



**LORAM** ™

Technologies  
FRICTION MANAGEMENT



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Loram Technologies has been providing railroad maintenance equipment and services since 1954 and has become a recognized innovator and expert in all things friction management. Our understanding of the wheel and rail interaction gives us a distinct advantage over other friction management equipment manufacturers and service providers. To provide the most value to our customers, Loram Technologies challenges the status quo by utilizing the latest technology to create new products and improving existing processes, services, and designs.

Our innovative friction management products extend wheel and rail life, increase fuel savings, and improve rail vehicle performance. Loram Technologies' unique line of ecologically clean products have been field proven to be one of the most cost-effective solutions on the market. Combining knowledgeable personnel, advanced equipment, intellectual property, and proprietary designs give Loram Technologies an unparalleled product portfolio.

Not only is Loram Technologies a frontrunner in developing friction management application systems, but we are also vertically integrated into all aspects of friction management with capabilities in engineering, manufacturing, installing, remote monitoring, data analyzing, consulting, servicing, maintaining, and warehousing. Loram Technologies offers industry leading products, services, and maintenance that provide our customers with a complete friction management solution.

SPEED. PERFORMANCE. RELIABILITY.



**FRICTION  
MODIFIERS &  
LUBRICANTS**

# FRICION MODIFIERS & LUBRICANTS OVERVIEW

Loram Technologies has over 60 years of experience studying rail performance. Through comprehensive research, we have gained the understanding of the root causes of wheel and rail interaction problems and the threat they pose to the life of your wheels and rail. Increasing the life of these assets drives our development of the ideal top of rail friction modifiers and gauge face greases.

Our friction management offerings focus on top of rail friction modifiers and gauge face greases. Loram Technologies' product portfolio has three types of top of rail friction modifiers—TOR-WB, TOR-H<sub>2</sub>O<sub>X</sub>, and TOR-Xtend—and an all season gauge face grease. Loram Technologies' friction modifiers and gauge face grease each have unique performance characteristics. Based on individual railroad's requirements, we are able to provide the appropriate friction modifier to reduce lateral/vertical forces, increase fuel savings, and maximize carry distance. Our high performance gauge face grease is an all season lubricant designed with 75–90% renewable content for heavy haul rail lines.

Loram Technologies heavily invests in and partners with industry leaders to aggressively pursue research and development activities in friction modifiers and grease. We understand that the railroads need to change with advances in technology, and our continued research and development efforts are focused on innovation that maximize the railroad's ROI.



TOR-WB is the best option when conventional synthetic friction modifiers just won't do. With carry distances greater than 4 miles (6 km) and environmentally clean compounds, TOR-WB is a green, industry leading top of rail friction modifier.

## TOR-WB (WATER BASED) TOP OF RAIL FRICTION MODIFIER

TOR-WB is a 100% water based, organic top of rail friction modifier specifically developed to address situations where the use of synthetic friction modifiers are undesirable. Being water based, TOR-WB does not clog bars, is non-corrosive, has a wide operating temperature range, and does not need to be mixed or stirred. This product is compatible with all industry standard top of rail friction management systems and has a carry distance greater than 4 miles (6 km). Like all of Loram Technologies' friction modifiers, TOR-WB increases fuel savings, reduces noise, and significantly increases wheel and rail life.



### TOR-WB FRICTION MODIFIER ADVANTAGES

- Water Based
- Eco Friendly
- Increase Fuel Savings
- Reduce Noise
- Non-Corrosive
- Lower Consumption
- 4+ Mile (6 km) Carry
- Extend Rail Life

TOR-WB is available in: 5-gallon (19 L) pails | 55-gallon (208 L) drums | 275-gallon (1,041 L) bulk totes



TOR-H<sub>2</sub>OX is a hybrid top of rail friction modifier and is one of Loram Technologies' most popular products. It is a non-cavitating material that extends the life of wheels and rail.

## TOR-H<sub>2</sub>OX (HYBRID) TOP OF RAIL FRICTION MODIFIER

TOR-H<sub>2</sub>OX is ideal for railroads looking for the benefits of both water based and traditional synthetic based friction modifiers. This hybrid top of rail friction modifier provides exceptional fuel savings, reduces noise, and extends wheel and rail life. TOR-H<sub>2</sub>OX is a non-cavitating material that has a 4–6 mile (6–10 km) carry distance. This allows the applicator units to be spaced approximately 8 miles (13 km) apart in bi-directional traffic, requiring fewer wayside units. This friction modifier can be used with any wayside top of rail friction management equipment.

### TOR-H<sub>2</sub>OX FRICTION MODIFIER ADVANTAGES

- Water Base Benefits**  
It does not clog bars, works in extreme temperatures, and does not need to be mixed or stirred.
- Non-Corrosive**  
It does not damage tie plates or spikes and does not cause shunting issues. Bar applicators can be placed without affecting the signal equipment.
- Lower Consumption**  
TOR-H<sub>2</sub>OX requires 33%–50% less modifier to be applied than conventional top of rail friction modifiers.
- Increased Carry**  
TOR-H<sub>2</sub>OX has a 4–6 mile (6–10 km) carry, which means less units, less friction modifier, and a greater ROI.

TOR-H<sub>2</sub>OX is available in: 5-gallon (19 L) pails | 55-gallon (208 L) drums | 275-gallon (1,041 L) bulk totes



TOR-Xtend is Loram Technologies' synthetic friction modifier that provides a high performing, cost-effective product for any railway application. From mainlines to yards, this friction modifier meets all needs.

## TOR-Xtend® (SYNTHETIC) TOP OF RAIL FRICTION MODIFIER

Through years of research and with the help of Loram Technologies' advanced wheel/rail simulation test machine, Loram Technologies developed the top of rail friction modifier, TOR-Xtend. It is an environmentally friendly, clean synthetic friction modifier that has a low evaporation rate and is specifically developed for top of rail applications. Along with increased fuel savings, reduced noise, and extended wheel and rail life, TOR-Xtend is cost effective, uses less material per application, and has a carry distance of up to 6 miles (10 km).

### LORAM TECHNOLOGIES' TOR-Xtend FRICTION MODIFIER ADVANTAGES

- Solution vs Emulsion**  
TOR-Xtend is a solution and therefore less likely to clog bars.
- All Season Protection**  
It works in extreme temperatures (-20°F to 150°F/-29°C to 66°C) without needing to be mixed or stirred.
- Non-Corrosive**  
It does not damage tie plates or spikes and does not cause shunting issues. Bar applicators can be placed without affecting the signal equipment.
- Superior Synthetic**  
This rain resistant friction modifier maintains its effectiveness longer especially in yards and on mainlines.

TOR-Xtend is available in: 5-gallon (19 L) pails | 55-gallon (208 L) drums | 275-gallon (1,041 L) bulk totes



EcoCurve Heavy Haul Grease is an excellent water resistant, all season grease. This grease is proven to provide a superior performance in any climate and environment. It provides lasting protection even in heavy rain and has excellent pumping and transfer capabilities.

## EcoCurve Heavy Haul Grease

GAUGE FACE LUBRICANT



Loram Technologies knows that performance is only one side of the story. It's important to consider environmental impacts. That's why we offer EcoCurve Heavy Haul high performance grease. Where there is a need for extreme performance and environmentally friendly products, EcoCurve is the answer. EcoCurve uses a specially formulated grease thickener for enhanced stability in all climates and conditions. Its highly adhesive nature gives lasting protection against wear and corrosion in even the heaviest of rail traffic conditions. Under extreme pressure and temperatures, heavy workloads, and torrential rain, EcoCurve remains on the gauge corner. This reduces runoff into the subsoil and water table. EcoCurve is free of heavy metals and toxic additives and made with 75–90% renewable content, which markedly helps reduce overall carbon footprint.

### EcoCurve GAUGE FACE LUBRICANT ADVANTAGES

- **Renewable Materials**  
Uses 75–90% renewable content.
- **All Season Protection**  
Formulated grease that increases stability in all temperatures.
- **Increased Carry**  
Has excellent carry down properties, which reduces the amount of grease needed.
- **Highly Adhesive**  
Provides longer lasting protection against wear and corrosion.

EcoCurve Heavy Haul Grease is available in: 44 pound (20kg) pails | 1,985 pound (900 L) bulk totes



# APPLICATION SYSTEMS

TOP OF RAIL AND GAUGE FACE



# APPLICATION SYSTEMS OVERVIEW

Loram Technologies has the most advanced friction management application systems in the industry. Our application systems consistently apply the precise amount of friction modifier or grease to the rail in order to optimize wheel and rail interaction and reduce waste. Loram Technologies' application systems are easy to install and maintain, built to last, and provide an excellent ROI.

Our application systems are accurate and reliable. These systems identify and adjust to the speed and size of each train in order to apply the desired amount of friction modifier or grease. In combination with Loram Technologies' friction modifiers and grease, this repeatable output extends the wheel and rail life, reduces lateral/vertical forces, and reduces fuel consumption.

Loram Technologies' friction management systems are designed for ease of maintenance and durability. The design reduces cavitation and is driven by an advanced pumping and control system. All of Loram Technologies' systems have field serviceable application bars, which have wide ports that decrease clogs and are built with less parts for serviceability.



TracShield is the industry's leading wayside top of rail friction management system. This system consistently and reliably delivers the precise amount of friction modifier.

## TracShield®

TOP OF RAIL APPLICATOR

TracShield is an intelligent top of rail wayside friction management system. It senses the passing of train wheels over the TracShield's durable sensors and automatically dispenses a controlled amount of friction modifier to the top of the rail. Loram Technologies offers three different sized TracShields that provide options to select whether a smaller footprint, a large capacity tank, or a combination of those two is the most important feature.

Loram Technologies' wayside system is designed for precise friction modifier application, ease of maintenance, and functionality. TracShield features a positive displacement pump that consistently applies the correct amount of friction modifier to the bar applicator in any temperature. This wayside system is able to dispense a wide range of friction modifiers, which allows usage of different friction modifiers for different situations. The 25-gallon and 100-gallon TracShields feature EcoLiner®, an optional proprietary removable tank insert, that reduces maintenance time for seasonal grease changes.

Loram Technologies' reliable design requires very little maintenance and has sensors that capture the condition of the system at all times. These sensors monitor friction modifier level, rainfall, door status, battery charge, temperature, and more. To reduce the amount of top of rail units needed, Loram Technologies' TracShield utilizes a single digital controller that is capable of controlling the output to two separate tracks.

**25**  
GALLON CAPACITY  
(95 L)



Fits into tight spaces with same capabilities

**100**  
GALLON CAPACITY  
(379 L)



Removable insert option and reduced

**200**  
GALLON CAPACITY  
(757 L)



Large capacity requires less frequent refill



The GaugeShield wayside lubrication system challenges the status quo with EcoLiner, a proprietary removable tank insert, and bottom-feed reservoir system. It reduces cavitation resulting in greater reliability, higher performance, and less maintenance.

## GaugeShield® GAUGE FACE APPLICATOR

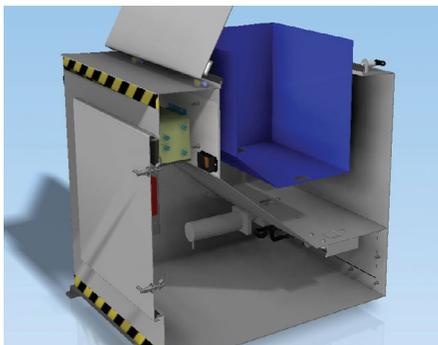
Loram Technologies' GaugeShield creates a smooth interaction between the gauge face of the rail and the wheel flange, which improves steering and reduces noise. GaugeShield is an intelligent wayside system that senses the passing of train wheels over the GaugeShield's durable sensors and automatically dispenses a controlled quantity of grease to the gauge face of the rail. This wayside system is available in two sizes to best fit your needs. The larger tank is ideal for high traffic areas, and the smaller tank provides a reduced footprint for tighter areas.

GaugeShield is designed for precise grease application, ease of maintenance, and functionality. The proprietary system incorporates a bottom feed design that reduces cavitation and an optional EcoLiner, a removable tank insert, that reduces maintenance time for seasonal grease changes. GaugeShield has a customizable pump and control system with higher resolution that outputs less grease than other gauge face applicators resulting in reduced consumption and operating costs.

Loram Technologies' reliable design requires very little maintenance and has sensors that capture the condition of the system at all times. To reduce the amount of gauge face units needed, Loram Technologies' GaugeShield utilizes a single digital controller that is capable of controlling the output to two separate tracks.

**200**  
POUND CAPACITY  
(91 KG)  
GAUGESHIELD

**800**  
POUND CAPACITY  
(363 KG)  
GAUGESHIELD





Loram Technologies' 25-gallon TracShield and 200-pound GaugeShield are built to provide a smaller footprint and are ideal for transit railroads.

## 25-Gallon TracShield and 200-Pound GaugeShield

### TOP OF RAIL AND GAUGE FACE APPLICATORS

Loram Technologies' 25-gallon TracShield and 200-pound GaugeShield are smaller versions of the standard TracShields and GaugeShields. These smaller systems have a reduced footprint that make them ideal for transit, commuter, and restricted clearance railroads. They contain the same intelligent controller, pump, and application systems as the larger capacity TracShields and GaugeShields. These systems have the optional EcoLiner removable tank inserts.



**25**  
GALLON  
CAPACITY  
(95 L)

**200**  
POUND  
CAPACITY  
(91 KG)

Fits into tight spaces  
with same capabilities





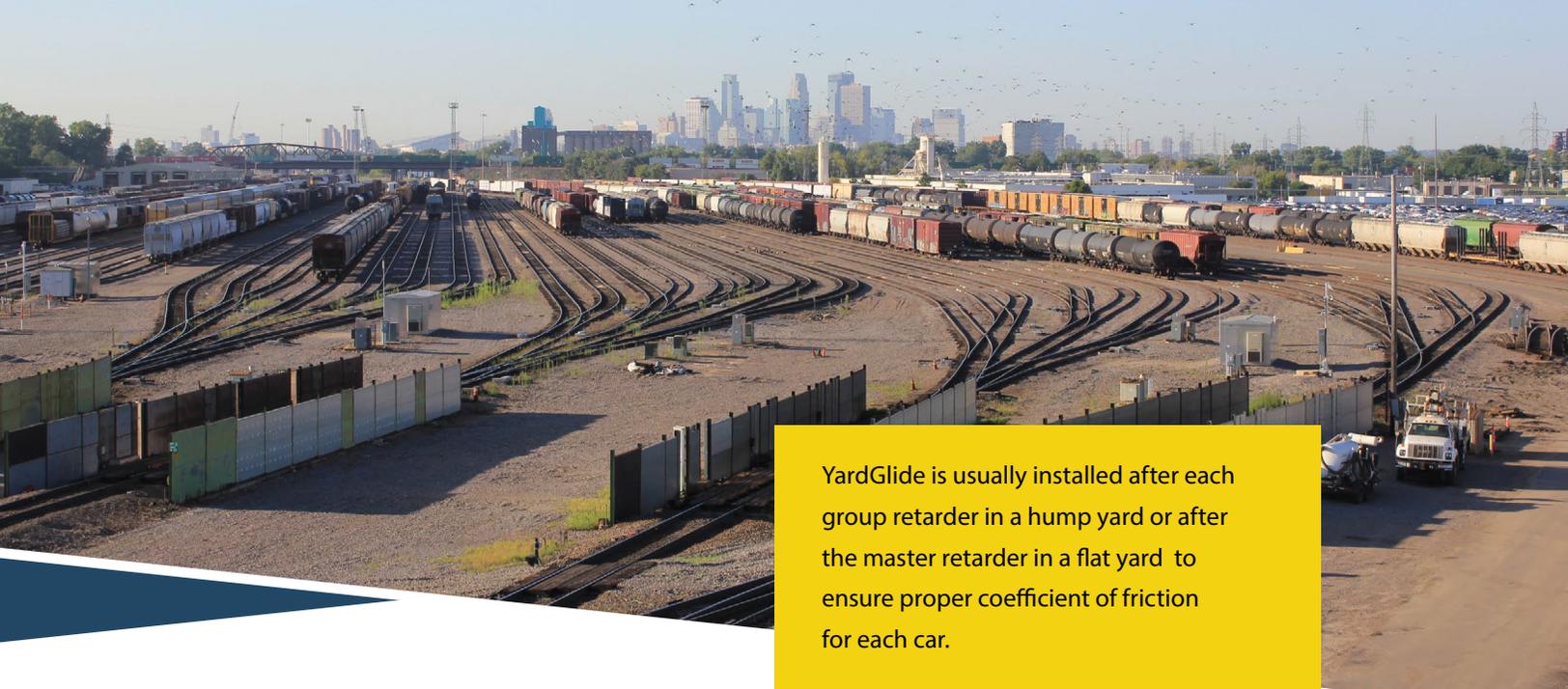
The TracGlide is able to be mounted to locomotives, cars, and specialty maintenance equipment like rail grinders.

## TracGlide

### ONBOARD TOP OF RAIL APPLICATOR

Loram Technologies' TracGlide is a patented, intelligent onboard friction management system. The computer controlled system calculates and applies a precise, thin layer of friction modifier to the top of rails. The TracGlide is programmed to know how many cars are in a train and automatically identifies the correct amount of friction modifier to apply. With this precision, the friction modifier dissipates as the train passes with no buildup. TracGlide is proven to reduce lateral/vertical forces that cause wear on the wheel and rail. It also increases productivity, lowers track maintenance, and reduces fuel and energy usage.





YardGlide is usually installed after each group retarder in a hump yard or after the master retarder in a flat yard to ensure proper coefficient of friction for each car.

## YardGlide®

### TOP OF RAIL APPLICATOR

YardGlide ensures a smoother operating railroad yard. This intelligent top of rail friction management system provides predictable rolling resistance for yard control systems to achieve powerful results with little to no mess. YardGlide senses the passing of cars in a yard and automatically dispenses the precise quantity of friction modifier to the top of the rail to ensure consistent car rollability.

YardGlide is field proven to reduce high lateral/vertical forces in hump yards, which results in minimized car speed loss, reduced stalls and trim, fewer load shift adjusts, and fewer rollouts. No other solution provides a cleaner yard condition, reduces track maintenance, and helps improve yard productivity as well as YardGlide.

**54**

**GALLON CAPACITY  
(204 L)**

Not considered bulk  
lubricant storage



**100**

**GALLON CAPACITY  
(379 L)**

Reduced right  
of way footprint



**200**

**GALLON CAPACITY  
(757 L)**

Large capacity requires  
less frequent refill





Loram Technologies' bar application systems are modular in design and consist of only three components. Railroads save money by only replacing the necessary parts rather than the entire bar assembly.

Gauge Face Bar Applicator

# Bar Application Systems

## TOP OF RAIL AND GAUGE FACE APPLICATOR

Our innovative bar application systems improve friction modifier and grease application to the wheel and rail. Our field tested, unique line of bar applicators are the most effective products on the market. Loram Technologies' investment in research and development has ensured continuous improvements to our industry leading bar application systems.

As each bar application system consists of only three components, they are built to last and easy to maintain in the field. With a patented spring or air spring loaded design, Loram Technologies' bar application systems resist damage from hi-rail trucks or hollow worn wheels. Our bar applicators are compatible with any industry standard friction management system and with any friction modifier or grease. The combination of these features make our top of rail and gauge face applicators unmatched in the marketplace today.

### BAR APPLICATOR FEATURES

- Designed for quick removal during track maintenance.
- Proprietary molded rubber insert is resistant to UV and other outdoor elements.
- Gauge face grease output is angled toward the gauge corner of the rail to improve the grease pickup.
- Gauge face bar applicators have wider ports for easier grease flow and reduced clogging.



Gauge Face Applicator Bar Three Component Assembly



Top of Rail Bar Applicator

# Top of Rail & Gauge Face Specifications

	TracShield			GaugeShield		YardGlide		
	200 gallon / 757 L	100 gal / 379 L	25 gal / 95 L	800 lbs / 363 kg	200 lbs / 91 kg	200 gallon / 757 L	100 gal / 379 L	54 gal / 204 L
<b>Standard Equipment:</b>								
Top of Rail System	●	●	●			●	●	●
Gauge Face System				●	●			
Main Controller Box - Remote Monitoring Capable	●	●	●	●	●	●	●	
Positive Displacement Pump and Controls	●	●	●	●	●	●	●	●
Quick Connect Wiring	●	●	●	●	●	●	●	●
105 amp AGM Battery	●	●	●	●	●	●	●	
Adjustable Application Bar with Clamps	●	●	●	●	●	●	●	●
Single Direction Wheel Sensor	●	●	●	●	●	●	●	●
<b>Optional Equipment:</b>								
Yard Interface Capable						●	●	●
Dual Track Capable	●	●		●		●	●	
Solar Power	●	●	●	●	●	●	●	
Anti-Theft Package for Solar Panel	●	●	●	●	●	●	●	
Remote Monitoring (RM)	●	●	●	●	●	●	●	
Quick-Release Bar Clamps	●	●	●	●	●	●	●	●
Quick Connect Hose Kit	●	●	●	●	●	●	●	●
Four Bar Application System				●	●			
Grease Catch Pans (72 in. - 180 cm)				●	●			
Track Mats	●	●	●	●	●	●	●	●
EcoLiner Removable Tank Insert		●	●	●	●		●	
Bi-Directional Wheel Sensor	●	●	●	●	●	●	●	●
Tank Level Sensor	●	●	●			●	●	●
Rain Sensor	●							
Open Door Sensor	●							
Temperature Sensor	●	●	●	●	●	●	●	



	TracShield Top of Rail	GaugeShield Gauge Face	YardGlide Top of Rail
<b>Tank Capacity</b>	25, 100, and 200 gal (95, 379, and 757 L)	200 and 800 lbs (91 and 363 kg)	54, 100, and 200 gal (204, 379, and 757 L)
<b>Bar Applicator</b>	32 inches (80 cm)	24, 48, and 96 inches (60, 120, and 240 cm)	32 inches (80 cm)
<b>Power</b>	AC, Solar (DC)	AC, Solar (DC)	AC, Solar (DC)
<b>Track Options</b>	Single and Dual Track	Single and Dual Track	Single Track
<b>Tank Material</b>	Steel	Steel	Steel
<b>Remote Monitoring</b>	Loram Technologies	Loram Technologies	Loram Technologies
<b>Wheel Sensors</b>	Loram Technologies	Loram Technologies	Loram Technologies
<b>Directional Sensor</b>	Single or Bi-directional	Single or Bi-directional	Single or Bi-directional





# SERVICE OVERVIEW

# SERVICE OVERVIEW

Our experienced and knowledgeable personnel are one of Loram Technologies' core strengths. We work with each railroad to achieve their ideal friction management program. Our team can assist with a site specific, system specific, or hybrid friction management program based on the railroad's needs and specifications.

Loram Technologies' services consist of installation, unit maintenance, bulk filling, inspection, remote monitoring, and consulting. Loram Technologies' expertise is not limited to our own products, as we have improved, refurbished, maintained, and monitored existing friction management products on numerous railroads.

Loram Technologies believes in and understands the importance of safety and training. Each member of Loram Technologies' service team undergoes Loram Technologies and railroad specific safety training on an annual or as necessary basis. Our field employees also receive continuous and advanced training on how to safely and properly install and maintain all friction management systems.



Our knowledgeable and experienced team has installed thousands of wayside units. We are experts in unit placement, location preparation, and timely commissioning.

## Installation

The success of a friction management program is dependent upon proper site selection, installation, and calibration of the wayside units. Throughout the installation process, Loram Technologies is able to provide technical expertise, as we train customers on operation, maintenance, and troubleshooting of the wayside systems. This training is essential to correctly maintain the units and increase the longevity of the systems. Loram Technologies simplifies installation into a three stage process: pre-installation, site preparation, and installation.

### Pre-installation

Loram Technologies assesses the area to determine the best location for the friction management units. We consider road accessibility, cellular or satellite service availability, solar power capabilities, track grade, proximity to grade crossings and control points, and secure areas to deter vandalism. Loram Technologies then creates and coordinates a comprehensive installation plan.

### Site Preparation

Loram Technologies' preparation includes clearing brush, removing debris, trenching for hoses, leveling and tamping the ground as necessary, and placing the tank pad. During the site preparation, Loram Technologies requires very little track time and has a minimal impact on train operation.

### Installation

The friction management units are placed on the tank pad, hoses are routed, and the bar applicators are installed on the rail per Loram Technologies' design or railroad's specification. The units are then programmed, calibrated, and commissioned.



## Unit Services

### Maintenance

To receive the maximum value from your friction management program, the uptime of the systems is critical. With Loram Technologies' maintenance services, railroads benefit from our expertise and vertically integrated friction management operation. Loram Technologies' highly trained personnel are able to provide preventive, corrective, and predictive maintenance to any friction management system. With Loram Technologies' maintenance services, railroads have consistently seen a 90% or greater uptime efficiency.

### Bulk Filling

Loram Technologies provides bulk filling services with the ability to fill any friction management unit with any friction modifier or grease. We can haul up to 20,000 pounds (9,072 kg) of friction modifier or grease, which allows us to fill more units with one load. Loram Technologies' proprietary pumping system greatly improves fill speed and requires less time on site.

As part of Loram Technologies' bulk filling services, we provide comprehensive unit inspections to identify issues with the friction management system.

### Inspection

Loram Technologies' goal is to keep your friction management units running efficiently. Regardless of the manufacturer or maintenance provider, Loram Technologies is able to provide onsite inspection services.

Loram Technologies utilizes our proprietary custom app to provide feedback, photos, and other information. After the inspection, the app provides information instantaneously to help identify the urgency of the inspection results.



**LORAM**



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## Remote Monitoring

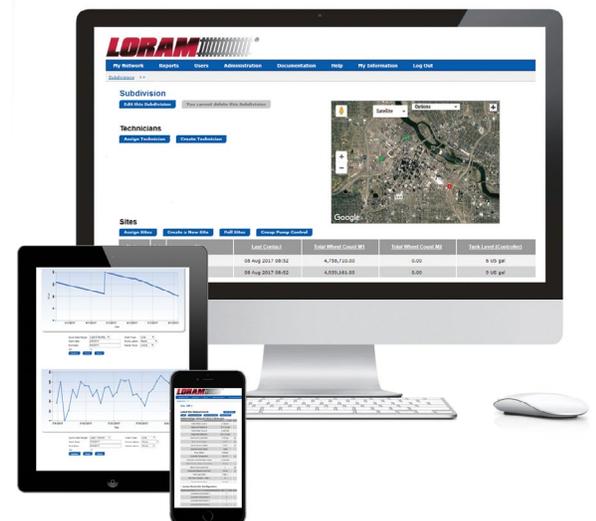
Data is more important than ever. With Loram Technologies' remote monitoring systems and analytical services, we collect data and turn it into understandable, usable, and manageable information. This streamlined data allows railroads and maintenance technicians to coordinate service visits, maximize uptime, and prevent both minor and major issues before they occur.

Loram Technologies provides a web accessible portal to allow railroads and maintenance technicians to see data on an entire population of units or units in specific territories. Railroads are able to control permission levels of their maintenance technicians, so the maintainers can view this data for only the specific units for which they are responsible. Along with viewing the data on the web portal, Loram Technologies provides understandable daily, weekly, and monthly reports to railroad leadership and other necessary personnel, so the necessary personnel are fully informed on the friction management program.

Loram Technologies' remote monitoring system compiles the friction management system's data continuously and train specific data during each event. System specific information includes solar power voltage, power source voltage, door status, friction modifier level, and readings from other optional sensors. Train information captured includes direction of travel, axle count, and amount of material applied.

Loram Technologies' remote monitoring and analytics services have been proven to increase unit reliability and improve the effective utilization of friction management systems. This ensures that the railroads receive the full financial benefits of their friction management program.

Our remote monitoring units are compatible with any friction management system. They continuously collect system and train information and then transfer that data at the end of each day.





## Consulting

With experience and expertise in all facets of the wheel and rail interaction including friction management, Loram Technologies' consulting services provide a customized friction management solution for any railroad need. Through site visits, tests and analysis, communication with railroad office and field personnel, and historical and current data analysis, Loram Technologies is able to firmly understand the specific challenges, parameters, and other variables that must be factored into identifying the optimal program. Loram Technologies provides numerous rail and wheel assessments including tribometer, lateral/vertical force, and carry distance tests. Loram Technologies' onsite personnel are typically able to quickly assess the test results and provide initial feedback. We also send all of the collected data to our specialized analysis team to efficiently analyze the data and provide a conclusion of the current situation and improvement recommendations. Loram Technologies also offers technical training that provides railroads with the knowledge on how to properly set up, operate, maintain, and troubleshoot the friction management systems. This training is essential to increase the longevity of the systems.



# Optional Products



## Quick-Release Bar Clamps

The quick-release bar clamps allow the entire top of rail or gauge face bar applicator to be removed in less than one minute. Placing the bar applicator back on the rail is just as quick. Since the bar applicator may need to be removed and reinstalled multiple times per year, quick-release bar clamps save hours of track time.



## Catch Pans and Track Mats

Our catch pans and track mats limit the impact grease and friction modifier have on the environment. The 72" (180 cm) catch pans collect excess grease at the application point. The track mats create an additional layer of protection within 50' (15 m) of the application point. Catch pans are for gauge face only, and track mats can be used for gauge face and top of rail.



## Remote Monitor

Loram Technologies' remote monitoring system collects data to provide actionable intelligence, so railroads can optimize their friction management programs. The system captures up to 10 separate data points with automatic daily updates. Railroads are able to receive customized reports and access full daily and historical data through our online portal.



## EcoLiner® Removable Tank Insert

Loram Technologies' EcoLiner, a proprietary removable tank insert, is an easy, no-mess option to switch from summer to winter grade greases. This insert also allows the dual purpose wayside unit to be reassigned from gauge face to top of rail or vice versa.



## Anti-Theft Solar Package

Loram Technologies' anti-theft solar package is a deterrent for vandalism and solar panel theft. This package includes a solid mast attachment with a riveted solar panel enclosure and an optional camera decoy.



## Friction Management

Loram Technologies recognizes that every railroad has unique needs and challenges that require a customized friction management program that specifically target those problems. With over 60 years of wheel/rail interaction experience and a robust product portfolio, Loram Technologies is confident that we can find the optimal solution to fulfill your needs.

Loram Technologies' friction management expertise allows us to properly utilize our superior application systems and friction modifiers to reduce your overall capital costs, maximize your operating ratios, and extend the life of your wheels and rail. Along with utilizing the proper friction management equipment and friction modifiers, Loram Technologies understands properly maintained and serviced equipment is crucial to unit uptime and thus providing the highest ROI. Our trained personnel will ensure that all of your friction management system are working to their fullest potential.

Loram Technologies is unmatched in our understanding and management of the interaction between the wheel and rail. With our expertise in engineering, manufacturing, installing, remote monitoring, data analyzing, consulting, servicing, maintaining, and warehousing, no other company is positioned to provide the full spectrum of friction management tools like Loram Technologies.

Work with Loram Technologies to achieve all of your friction management needs.



512.869.1542 | [LORAMTECHNOLOGIES.COM](http://LORAMTECHNOLOGIES.COM) | [LTI@LORAM.COM](mailto:LTI@LORAM.COM)

100 COOPERATIVE WAY | SUITE 400 | GEORGETOWN, TX 78626