

ROLLON®
Linear Evolution

ROLLON: Surface treatments combat corrosion in linear motion

Humidity, dirt and corrosive agents are troublesome conditions that can affect many linear guides. In many applications in several industries such as railway, industrial machines, medical, food industry or special vehicles the environment and contaminants can affect the steel used in the linear bearing systems. We can protect against these conditions by using specialized coatings, which enhance the reliability and functionality of these systems.

For example, the most demanding railway applications require components to survive industry-standard, salt spray testing for up to 500 hours in compliance with ISO 9227 NSS (neutral salt spray). One such surface treatment called RollonAloy and applied to Rollon guides recently exceeded that standard by 44 percent when it withstood 720



Chamber where salt spray testing was conducted in accordance with ISO 9227.



hours of salt spray testing without any signs of corrosion.

RollonAloy is a RoHS-compliant trivalent chromium treatment originally used in the automobile industry as a substitute for treatments containing hexavalent chromium, which was found to have negative environmental and health effects. After a galvanizing treatment is completed in accordance to ISO 2081 standards, RollonAloy is applied using a comprehensive passivation process. Applying the passivation layer essentially creates a barrier effect that significantly increases corrosion protection for metal parts. This protective layer handles the wear, friction, and corrosive elements faced by moving parts, keeping the base metal intact and prolonging its working life. RollonAloy is

suitable for all styles of Rollon linear guides and is recommended for rail applications where moving metal parts are regularly exposed to harsh environmental conditions, such as high humidity, dirt particles, hair, brake dust and many other corrosive agents.

Rollon also offers surface treatments well suited to less demanding applications. Besides RollonAloy, electrolytic galvanization and chemical nickelization are anticorrosive coating methods

Used by Rollon. Electrolytic galvanization, also known as zinc plating, involves applying a thin layer of zinc to the base metal using an electrodeposition process. The primary benefits of this surface treatment include corrosion resistance and the ability to easily apply paint to treated

surfaces. The chemical nickelization process enhances corrosion resistance by adding a thin protective layer of chemically treated nickel to moving metal parts, such as linear rails. Beyond corrosion defense, other benefits of this process include improved hardness and wear, as well as an extremely tight tolerance range for coating thickness, which improves the linear precision of moving parts. Surface treatment thickness is controlled by the time span of the nickelization process.

Surface preparation is another factor closely associated with the quality and performance of coated metal parts. If base metal surfaces are not properly prepared before coatings are applied, even the best coating will not perform as expected. Correct metal preparation involves rigorous adherence to a multi-step process that improves the base metal's strength and surface finish even before the final anticorrosive coating is applied. While some manufacturers may take shortcuts with respect to surface preparation, Rollon follows an extensive step-by-

step method during its rail-finishing processes.

Salt spray testing results [BOX]

In compliance with ISO 9227, several linear rails are placed in a test chamber and subjected to a 5% solution of sodium chloride (NaCl) with a pH of 6.5. The neutral NaCl solution is administered with a continuous spray nebulizer nozzle at 35° C for the testing duration. Evaluations of test samples take place at set time intervals: Test administrators take measurements to determine the quality of surface protection and corrosion resistance among the various test samples. Results of recent salt spray testing determined that the Rollon linear guides coated with RollonAloy survived 720 hours without showing any signs of corrosion. Rollon linear guides treated with two nickelization process—one high quality process and one standard—survived roughly 360 hours. A sample treated with an electrolytic galvanization process had less than half the salt spray resistance of RollonAloy. Comparison guide

samples fared even worse. After only 120 hours of salt spray testing, the corrosion-resistant coatings on rails from a Rollon competitor were completely depleted. Test rails included one coated with standard zinc plating and another treated with a nitrocarburizing finish.

To Lube Or Not To Lube? [BOX]

Coatings are not the only way to extend the life of linear guides in railway applications. Lubrication can play a role too, though that role is somewhat controversial. Some rail operators choose to avoid the application of external lubricants to linear guide components. They rightly believe that lubricants have to potential to attract particulate matter that could gum up the guide over time. Other operators discount the threat of contamination and apply lubricant to extend the life of linear guides. Both of these approaches have merits, depending on the application. Operators should be aware, however, that the judicious use of an external lubricant can extend linear guide life substantially—by a factor of 10 or more in Rollon's testing. If a lubrication regime is adopted. Operators should favor high-temperature greases. Linear rail manufacturers can provide more specific guidance regarding the best lubricant type. For example, Rollon's engineering department, can offer recommendations based on the particular application.

You can find Rollon India Pvt. Ltd. and its solutions for linear motion at: AUTOMATION 2014 - Mumbai, India - October 15-18, 2014 Hall 1 - Stand F15,F16,F17 For more information, Rollon India Pvt. Ltd. Web: www.rollonindia.in



Compact Rails and Telescopic Rails from Rollon are available with a variety of anticorrosive surface treatments, with the right choice determined by the application.