TIMKEN

TIMKEN SOLID LUBE: REVOLUTIONIZING LUBRICATION SOLUTIONS

SOLID LUBE IS A COST-EFFECTIVE AND MAINTENANCE-FREE ALTERNATIVE TO GREASE THAT PROTECTS BEARINGS IN EVEN THE HARSHEST ENVIRONMENTS.

BENEFITS:

Protect bearings: Full-fill and large-oil reservoirs help guard against washdown and contaminant ingress for better protection than standard grease lubricants.

Maintenance-free: Bearings with Timken Solid Lube never need regreasing and help increase uptime, reduce maintenance and avoid costly repairs.

Cost-effective: Solid Lube can reduce operating costs and increase productivity in a range of industrial applications.

Food Grade: Enhance food safety with our NSF H1 registered food-grade solid-lube bearings with options for normal, high-, or low-temperature operations, or extra chemical resistance.

Versatile: The wide range of solid-lube solutions can meet application needs in a range of industrial, high-temperature, or extreme washdown environments.

TYPICAL APPLICATIONS

FOOD AND BEVERAGE

Bakery: dough mixer, conveyor line, extrusion, dough folding, rolling, oven, proofing

Brewery: bottling line, conveyor, filling machines

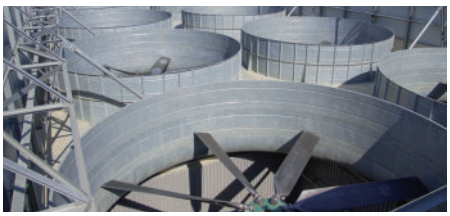
Dairy: processing and packaging line conveyor, cheese, and ice cream equipment

Freezer: tunnel freezing equipment, spiral conveyors

Meat processing: packaging line, overhead conveyors, cart equipment

Rendering: grinding equipment, screw conveyors, and separators

INDUSTRIAL

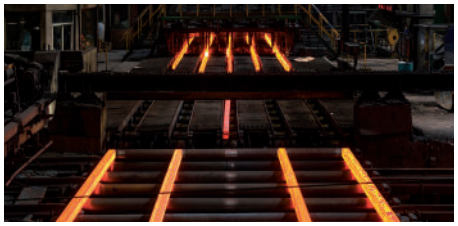


Fan bearings in high heat and humidity

Engineered Marine Solutions

Glass extrusion and processing

Mining and aggregate processing



Steel mill equipment

Wastewater treatment equipment

THE SCIENCE BEHIND SOLID LUBE:

Timken **Polymer Solid Lube** is a micro-porous polymer structure enriched with high-performance oils and additives. This unique composition lubricant contains on average 3 times more oil than conventional greases.

Timken **Graphite Solid Lube** comprises graphite mixed with performance additives and binders. This mixture is injected into the free space of the bearing and then heated until solid. Once solidified, it creates a free-rotating, solid structure that can lubricate ball and roller bearings, conveyor wheels, and other rotating components.

Solid Lube seamlessly fills the free volume within the bearing, including the spaces between races, rolling elements, and cages, to ensure comprehensive lubrication during bearing rotation.

EXPLORE OUR SOLID LUBE SOLUTIONS

INDUSTRIAL POLYMER SOLID LUBE VSL609	Ideal for general industrial applications. Formulated with high-performance synthetic lubricating oils containing extreme pressure additives, antioxidants, and corrosion inhibitors for added durability. Friction modifiers reduce start-up torque. Performs well in a wide range of operating temperatures.
FOOD GRADE POLYMER SOLID LUBE FVSL613	Food-safe, NSF H1-registered synthetic oil complies with FDA guidelines for lubricants in food and beverage applications. Offers hygienic lubrication and high performance across a wide temperature range.
HIGH TEMPERATURE FOOD GRADE POLYMER SOLID LUBE FVSL528	Formulated with the latest food-safe, NSF H1-approved, high-performance synthetic lubricant. High-temperature food grade solid lube provides superior lubrication up to 176°C (350°F).
HIGH TEMPERATURE GRAPHITE FOOD GRADE SOLID LUBE FVSL525	This solid lubricant made of natural graphite and performance additives is NSF H1-approved for food and beverage applications up 232°C (450°F). Suitable for challenging and high-temperature environments where petroleum-based lubricants may fail. Provides a dry alternative for applications intolerant to liquid lubricants or rotational torque.
CHEMICAL RESISTANT-HIGH TEMPERATURE SOLID LUBE FVSL531	Made for the most demanding applications, this NSF H1-approved formula combines food safety with extreme chemical resistance. Chemical resistant formula withstands harsh processing and wash-down environments.

ENGINEERING DATA

Lubrication Code	Description	Lubrication Type	Colour	Temperature Range*	NSF H1 (FDA)	High Chemical Resistance	Application Information
VSL609	Standard polymer solid lube	Synthetic PAO and additives	Dark gray	-48°C to 102°C (-55F° to 215°F)	NO	NO	General purpose
FVSL613	Standard food-grade polymer solid lube	Synthetic polyalphaphaolefin (PAO) and additives	White	-46°C to 93°C (-50°F to 200°F)	YES	NO	General purpose food-grade, including standard wash-down
FVSL528	High temperature polymer solid lube	Synthetic ester blend and additives	White	-31°C to +176°C** (-25°F to 350°F)	YES	NO	General purpose with higher temperatures, including standard wash-down
FVSL525	Graphite solid lube high temperature	Graphite	Black	0°C to 232°C** (32°F to 450°F)	YES	NO	High-temperature food-grade
FVSL531	Extreme chemical resistant polymer solid lube	Perfluoropolyether	White	-36°C to +176°C** (-35°F to 350°F)	YES	YES	Strongest chemical resistance for heavy wash-down with organic solvent-based cleaning products (dairy, pork)

*For bearings using Solid Lube, the speed may be limited by the maximum operating temperature of the Solid Lube. Consult Timken product catalogues for actual limiting speed.
**High-temperature operation may require special closure and radial internal clearance.

For further information please contact your Timken representative.

LUBRICATION CHARACTERISTICS

Determining the maximum operating speed for ball or roller bearings involves various factors, such as bearing characteristics, seals, service conditions, and lubrication. Polymer solid lubricant reduces the limiting speed of a bearing. Consult the table for the appropriate bearing type to calculate the limiting speed with solid lube.

$$\text{Limiting Speed (rpm)} = \frac{\text{PDN}}{\text{Pitch dia. (mm)}}$$

$$\text{Pitch diameter (mm)} = \frac{\text{bore (mm)} + \text{O.D (mm)}}{2}$$

Further, the maximum recommended speed for solid polymer lubricated bearings is constrained by the maximum continuous operating temperature of 102°C (215°F). These speeds are determined at ambient temperatures of 30°C (86°F).

Please contact your local Timken representative for the calculated speed for graphite solid lubricant.

Bearing Type	Speed Rating (PDN)*
Single row ball bearing, metal cage	300.000
Single row ball bearing, plastic cage	40.000
Angular contact ball bearing	150.000
Cylindrical roller bearing	150.000
Double row ball bearing	150.000
Tapered roller bearing	45.000
Spherical roller bearing	85.000

MINIMUM LOAD

Each bearing comes with a specified minimum load requirement upon installation to guarantee the proper rotation of the rolling elements. Bearings with light loads are prone to rolling element skidding. Solid polymer lubrication requires a higher minimum load during operation. If your application involves a light load, please contact Timken engineering support for assistance in determining the minimum loads using solid polymer lubrication.

TIMKEN

The Timken team applies their know-how to improve the reliability and performance of machinery in diverse markets worldwide. The company designs, makes and markets bearings, gear drives, automated lubrication systems, belts, brakes, clutches, chain, couplings, linear motion products and related industrial motion rebuild and repair services.

Stronger. By Design.

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