



# SUPERIOR CORROSION RESISTANCE FOR FASTENER APPLICATIONS

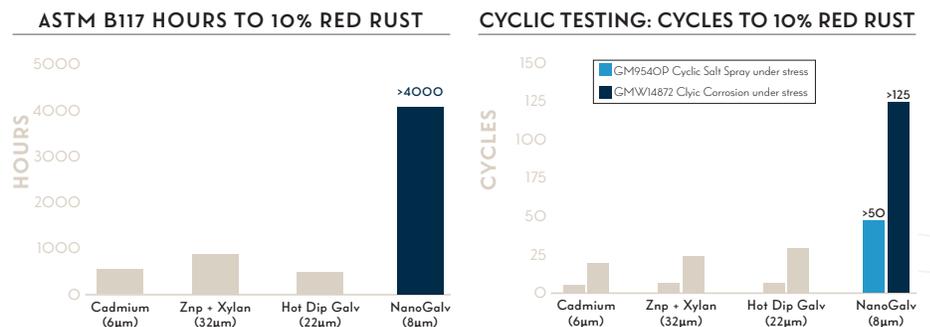
## KEY BENEFITS

- 1 Up to corrosion performance: NanoGalv at just 8µm significantly outperforms other systems that are coated at 14µm+
- 2 Field-proven: NanoGalv fasteners have been deployed onshore and offshore worldwide with unmatched performance
- 3 Improved asset integrity and safety: NanoGalv reduces failure risk, downtime, and dangerous manhours required by interventions
- 4 Cost competitive: Even with far superior performance, NanoGalv is a cost-effective solution across many applications
- 5 Sustainability: Lower carbon footprint process that displaces harmful products such as cadmium, PFAS, and hex chromates

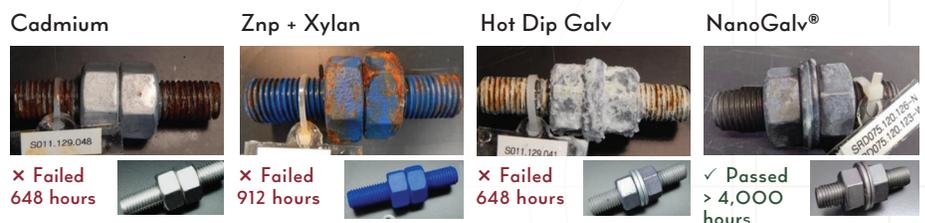
Lamons is proud to have partnered with Modumetal to provide our customers with NanoGalv®, a surface coating technology designed specifically for corrosion resistance in aggressive marine and coastal environments. This zinc-nickel nanolaminate technology provides superior corrosion resistance across a broad range of fastener applications at a thickness within standard thread allowances, so no over tap is required for thread fit. It has excellent durability and is not damaged by standard installation tools or practices.

A broad range of industries can benefit from the use of NanoGalv fasteners to improve corrosion resistance including infrastructure, automotive, energy, and heavy equipment manufacturing. In addition to being compatible with stainless steel components, NanoGalv fasteners are reusable within standard installation practices. The application process is strictly controlled and meets ASTM F519 industry standards, and adhesion performance has been independently verified and meets ASTM B571 standards.

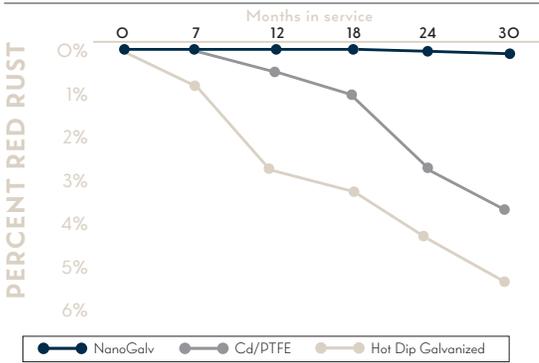
NanoGalv provides multiple significant sustainability benefits. It eliminates the need for toxic cadmium and hex chrome systems and increases asset life by reducing industrial waste and strain on supply chains. In addition, its plating is much less energy-intensive than other plating processes, giving it a lower carbon footprint. Laboratory and field testing have demonstrated significantly fewer or no issues with nut seizing using NanoGalv compared to conventional methods.



## NANOGALV PERFORMANCE UNDER SALT SPRAY TEST (ASTM B117)



### FASTENER RED RUST PROGRESSION IN FIELD TRIAL



4.5 years Offshore on Oil platform



Cd/PTFE



NanoGalv®

## NANO GALV PROVIDES SIGNIFICANT SUSTAINABILITY BENEFITS:

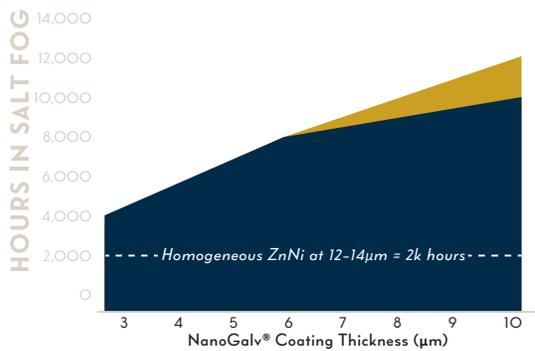
- 1 Far less toxic: Eliminates the need for toxic cadmium and hex chrome systems
- 2 Lower carbon footprint: NanaGalv plating is much less energy-intensive than other plating processes
- 3 Increased asset life: Reduces industrial waste and strain on supply chains

NanoGalv even at a 3.5µm coating thickness, outperforms traditional ZnNi coatings at thicknesses of 12-14µm.

Superior performance at a lower coating thicknesses eliminates the need for overlapping of critical parts and enables coating of non-fastener parts with a complicated geometries.

NanoGalv withstands all hydrogen embrittlement tests, as tested under ASTM F519-13.

### HOURS TO 10% RED RUST VS COATING THICKNESS



To learn more about our products and services, visit [Lamons.com](http://Lamons.com) or contact us at [info@lamons.com](mailto:info@lamons.com).



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Nanolaminite thickness	8 microns minimum on significant surfaces
Industry designations	ASTM F1941 Fe/Zn-Ni 8BN ASTM B841 Class 2 Type AN
Coefficient of friction (ISO 16047 K-factor)	0.15 +/- with lubricant
Operating temperature	-148F to 392F (-100C to 200C)
Market applications	Infrastructure, marine, oil and gas, transportation
Salt spray (ASTM B117)	>3000 hours
Cyclic Corrosion (GMW 14872)	120 cycles with stress
Coating adhesion (ASTM B571)	Pass: bend, burnish, heat/quench and impact
Hydrogen embrittlement (ASTM F519)	Pass 200h sustained load test
Substrate compatibility	Carbon steel and low alloy steels. High strength steels are baked per ASTM B850
Installation compatibility	Carbon, alloy, and stainless-steel connections

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