl heat treatment test</b>)</li> </ul>
Environmental System Features	<ul style="list-style-type: none"> <li>• ETP &amp; Air scrubbers installed for air &amp; water treatment</li> </ul>
Professional Associations and Awards	<ul style="list-style-type: none"> <li>• Member of NEA (Noida Entrepreneur Association)</li> </ul>
Service Features	<ul style="list-style-type: none"> <li>• A staff that understands the importance of quick response for our customers Production scheduling and production flexibility that minimize turnaround time</li> </ul>