

An IMCI Company



Stationary or mobile

Railway Lubrication



Wheel flange lubrication system **RAILJET**

When underground trains, trams and railway trains run from one station to the next with a low noise level, this is often due to Railjet, the mobile wheel flange lubrication system of BIJUR DELIMON International. It reduces friction and wear at both wheel flange and rail to a minimum.

By means of compressed air, the lubricants are sprayed onto the wheel flanges - and while the train is running, automatically transferred via the rail flanks on the wheel flanges of the following wheel sets.

Control

The wheel flange lubrication system RAILJET is provided with an electronic control system as standard.

Of course the wheel flange lubrication system can also be driven directly by the vehicle.

The drive of the metering pump is possible in three ways:

1. In case of the path-dependent drive, the spraying pulse is initiated via an existing path signal from the vehicle control system or via an additional transmitter. The path intervals between the spraying pulses are programmable and thus freely selectable.
2. The time-dependent drive triggers the spraying pulse after expiration of a programmable pause time.
3. In case of the arc-dependent drive of the metering pump, an curve sensor triggers the spraying pulse.
Here, only the starting wheel flange area is lubricated.

Function

The lubricant stored in the depressurized tank is sucked in by the metering pump. Through a 2/2-way solenoid valve for the compressed air, the pneumatic metering pump is started automatically. A defined quantity of lubricant is delivered into the compressed air, then carried via the flow divider to the spray nozzles and from there applied onto the wheel flanges.

All spray processes are triggered by a freely programmable control system.



Specification

Supply pressure / compressed air:	max. 10 bar
Working pressure / compressed air:	4 to 10 bar
Capacity of lubricant tank:	4 / 6,5 / 10 / 13 / 18 Liter (other tank capacities on request)
Quantity of lubricant metered by the pump:	0.1 cm ³ or 0.25 cm ³ /Spraying pulse
Pump outlets DP-P:	1 outlet
Pump outlets DP-M:	up to 2 outlets (integrated solenoid valve for spray pulse and switch over according to driving direction)
Spray duration (control-dependent):	adjustable
Lubricants*:	- oils - liquid greases service viscosity 20 mm ² /s to 2.500 mm ² /s NLGI-class 000, others on request
Temperature range:	- mechanical parts - electrical control unit - 40°C to + 70°C - 25°C to + 70°C (other ranges on request possible)
Mains voltage:	24 VDC / 72 VDC / 110 VDC (other voltages on request possible)
Power input 24 VDC / 72 VDC / 110 VDC per solenoid valve:	10 W
Power input 24 VDC / 72 VDC / 110 VDC control unit:	5 W
IP protection class of solenoid valve:	Standard IP65 (IP68 possible at option)
System design:	IEC 571 / EN 61373 / EN 15427 / EN 45545 / EN 55011 EN 50155 / EN 50121-3-2 / EN 60077

* Biodegradable lubricants can be used.
For lubricants with solids content, please consult our specialists.
Lubricant lists will be sent you on request.

Advantages

- 5 to 15% saving in driving energy
- Reduction of wear by up to 80 %
- Cost reduction due to greater reprofiling intervals
- Preservation of environment by noise attenuation
- Low LCC by use of low maintenance components

And still more:

Even biodegradable lubricants can be used the low weight of the spray nozzle of 265 g only clearly facilitates the installation and the adjustment the intelligent electronic control allows the adaptation to all operational requirements.



RAILJET

Mobile Top-of-Rail friction modification **RAILJET**

When trams drive along narrow curves without any annoying squealing, the reason is quite often the use of RAILJET, the mobile top-of-rail treatment from BIJUR DELIMON International. Apart from reducing noise, it also minimises wear on the top of the rail and reduce rippling. In curves, a friction modifier is sprayed evenly onto the top of the rail by means of compressed air.

Constant friction ratios in defined track areas are achieved by application of an even and very thin separating film.

Control

The RAILJET mobile top-of-rail friction modification system is equipped as standard with an electronic control.

The metering pumps can be activated in different ways:

- Manual activation in certain areas (typically on special lubricating vehicles)
- Activation by means of a curve sensor
- Activation by means of on-board information and positioning systems (e.g. GPS, IBIS, Balises...)

Parameters such as quantity, application range, duration and frequency, curve radius and position can be taken into account accordingly. The RAILJET mobile top-of-rail friction modification system can be activated directly by the vehicle control also, using the route information, which is frequently available in the vehicle (e.g. via GPS), for activation.

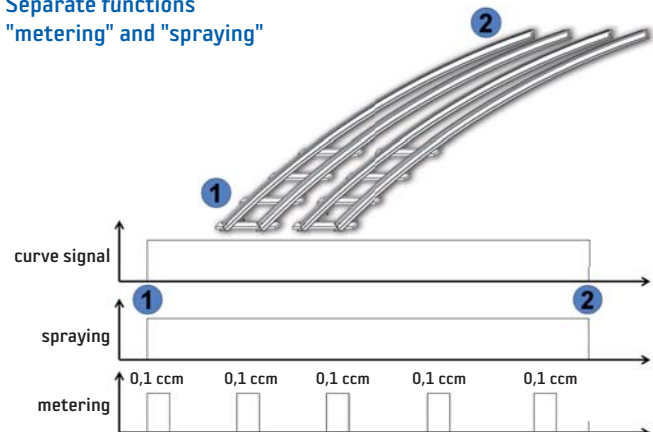
The data can alternatively be tracked and processed by the DELIMON RAILJET "pCoRail GPS" Controller.

Function

The top-of-rail friction modifier stored in depressurised tanks is sucked in by the metering pump. The pneumatic metering pump is triggered automatically by means of a 2/2-way solenoid valve for the compressed air. A defined quantity is released into the compressed air and applied either by means of a flow divider onto two spray nozzles on the inner and outer rail or with optional side control by means of a 3/2-way solenoid valve only onto the rail head on the inside curve.

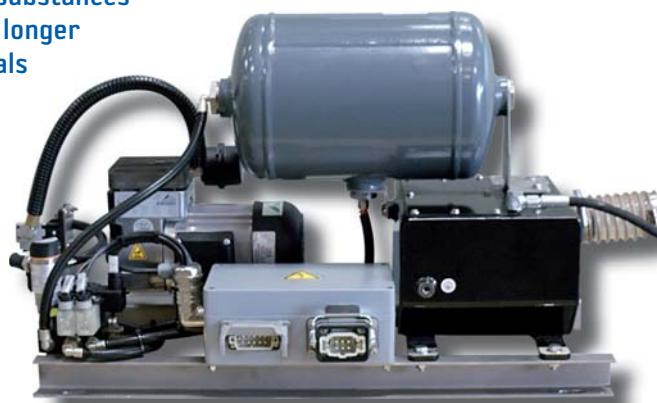
Separating agent for film thickness control

Separate functions
"metering" and "spraying"



Advantages

- **Environmentally friendly by effective reduction of curve squealing**
- **Reduces wear up to 80%**
- **Reduces rippling**
- **Saves up to 15 % driving energy**
- **Environmentally compatible thanks to biodegradable substances**
- **Cost reduction by longer reprofiling intervals**

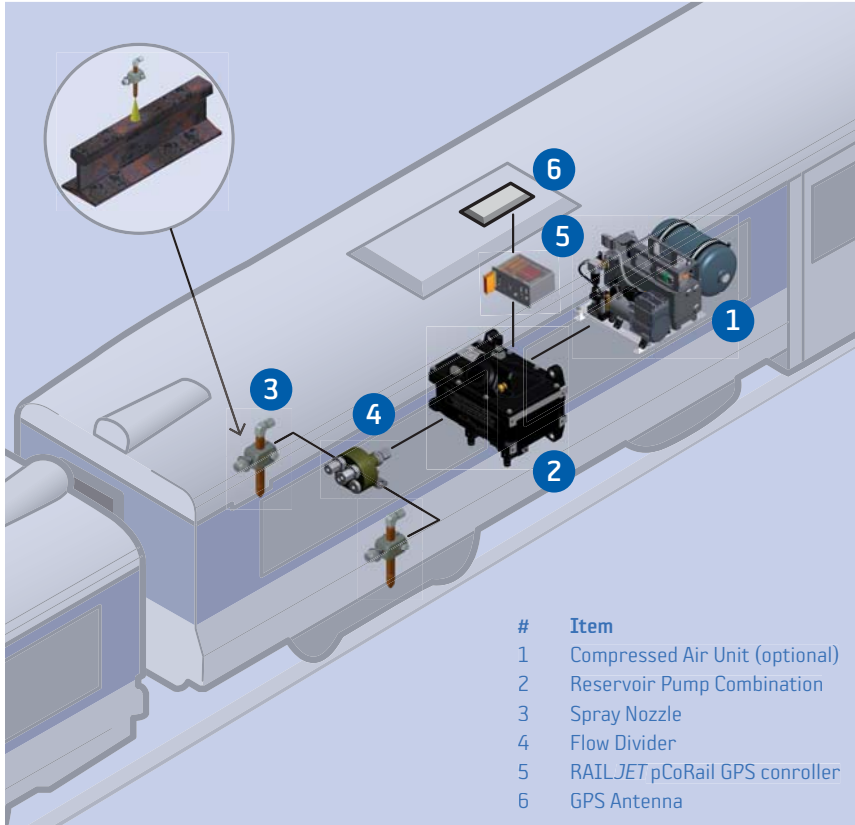


Compressed air unit



Reservoir pump combination

RAILJET pCoRail GPS controller



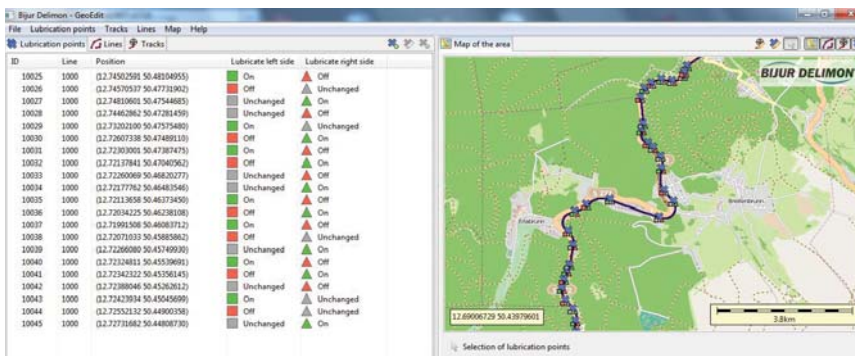
Function

The RAILJET pCoRail GPS controller allows the precisely positioned activation of lubrication by means of Global Positioning Systems (GPS). Additional to the vehicle-side controller device a lube point editor is part of the system scope.

Features

- Vehicle related lubrication cycles without trackside balises
- Combination of inertial sensor technology and map-matching-methods to increase the position accuracy
- Simple parametrization and definition of the lube points by means of the integrated lube point editor
- For safety relevant applications there is a system extension available, which combines input and output signals by fulfillment of the Safety Integrity Level (SIL) 4
- Minimized maintenance effort
- No moving parts e.g. cooling fan or hard drive assembled

Lubrication Point Editor



Specification

Power consumption (max)	100 W
Operating voltage	24 V DC, 72 V DC, 110 V DC
Solenoid valve outputs	8
Digital inputs	11
Relay outputs	4
SIL4 Expansion to be integrated	Yes
Weight	3 kg
Coding	RPG ...
Temperature range	- 25°C to + 70°C
GPS-Receiver	u-blox 6R with integrated inertial sensor technology

Processor	Intel PXA270 520MHz
RAM	128MB SDRAM
Persistent memory	32MB Flash
Cooling	without fan
Standards	<ul style="list-style-type: none"> • Environmental conditions: EN50155 • Shock / Oscillation: EN61373 • Temperature: EN60068 • EMV: EN50155, EN50121, EN61000
Network support (bus system)	Ethernet, CAN, MVB provided

Stationary track lubrication StaTrack

When track systems are exposed to heavy loads, when the use of the same causes much noise, StaTrack is employed:

- in track systems with narrow curve radii
- in case of grooved rails in the free and closed track bed in the public road system

StaTrack decentral

The decentral system feeds distributed points in the trackage. It works with a central grease pump. It delivers the lubricant via a high-pressure line directly to the lubrication points of the rail. For double-track systems, two pumps that work independently of each other can be installed in one cabinet.

StaTrack central

The central system with many tracks on a small area is installed for example in industrial yards, in the entrance and exit of the car shed. Due to progressive distributors it is possible that the individual tracks are supplied with lubricant via a common pump. The connection of a track and the apportioning of the lubricant are effected via so-called track distributors on site. The progressive distributors allow a comprehensive monitoring of the system.

Control

The electronic switching facility detects via appropriate electronic sensors, e. g. sonar, via inductive proximity switches or via signals from the route control and/or points control the number of vehicles. The lubricating cycle is triggered according to a programming. When it deals with a central system design, a field bus is used for the connection of the sensors and actuators.

Monitoring

- by limitation of the operation time of the lubricant pump, if required
- by an electrical level control of the lubricant tank
- by means of a centralized evaluation
- rain sensor; minimizes the lubricant consumption
- operational monitoring by progressive distributors (in case of StaTrack = centralized)



Sonar contact



Solar module



Rain sensor



StaTrack plus with interchangeable tank system

Design

- in the pump cabinet (as per choice) for single- and double-track systems
- as earth box usable by pedestrians - for single- and double-track systems
- as earth box usable by vehicles – bridge class 60, DIN 1072
- for gauge 1435 mm and 1000 mm or beside the track

Operating conditions

Lubrications points (per track):	up to 8
Max. delivery rate per lubrication point:	0.6 cm ³ /min
Working temperature range:	- 20°C to + 40°C
Consistency of lubricant:	NLGI class 2, 1, 0, 000
Metered volume per outlet and revolution:	0.1 cm ³
Mains voltage:	- decentral solar modul 24 VDC, 230 VAC, 400 VAC or contact-wire current inverter 600/750 VDC to 230 VAC or 24 VDC
	- central 400 VAC
Power consumption:	- decentral < 1 kW
	- central < 2 kW

Advantages

- Reduction of wear at wheel and rail
- Reduction of noise to a minimum
- Biodegradable lubricants of good adherence can be metered precisely, therefore an environmentally friendly solution
- Lubrication times and intervals can be adapted to local conditions
- Minimal lubricant consumption
- Increased reliability
- Reduced rippling



StaTrack

Since 1872 an innovator in lubrication technology

BIJUR DELIMON International has production facilities throughout the world, and these are certified to ISO 9001:2008 and ISO 14000. You can be confident that your centralised lubrication system satisfies the highest industrial quality standards. We are committed to quality and customer service!



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