

Pioneer Metal Finishing's NOR-LAST™ A Revolutionary Electroless Nickel Finish

Wear resistance and surface hardness are major factors in determining the optimal surface finish for lasting in abrasive environments. In the past, traditional electroless nickel applications (with post-process hardness baking) enhanced wear resistance and provided adequate results.

Pioneer Metal Finishing offers NOR-LAST™, a proprietary electroless nickel application, providing two to three times the wear resistance of current baked traditional electroless nickel finishes without the pitfalls of post-process baking.

NOR-LAST™ is your best choice for wear applications.

“...In an effort to find a product that would provide extreme wear protection, we trialed 8 different companies and many variations of chrome, carbide, nickel, heat treating, cryogenics, and various types of anodizing.

In the end, Pioneer provided a solution in their Nor-Last™ process that contains all the benefits of nickel, while adding up to 2.5 to 4 times more cycle life than our previous nickel process. Nor-Last™ brought our cycle life close to the longevity of hard-chrome. More importantly, it wins hands down in cost and turnaround versus hard chrome.

Due to Pioneer Metal Finishing's Nor-Last™ process, we expect to see a minimum of 2.5 times reduction in coating expenses resulting in a \$150,000 per year savings.”

- Provided by a ductile iron castings company that implements Nor-Last™ on various tooling substrates such as steel, brass, and aluminum.

Nor-Last™ is an effective as-plated finish for soft metals such as aluminum, which can now be plated to unmatched surface hardness levels without post baking. Post baking compromises the soft substrate's integrity.

Pioneer Metal Finishing's Electroless Nickel Comparisons

Process	Hardness			Wear	Corrosion	Lubricity
	Rc	Vickers	Knoop	Suga	SaltSpray	C.o.F
NOR-LAST™						
as plated	64	800	822	9 mg	100 hrs	0.18
Baked	70	980	970	5 mg	48 hrs	0.28
Nor-Kote™ I						
As plated	44	440	452	14 mg	100 hrs	0.20
Baked	68	940	920	11 mg	24 hrs	0.29
Nor-Guard™	45	450	466	13 mg	1200 hrs	0.15
Hard Chrome* (plating comparison)	70	980	970	4.0 mg	24 hrs	0.25

- Pioneer Metal Finishing does not offer hard chrome. Data for comparison only.
- Actual performance results may vary depending upon substrate, coating thickness and end use of part.
- Nor-Kote™ baked results after heat treatment of 1 hour at 750°F.
- Corrosion resistance based on .001" of coating performed per ASTM B 117. (Failure defined as first sign of red corrosion).
- Suga testing performed per ISO 8251. 1200 cycles, 100 gram load, 320 grit abrasive.
- C.o.F. (Coefficient of Friction) performed per A.S.T.M. D- 1894. Kinetic avg.

Nor-Last™ is able to increase wear resistance up to 3 fold versus traditional electroless nickel applications. This dramatically increases the lifespan of your tooling or parts.

Nor-Last™ offers the best alkaline protection of all electroless nickel finishes.