

Evolving technologies require linear motion rolling guides and bearing products to **perform reliably in a range** of challenging environments.

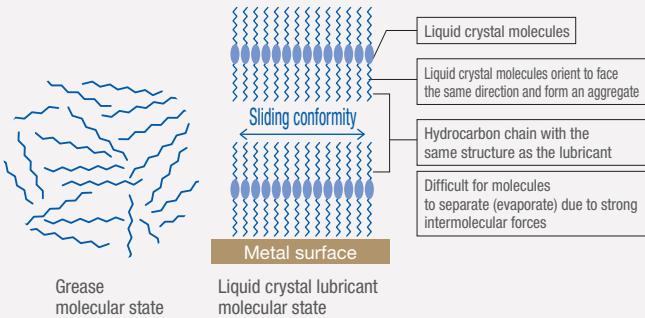
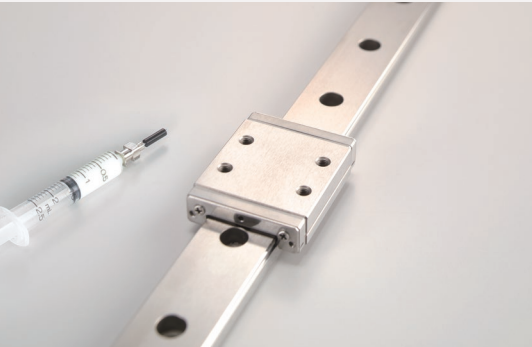
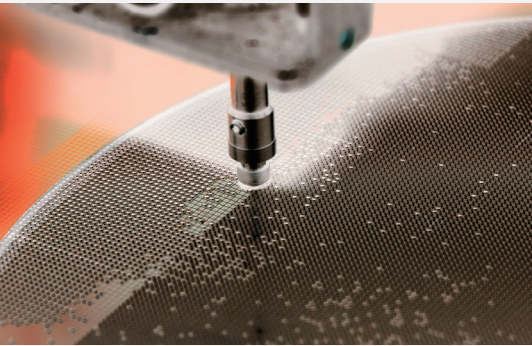
Traditionally, lubricants used in special environments, such as under vacuum, in clean environments, or at high temperatures, have utilized fluorine grease to control contamination caused by outgassing, particles and oil evaporation. And more recently, MAC grease with hydrocarbons has been used due to its excellent characteristics under vacuum. However, these special environment greases have problems in terms of lubrication performance, heat resistance and safety, giving rise to a need for a lubricant with an excellent balance of characteristics to satisfy many requirements simultaneously.

IKO developed a new line of products with a **revolutionary liquid crystal lubricant** to meet this need. Patent pending

IKO developed the world's first **LCL Linear Way** prepacked with Liquid Crystal Lubricant which greatly improved lubrication performance with low dust generation and low evaporation properties, as well as low outgassing characteristics. Now, IKO expanded the products available with liquid crystal lubricant. Since the structure of the lubricant is completely different from grease, it dramatically improves the performance of linear motion rolling guides and bearing products used in special environments, resulting in increased reliability.

IKO Liquid Crystal Lubricant is **neither grease nor oil. A groundbreaking innovation!**

Liquid crystal lubricants are completely different from greases composed of base oils and thickeners. They are composed only of liquid crystal compounds, **forming a completely new type of lubricant**. Conventional grease base oils lubricate using dissimilar molecules, causing difficulties with adhesion to metal surfaces and evaporation. Liquid crystal lubricant forms molecular aggregates, improving adhesion to metal surfaces and minimizing evaporation. The IKO Liquid Crystal Lubricant used in this Series provides excellent lubrication functionality, even under high contact pressure during rolling contact, which results in extremely high performance.



Supported Products

Linear Motion Rolling Guide Series

- Linear Way L Series
- Linear Way E Series
- Linear Way H Series
- Linear Way F Series
- Linear Roller Way Super X Series **NEW**

Note: Applicable for stainless steel models from each series.

Needle Roller Bearing Series

- Crossed Roller Bearings Series **NEW**

Availability

Liquid Crystal Lubricant Series products are made to order. Please contact IKO for more information.

Precautions for Use

- Continuous operating temperature range: 5 to 100°C (maximum operating temperature 120°C)
- The unit must be stored in a dry and clean place with low humidity and unpacked in the same environment before use as rust prevention oil has not been applied.
- The Liquid Crystal Lubricant Series is packed in clean condition and therefore cleaning or wiping down after removal from the packaging is not necessary.
- Liquid Crystal Lubricant has fluorescent properties under certain ultraviolet light.
- Use gloves when handling so that the Liquid Crystal Lubricant does not touch the skin directly.
- Respective values used in tables are for reference and are not guaranteed values.

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IKO



NEW!

Liquid Crystal Lubricant Series

Linear motion rolling guides and

bearing products prepacked with a

newly developed, high-performance

liquid crystal lubricant. Patent pending

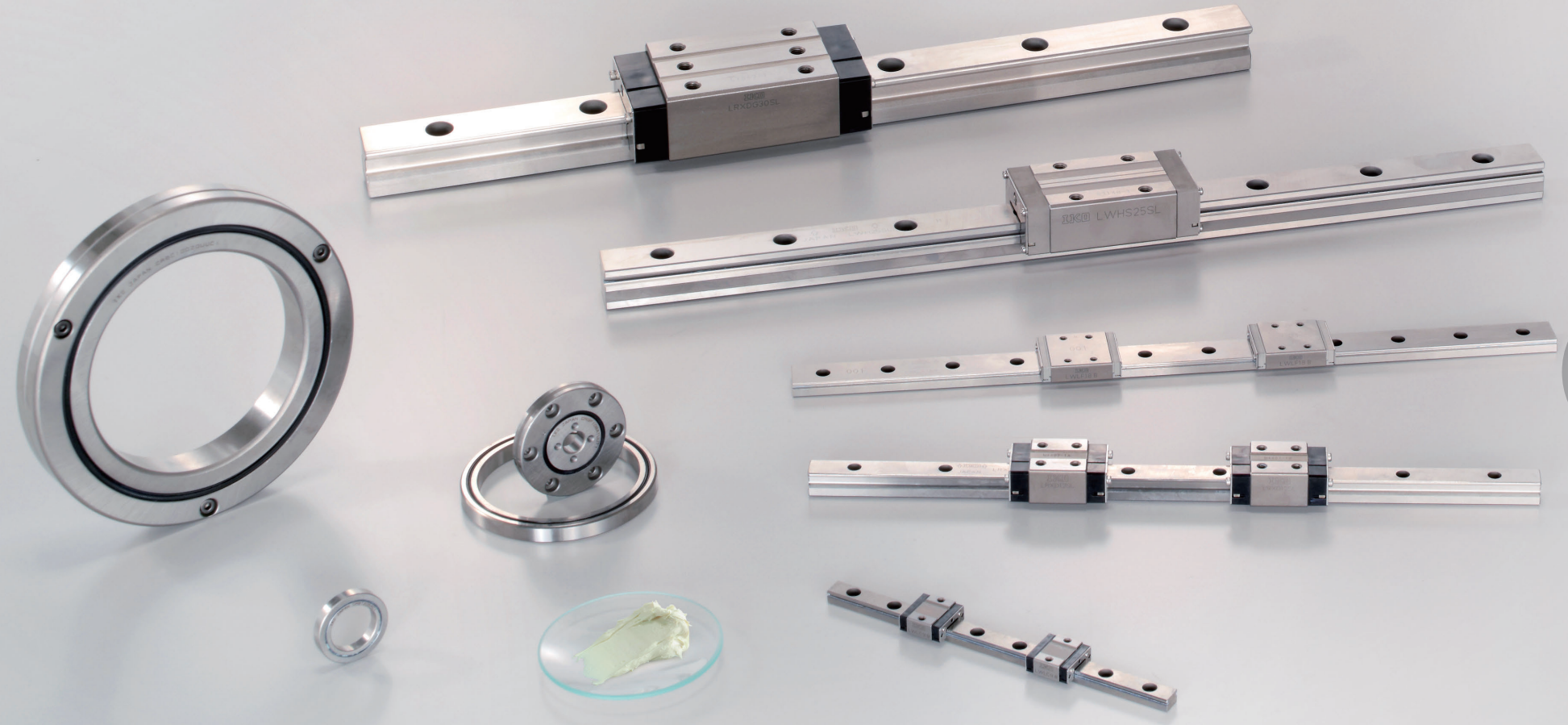
World's First



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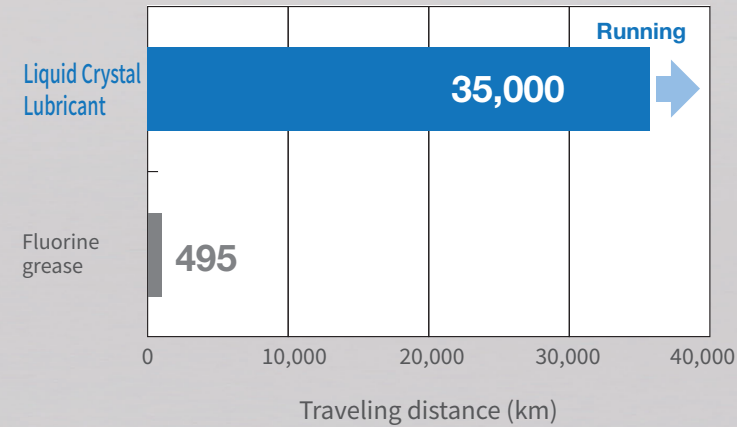


The World's First!
Improve machine performance
with IKO Liquid Crystal
Lubricant Series products.

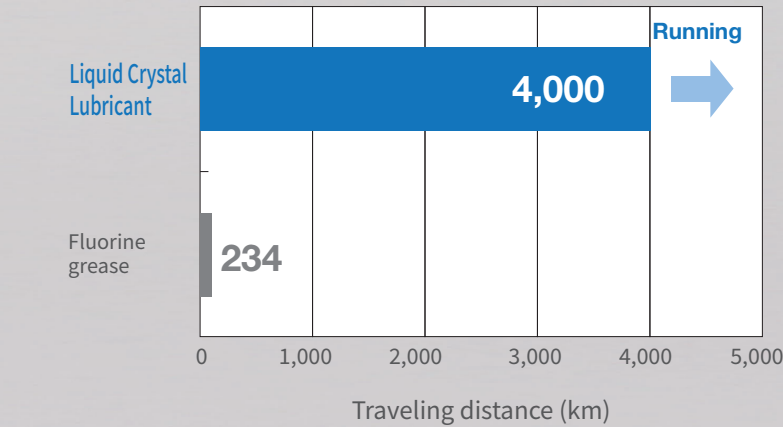
Durability

Load durability (room temperature) Long-term durability exceeds 10 times that of fluorine grease at room temperature and atmospheric pressure.

[Test Conditions ①] Model Number: LWL9--B (Ball-type Linear Motion Rolling Guide)
Speed: 1m/s
Load: 181N

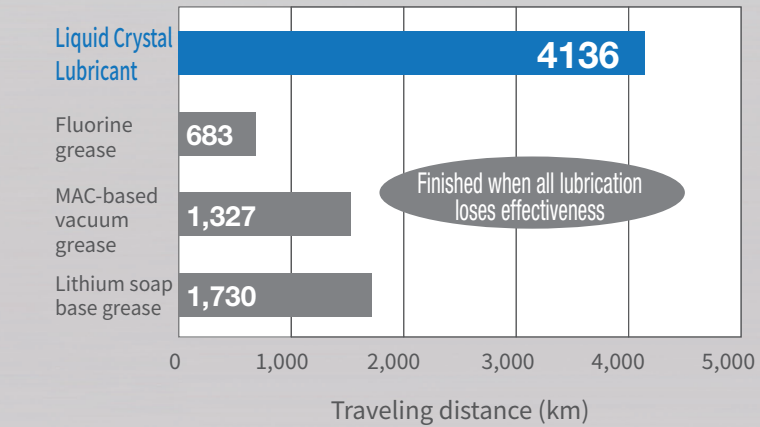


[Test Conditions ②] Model Number: LRXD20SL (Roller-type Linear Motion Rolling Guide)
Speed: 1m/s
Load: 1150N



Load durability (high temperature) 2 to 6 times greater durability than other types of grease.

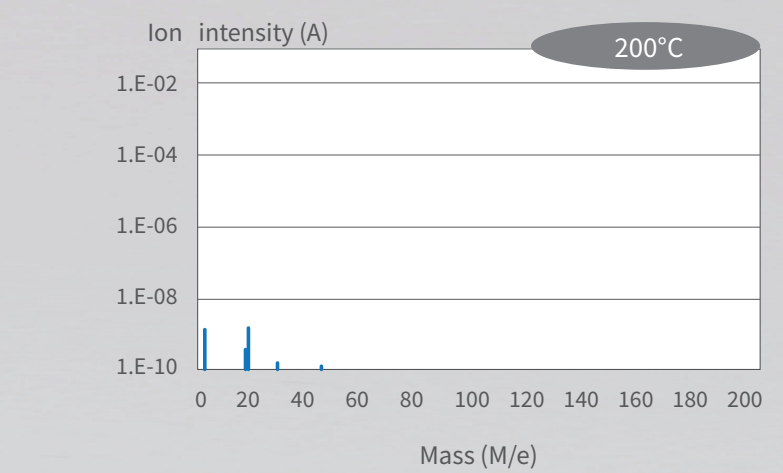
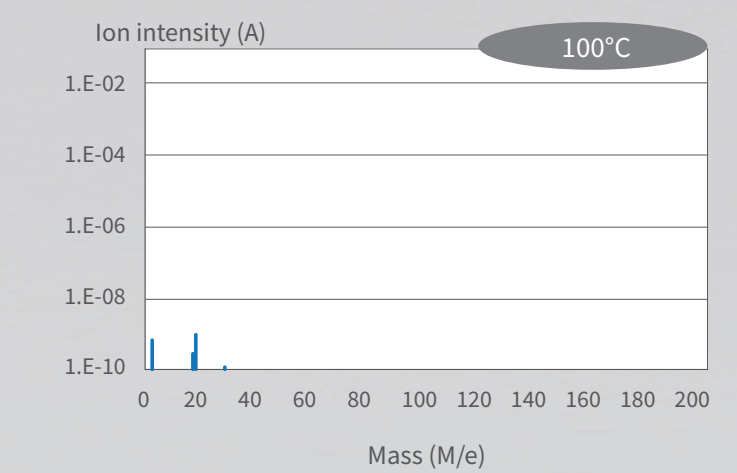
[Test conditions] Model Number: LWL18--B Speed: 1m/s Temperature: 120°C
Load: 114N Evaluation: Traveling distance until insufficient lubrication occurs



Clean Environment

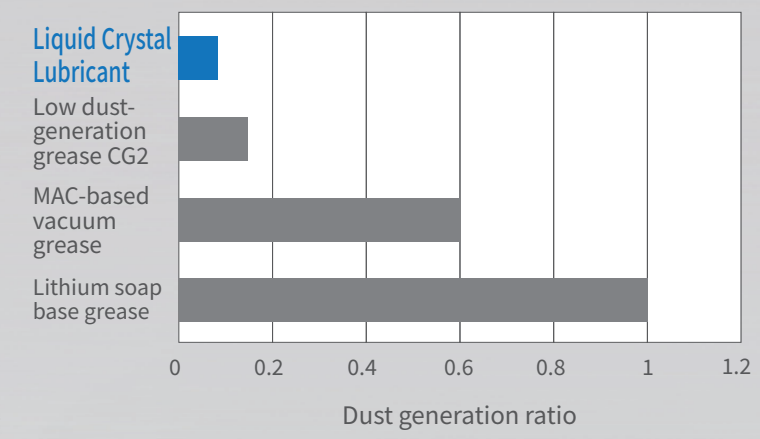
Outgas properties The outgas properties in high vacuum environments show excellent performance even at high temperatures.

[Measuring Conditions] Vacuum Degree: 10⁻⁵Pa Status: Liquid Crystal Lubricant Only



Low dust-generation properties Dust generation is less than 1/10 of lithium soap based grease.

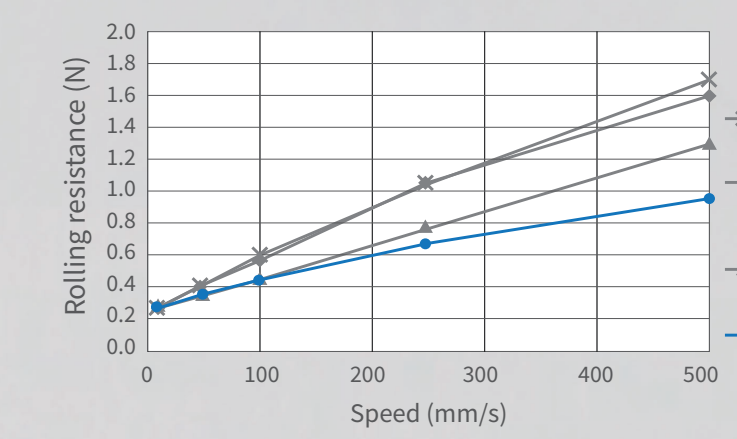
[Test conditions] Model Number: LWL9--B/N Load: 80N Speed: 1m/s
Evaluation Time: 45hr Measured Particle Size: 0.5µm or more



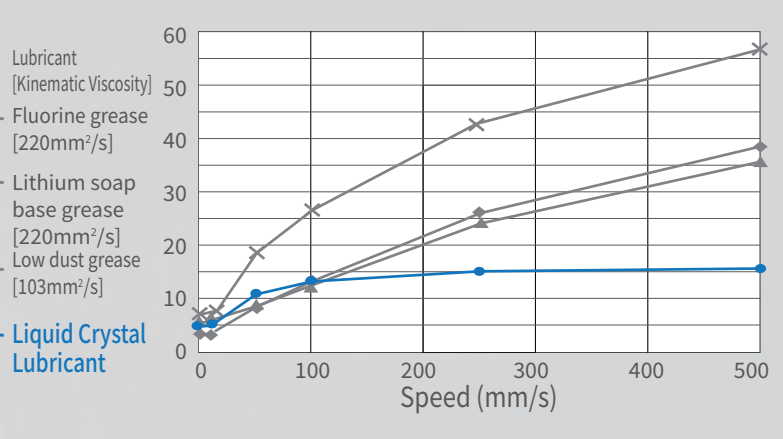
Lubrication Performance

Rolling resistance The rolling resistance is lower than that of fluorinated grease or lithium soap based grease.

[Test Conditions] Model Number: LWL9--B/N (Ball-type Linear Motion Rolling Guide)



[Test Conditions] Model Number: LRXSG20 (Roller-type Linear Motion Rolling Guide)



Evaporation characteristics There is zero mass loss even at 100°C. Liquid Crystal Lubricants have no loss due to evaporation.

[Test conditions] Atmosphere: Air Temperature: 100°C Time: 770 hr

