



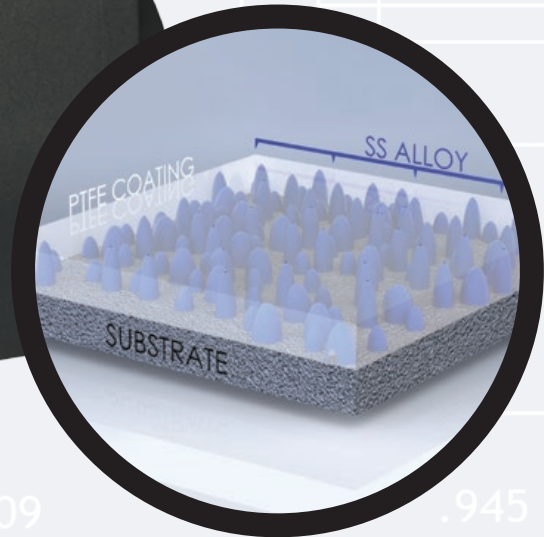
TEFLON® INFUSED SS MESH COATING “LOCK MESH COATING”

Product Bulletin March, 2013

20130305-RO



Below: Microscopic model of the Lock Mesh PTFE infused actuator surface



Overview:

Max-Air Technology introduces high performance Teflon infused stainless steel mesh coating, introduced as our “Lock Mesh™” coating. This state-of-the-art coating combines the strength and corrosion resistance of stainless steel with the technological advancements of infused PTFE.

Background:

Applications exist where pneumatically automated valves are exposed to extremely corrosive environments, such as salt air, caustic wash down, acid production and handling, and various submerged services, to name a few. Traditional materials for actuator construction typically perform well in “normal” atmospheric conditions, but perform poorly in these more aggressive environments, resulting in an unacceptable time to system failure. The conventional solution is to use all stainless steel components, but this can be prohibitively costly and significantly heavier than a standard assembly. Over the years, alternative options have been proposed such as electroless nickel surface treatments, epoxy painting, and secondary enclosure systems. While these methods have been successful in a number of applications, they still exhibit clear limitations. In response, Max-Air Technology has joined forces with one of the premier PTFE coating applicators and Materials Scientists to develop this advanced “mesh” coating, which has proven its durability time and time again.

Process:

The “Lock Mesh” coating is applied in several carefully planned stages. The process begins with a rigorous and proprietary surface preparation, which is critical to guarantee surface bonding at the molecular level with the substrate. The next step is an additional proprietary application of a specially prepared stainless steel micro-spray through an electrical arc process, creating the lockable mesh surface into which the PTFE is infused at a specific temperature and atmospheric condition (see diagram). This process is followed by additional infused applications of PFA/PTFE powder coating, along with a carefully monitored oven curing process.

Applications:

The “Lock Mesh” coating provides one of the most durable corrosion-resistant coatings available, easily withstanding corrosive chemicals, aggressive atmospheric conditions, and various immersion applications. Because the coating is an approved food grade material, it is suitable for a wide variety of industries including food and beverage, pharmaceutical, chemical processing, pulp and paper, and many others including coastal (salt air) installations.

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4x #10-32x.315 (NAMUR)



	Aluminum: Hard Anodized (Standard)	Aluminum: Anodized w/ Polyamide Epoxy Coating	Aluminum: Electroless Nickel Infused	Aluminum: Teflon Infused SS Mesh "Lock Mesh" Coating	Stainless Steel
Material / Coating	Aluminum: Hard Anodized (Standard)	Aluminum: Anodized w/ Polyamide Epoxy Coating	Aluminum: Electroless Nickel Infused	Aluminum: Teflon Infused SS Mesh "Lock Mesh" Coating	Stainless Steel
Appearance	Silver-gray with a matte appearance	Black with a medium gloss finish	Medium gloss silver finish	Dark Grey finish	Silver; low to medium gloss unless polished
General Properties	Good general corrosion properties in most "natural" environments with pH from 4.5 to 8.5. Good resistance to salt air environments. The coating is extremely hard and resistant to abrasion.	This epoxy coating is a relatively thick coating which creates a barrier against many of the chemicals which anodizing alone cannot adequately resist. It will resist more acidic or basic environments than anodizing alone.	Uniformly thick coating with essentially no porosity and a reasonably high hardness. The coating is pure, tough, hard, and resistant to many types of corrosion media.	This coating provides complete surface coverage and exhibits excellent corrosion resistance properties in a wide variety of applications. In addition, it is FDA approved for food contact.	304 and 316 stainless steel are the most commonly used alloys. Both have good corrosion resistance but 316 is generally considered superior, however more expensive.
Relative Cost	Lowest Cost	Moderate Cost	Moderately High Cost	Moderately High Cost	Highest Cost
Performance Limitations	Highly acidic or basic environments will break down the coating.	Good general corrosion resistance, particularly in salt or alkaline environments. Limited resistance to acids. Surface chalking will occur when exposed to UV radiation. Also suitable for low concentrations of caustic washdown solutions.	The coating will provide enhanced corrosion protection in very acidic environments but will not withstand attack from strong alkaline media. Also suitable for low to medium concentrations of caustic washdown solutions.	These coatings are resistant to any environment into which an actuator would be installed. Provided the integrity of the surface is intact, the coating can resist a broad array of chemical environments at temperatures ranging from sub-zero to 350° F.	Although stainless steel does offer enhanced corrosion resistance, it also is dramatically higher in both cost and weight. The weight differential will often necessitate the use of special support bracketry. Corrosion resistance is superior.

*See Lock Mesh Product Bulletin 20130305-RO for technical details of this incredible coating.