

NanoGalv® | Oil & Gas

Now offering best-in-class lead times after Houston production expansion completed in 2022

Extensive Specifications & Compliance



DEP 30.48.00.32



GP 56-02-13



M200



PIM-SU-5300



GIS 42-300

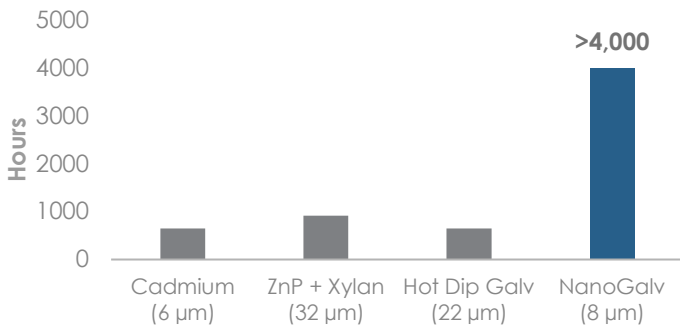


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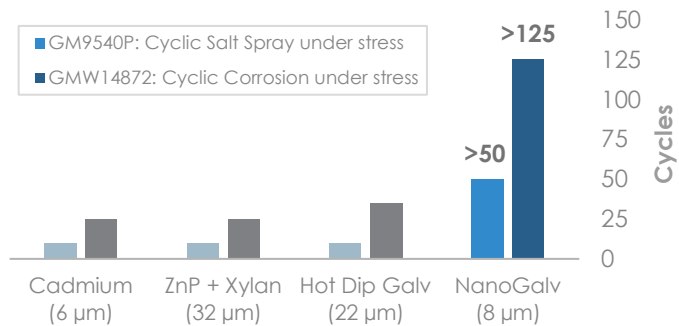
Key Benefits

- 1 Up to 10x 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 & safety:** NanoGalv® reduces failure risk, downtime, & 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, & hex chromates

ASTM B117 Hours to 10% Red Rust



Cyclic Testing: Cycles to 10% Red Rust

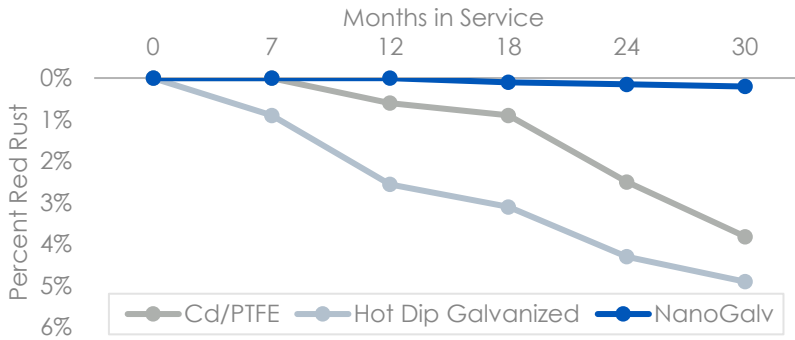


NanoGalv Performance Under Salt Spray Test (ASTM B117)

Coating	Failure Time (Hours)	Status
Cadmium	648	Failed (Red X)
ZnP + Xylan	912	Failed (Red X)
Hot Dip Galv	648	Failed (Red X)
NanoGalv®	>4,000	Passed (Green Checkmark)

Visual comparison of fasteners 'Before' and 'After' salt spray testing. The 'After' images show significant rust and white corrosion products on the failed coatings, while the NanoGalv fastener remains clean and intact.

Fastener Red Rust Progression in Field Trial



4.5 years Offshore on Oil Platform



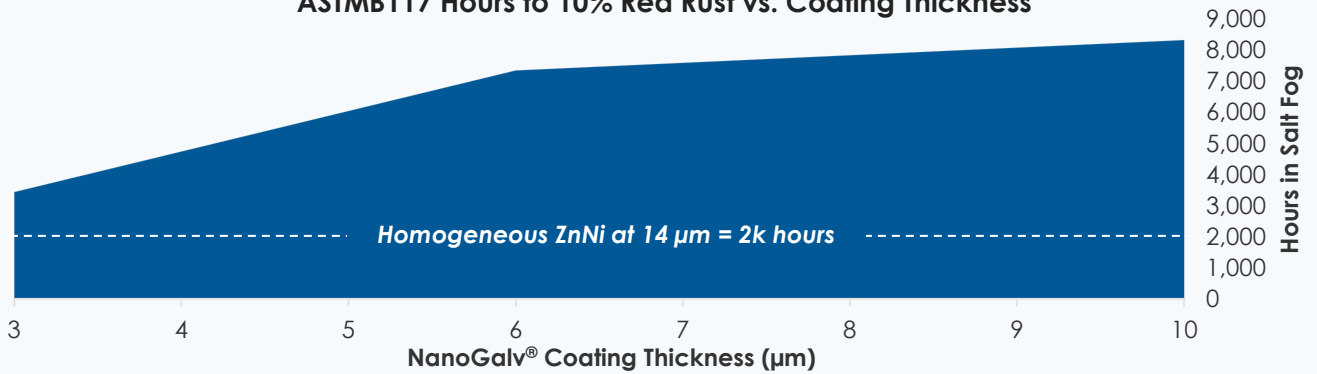
Cd/PTFE



NanoGalv®

NanoGalv®, even at a 3.5 μm coating thickness, **outperforms traditional ZnNi coatings at thicknesses of 14 μm**

ASTMB117 Hours to 10% Red Rust vs. Coating Thickness



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

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

NanoGalv® provides significant sustainability benefits:

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

NanoGalv® can be used to coat parts across Oil & Gas and beyond

