

Maintenance Free Linear Guides

C-Lube technology keeps linear motion components lubricated—so you don't have to

Walk through any plant that uses linear motion systems, and you can often see maintenance workers, grease gun in hand, applying lubrication to linear guides. And why shouldn't they. Under-lubricated guides can wear excessively, which leads to performance problems and premature failure.

These labor-intensive lubrication practices, however, do not come cheap. We estimate that manual lubrication can cost upwards of \$500 per grease fitting when you consider the cost of the lubricant itself and the wages of the guy with the grease gun. And that figure doesn't begin to capture the total cost of manual lubrication when you consider that many grease fittings are difficult to access and service without triggering some downtime.

It doesn't have to be that way. There are a number of linear guides that offer at least some freedom from lubrication routines. You will hear them described as "lubed for life" or "maintenance free" or "self lubricating."

These reduced maintenance guides typically have mechanical designs with provisions for storing and delivering lubricant over long periods of time. To varying degrees, they can drastically reduce or even eliminate the need to apply lubricant beyond what is present when the bearing goes into service.

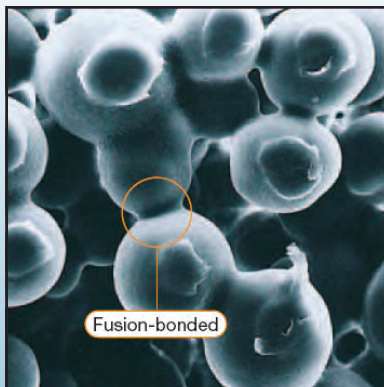
Unlike automated lubrication systems, which can be complex and costly, maintenance free bearings tend to rely on simple, integrated mechanical features in the bearing slider to store and deliver the oil.

Various takes on maintenance free guides and ways have been around for years now, but not all of them are created equal. Some focus on achieving the longest possible maintenance free intervals. Others focus on a compact design that adds as little as possible to the size of the bearing's mechanical package.

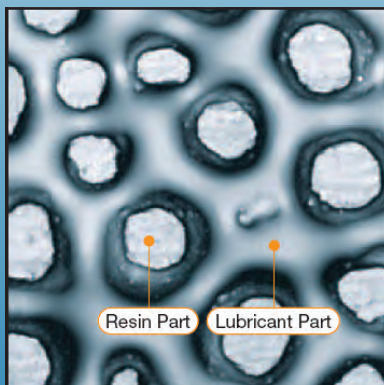
IKO's C-Lube linear components have unique designs that balance long service life with compact size. These long-term maintenance free linear motion products come in different forms—including roller guides, ball guides and a ball-spline-based shaft guiding system. They range in size from small, 5-mm-wide track rails to 65-mm-wide guides that offer a basic static load rating of 172,000 lbs.

Despite the outward differences in these products, they all make use of IKO's proprietary C-Lube lubricating elements. Made from sintered resin powder with a steel backing, these C-Lube elements have an open porous structure that can be impregnated with large amounts of oil (*see Figure 1*).

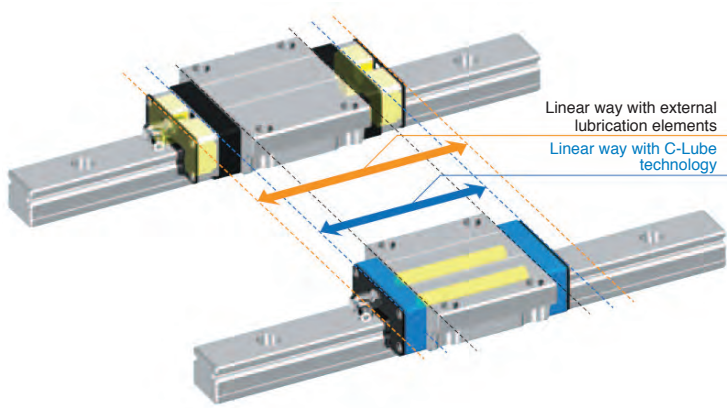
Figure 1



Before oil impregnation
Resin particles are strongly fusion-bonded.



After oil impregnation
Lubricant is retained in cavities amongst resin particles.

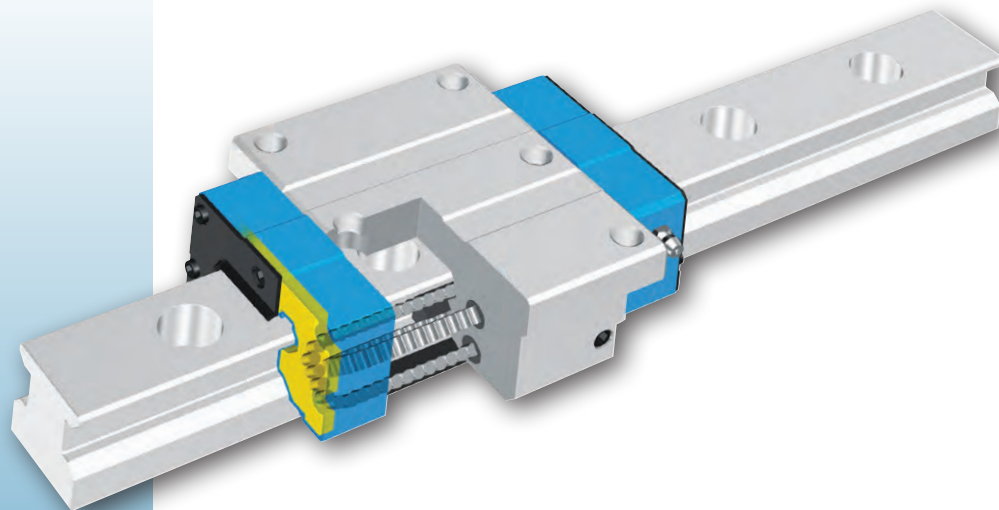


Depending on the type of linear guide, the C-Lube elements are formed into either a plate or sleeve shape and integrated into the bearing's slider. They then release the impregnated oil slowly through direct, continual contact with the linear guide's internal rolling elements.

Thanks to this on-going lubrication, C-Lube linear guides provide maintenance free operation for 20,000 km or five years. In practice, that maintenance free term often equates to the entire application life.

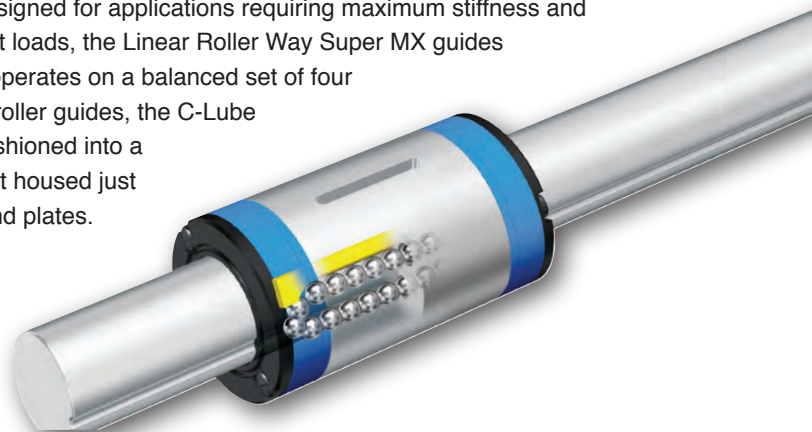
While the geometry of the lubricating element differs depending on the type of guide, in no case does the C-Lube increase the overall dimensions of the guide. In other words, self-lubrication capabilities, at least for IKO products, do not increase the package size of the guide.

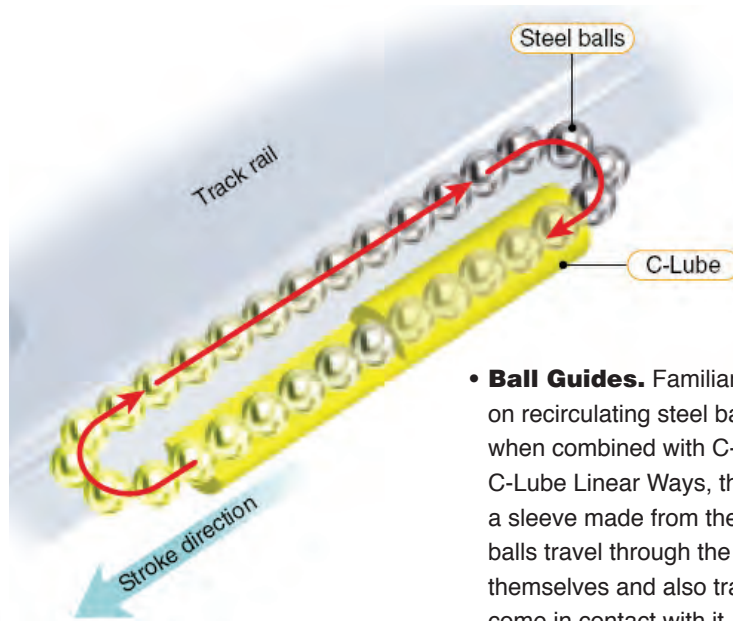
Because all the C-Lube guides offer the same maintenance free interval, the choice between them comes down to functional requirements such as the type of load and duty cycle. With that in mind, here's an overview of the different C-Lube variants:



- **Ball-Spline Guides.** C-Lube Ball Spline MAG guides incorporate an internal oil-impregnated plate-shaped element. As the balls traverse over the C-Lube plate, they pick up oil which lubricates both the balls and the spline shaft—again protecting against metal-on-metal contact.

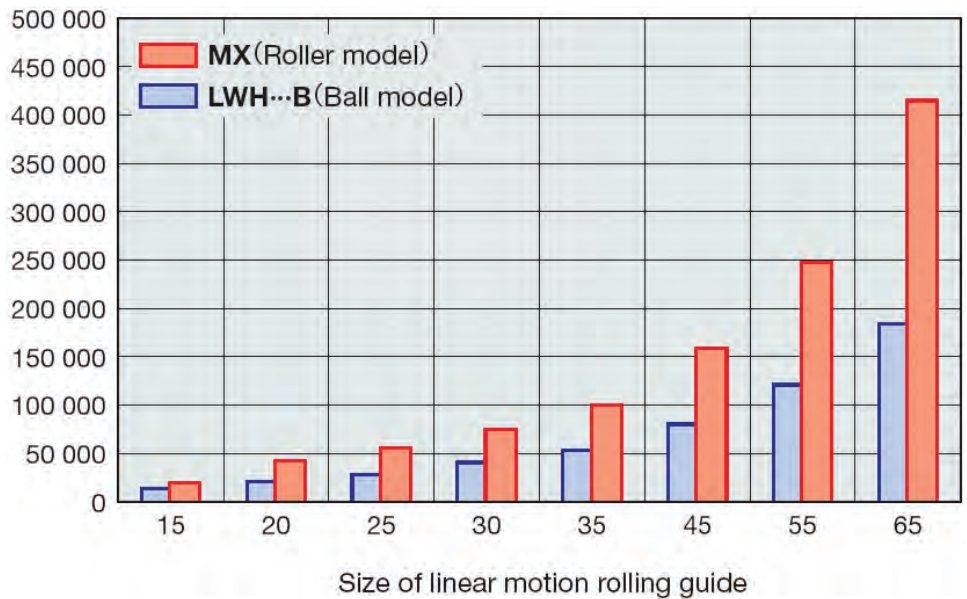
- **Roller Guides.** Designed for applications requiring maximum stiffness and resistance to moment loads, the Linear Roller Way Super MX guides feature a slider that operates on a balanced set of four cylindrical rollers. In roller guides, the C-Lube element has been fashioned into a plate-shaped element housed just behind the slider's end plates.





- Ball Guides.** Familiar ball guides, which run on recirculating steel balls, take on a new twist when combined with C-Lube technology. In C-Lube Linear Ways, the steel balls roll through a sleeve made from the C-Lube material. As the balls travel through the sleeve, they pick up oil themselves and also transfer it to the rail as they come in contact with it. At all times, the balls and rail remain free from any metal-on-metal contact due to a film of lubricant provided by the C-Lube feature.

Comparison of basic static load ratings



For more information on IKO's full range of bearings and linear motion products please visit www.ikont.com or call tel: **800.922.0337**.