

SKF EasyRail

Intelligent mobile centralized lubrication systems for wheel flange lubrication and top of rail conditioning





Your reliable partner

Highly qualified employees are at your side
as on-site contact persons

Available for you around the globe

With over 100 production sites around the world, plus a global network of sales offices in all markets, including engineering consulting and after sales services, SKF is truly available to support you where you are. For SKF lubrication solutions this means from sourcing of individual components, systems engineering support to complete systems for example.

Local presence

We develop and produce lubrication systems based on our deep knowledge and long experience of multi-sided industry machinery applications. SKF has lubrication systems production sites in Germany at the Berlin, Hockenheim and Walldorf locations, as well as in Argentina, China, Finland, France, India, Italy, Japan, the Netherlands and the US. These centers act as a local competence center and can support you on customizing lubrication systems to your needs.

To find your local lubrication specialist you can use the SKF distributor search on skf.com/lubrication.

Germany
Berlin



Italy
Milan



Japan
Osaka



China
Shanghai



USA
Hampton





Utilize your capacities

With centralized lubrication systems your rail vehicle can be more efficient and more reliable

Intelligent technologies to reduce energy, fuel consumption and material wear of rolling stock are taking ground everywhere in the railway sector. The American Association of Railroads (AAR) estimated that the wear and friction occurring in the wheel/rail interface of trains due to ineffective lubrication costs railway operators in excess of 2 billion USD each year.

SKF EasyRail systems target the friction and noise occurring at the wheel/rail interface of rail vehicles.

SKF EasyRail systems for wheel flange lubrication and top of rail conditioning are mounted on-board on the first leading vehicle axle and support operators to achieve:

- cost savings in vehicle and infrastructure maintenance
- lower noise emissions
- reduce energy and fuel consumption.

SKF EasyRail systems require low maintenance and operate reliably even under extreme climatic conditions.

Applications:

On-board lubrication systems have proven to be very flexible and effective applications for railway operators due to their variable setting options.

SKF EasyRail systems can be configured for single- and dual-line lubrication systems applications. Applications include locomotives, regional and commuter trains, high-speed trains, trams, metros and more.

Advantages:

- Maintenance-optimized system configuration
- Longer intervals between wheel reshaping or replacement
- Reduced vehicle downtime
- Lower noise emissions
- Reduced energy and material consumption
- Use of biodegradable lubricants
- Systems for vehicle without on-board airsupply available (SKF EasyRail Airless)





The right solution for better operating characteristics

SKF offers a complete portfolio of on-board solutions for wheel flange lubrication and top of rail conditioning

Single-line lubrication systems for railway vehicles:

- SKF EasyRail Compact
- SKF EasyRail Airless (WFL)

Dual-line lubrication systems for railway vehicles:

- SKF EasyRail Low Pressure
- SKF EasyRail High Pressure

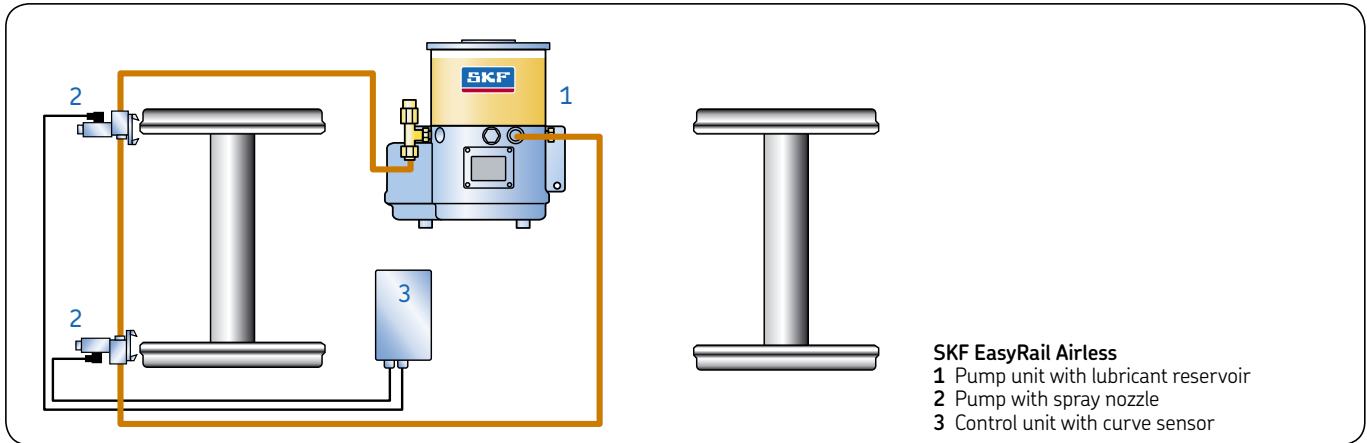
Centralized lubrication systems for top of rail conditioning:

- SKF EasyRail Airless (TOR)



SKF EasyRail Airless (WFL)

Single-line wheel flange lubrication systems



SKF EasyRail Airless operates through output of the lubricant via an electromagnetic pump, whereby the lubricant is applied in a defined quantity on the wheel flange without use of compressed air.

Each pump-nozzle unit is equipped with a heating system in order to provide the delivery of lubricant even under cold weather conditions. According to operational requirements as wear of the bogie, three different nozzle designs can be offered for installation which allow adjustments. Customized solutions are available upon request. A KFG piston pump serves as lubricant reservoir and recirculation unit.

The intelligent control unit is effectively managing the lubrication needs of the operator and reduces the lubricant consumption to a minimum.

Advantages

- Very compact design
- Low weight
- No compressed air needed
- Exact pump-nozzle metering
- Pump with internal heater
- Works with oil and fluid grease

Applications

SKF EasyRail Airless systems are used on tramway or light rail vehicle systems and metros, where compressed air supply is not available.

Standard components

- Electrically operated piston pump unit with lubricant reservoir:
 - KFG
- Electromagnetic distribution pump:
 - PER-1 with one nozzle
 - PER-2 with two nozzles, three different nozzle designs
- Control unit and curve sensor:
 - LCG2



KFG



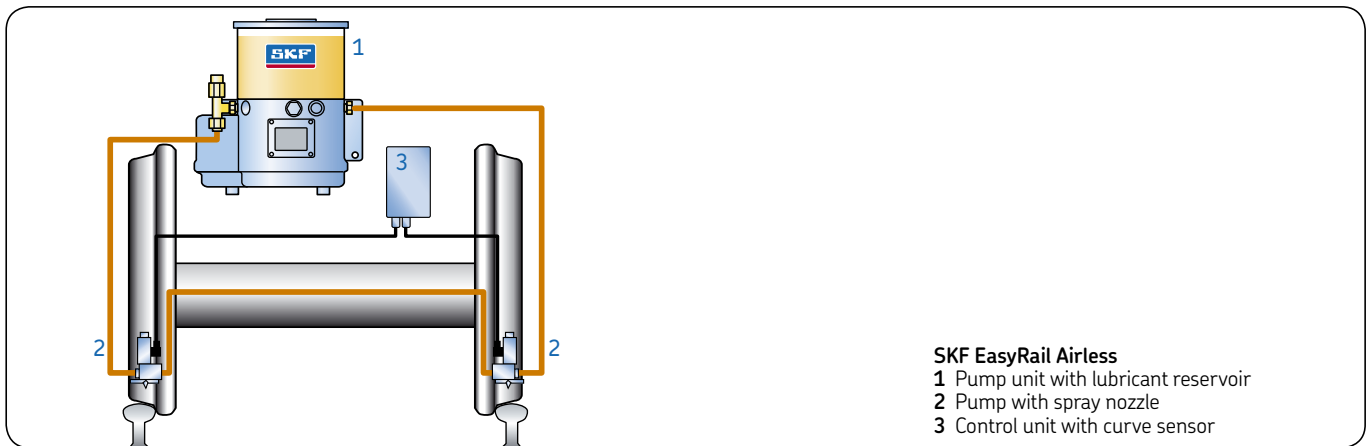
PER-1



PER-2

SKF EasyRail Airless (TOR)

Single-line lubrication systems for top of rail conditioning



SKF EasyRail Airless

- 1 Pump unit with lubricant reservoir
- 2 Pump with spray nozzle
- 3 Control unit with curve sensor

Based on the technology designed for wheel flange lubrication the SKF EasyRail Airless System for top of rail conditioning (TOR) provides one further option for reducing abrasive wear and noises at the wheel-to-rail contact.

The electromagnetic pumps, working without any additional compressed air supply and designed for use in roughest environment, may be installed to any suitable space of the bogie above the rail very closely. For TOR the PER-pumps are equipped with one single nozzle applying the friction modifier vertically to the top of the rail precisely and in a pre-defined quantity.

An economic and ecologic use of the intended friction modifier is supported by an optional control unit with integrated curve sensor. The integral heater and the rugged and low-maintenance design of the pumps together with the proven accessories supplied by SKF Lubrication Systems provide an optimum regarding life-cycle costs.

Advantages

- Very compact and rugged design
- Low weight
- No compressed air needed
- Exact pump-nozzle metering
- Pump with internal heater
- Pumps compatible to common friction modifier
- Optional curve sensor available

Applications

SKF EasyRail Airless systems are for use on tramway or light rail vehicle systems and metros, without pressured air supply and at low to average velocities.

Standard components

- Electrically operated piston pump unit with lubricant reservoir:
 - KFG
- Electromagnetic distribution pump:
 - PER-1 with one nozzle
- Control unit and curve sensor:
 - LCG2



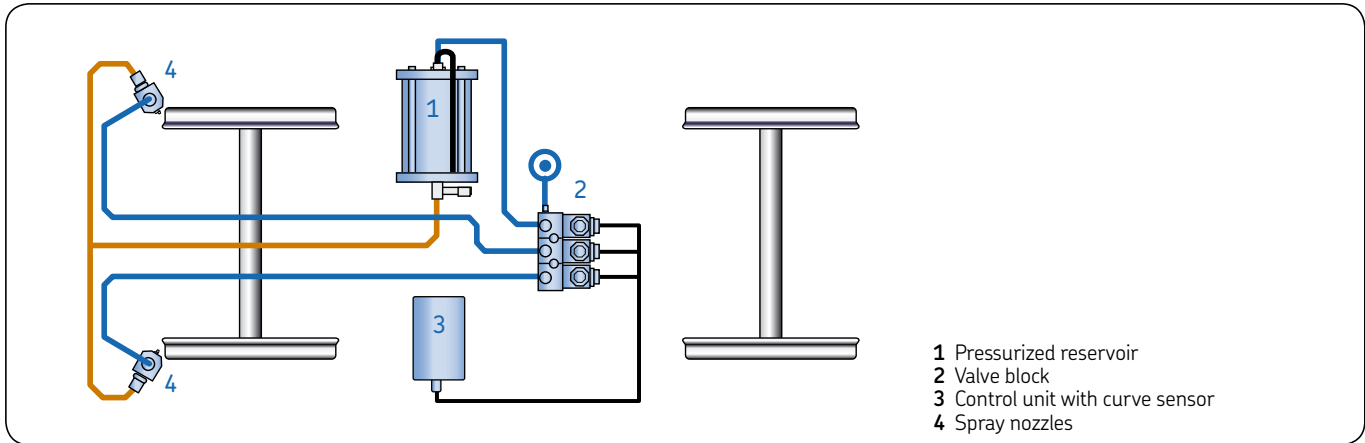
KFG



PER-1

SKF EasyRail Low Pressure

Dual-line wheel flange lubrication systems



SKF EasyRail Low Pressure transports compressed air and the lubricant in separate lines and meters the lubricant directly inside the spray nozzle.

The continuous compressed air supply for the pressure reservoir is enabled when the rail vehicle is made operational. The system pressure can be up to 10 bars. The lubricant is metered inside the spray nozzles (typically 0,03 or 0,05 cm³/spray) and applied with high accuracy onto the wheel flanges.

The system operates allows flexible installation (horizontal/vertical) with maximum line lengths of 5 m between pressurized reservoir and spray nozzle. The pressurized reservoir is customized to holding capacities of 4,5 and 6 litres.

The intelligent control unit is effectively managing the lubrication needs of the operator and reduces lubricant consumption to a minimum.

Advantages

- Compact design
- No separate grease pump
- Separable nozzle feeding (right/left)
- Exact spray-nozzle metering
- Flexible reservoir mounting position (horizontal/vertical)

Applications

SKF EasyRail Low Pressure systems can be universally used on all vehicle segments from urban transport to regional and inter-city trains as well as locomotives. The ease of installation also allows quick retrofitting on existing rail vehicles.

- System allows a maximum line length of 5 m between the grease reservoir and spray nozzle
- Single pump solution for vehicles with a maximum of 10 m distance between the wheelsets which need to be sprayed
- System air pressure: 10 bars

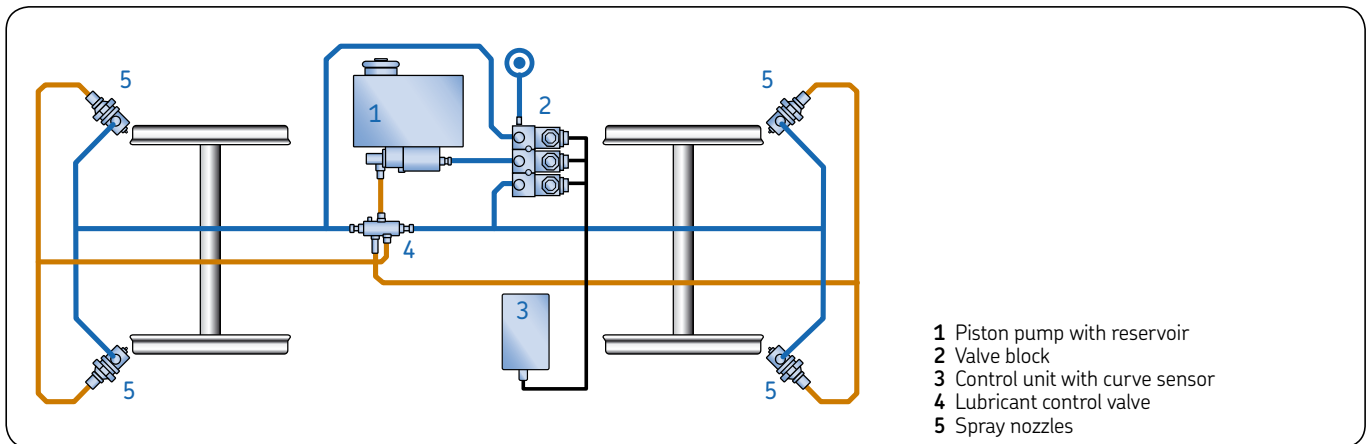
Standard components

- Pressure reservoir:
 - BF4.5
 - BF6-S3
- Spray nozzles:
 - SP9-2
 - SP9-2-S7
- Control unit and curve sensor:
 - LCG2
- Actuation via valve unit
- 3/2-way valve



SKF EasyRail High Pressure

Dual-line wheel flange lubrication systems



SKF EasyRail High Pressure transports compressed air and the lubricant in separate lines and meters the lubricant directly inside the spray nozzle.

The system pressure can be up to 100 bars. The lubricant is metered inside the spray nozzles (typically 0,03 or 0,05 cm³/spray) and applied with high accuracy onto the wheel flanges. The high system pressure allows maximum line lengths of 10 m between pump unit and spray nozzle. The system features enable save lubricant application at extreme speed and/or environmental conditions, like low temperatures (down to -40 °C with suitable lubricants).

The SKF EasyRail High Pressure system can be customized as a centralized lubrication unit for bi-directional operations.

The intelligent control unit is effectively managing the lubrication needs of the operator and reduces lubricant consumption to a minimum.

Advantages

- System lubricant pressure up to 100 bars
- Suitable for bi-directional travel
- Separable nozzle feeding (right/left)
- Exact spray-nozzle metering
- Working with oil and fluid grease

Applications

SKF EasyRail High Pressure systems are mainly used on large locomotives, high-speed trains with power heads, but also other applications that require a lubricant reservoir bigger than 7 litres for maintenance reasons.

- System with a maximum line length of 10 m between the pump and spray nozzle
- Low ambient temperature
- Single pump solution for vehicles with a maximum of 20 m distance between the wheelsets which need to be sprayed

Standard components

- Piston pump with reservoir:
 - PF-100-21
 - 112-508-052
- Spray nozzles:
 - SP8-2
 - SP8-4
 - SP8-5
- Control unit and curve sensor: LCG2
- Grease control valve: SF10
- Actuated via valve unit
- 3/2-way valve



PF-100-21



112-508-052



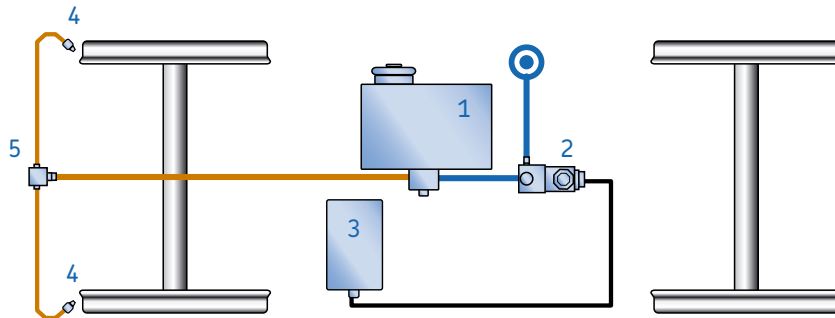
SP8-2

SKF EasyRail Compact

Single-line wheel flange lubrication systems



Photo: Alstom Transport



SKF EasyRail Compact

- 1 Piston pump unit with reservoir
- 2 Valve block
- 3 Control unit with curve sensor
- 4 Spray nozzle
- 5 Flow divider

SKF EasyRail Compact operates through homogenous lubricant metering. The dosage is defined at the pump unit. Compressed air is used as transport medium. The lubricant moves along the pipe system via a flow divider towards the spraying nozzles from where the lubricant is evenly distributed on the wheel flange.

Thus only one line, carrying the lubricant and compressed air at the same time, is installed. The air/lubricant mix is split up inside the flow divider when the flow conditions prevailing in the outlet branches are similar.

The intelligent control unit is managing effectively the lubrication needs of the operator and reduces lubricant consumption to a minimum.

Advantages

- Compact design
- Low life cycle cost
- Bottom-up lubricant recirculation
- Works with oil and fluid grease containing high percentage of solid additives
- 4 different dosages available

Applications

SKF EasyRail Compact systems can be used universally on all vehicle segments from urban transport to regional and intercity trains as well as locomotives. The ease of installation also allows quick retrofitting on existing rail vehicles.

- System with a maximum line length of 7 m between the grease reservoir and spray nozzle
- Single pump solution for vehicles with a maximum of 10 m distance between the wheelsets which need to be sprayed
- System air pressure: up to 10 bars

Standard components

- Pneumatically operated piston pump with lubricant reservoir:
 - 112-508-051
 - MP 50 / 100 / 150 / 200 / 400
- Flow divider:
 - SV-8
- Spray nozzles:
 - 169-000-400 / -410
- Control unit and curve sensor: LCG2
- Actuation via valve unit
- 2/2-way valve



112-508-051



MP 50



SV-8 and nozzles

Services are paramount at SKF

For us, service means satisfying customers in all respects, before and after the purchase of a centralized lubrication system.

Learn more about SKF solutions

The SKF Media Library on the Internet at skf.com is the information source for SKF publications. You will find publications by “browsing” or by using the Search function and can download all of them in PDF format.

All components of SKF EasyRail systems are described in detail including technical data and installation drawings in the brochure **1-8092**, which is available at the Media Library on skf.com as well.
(→ skf.com • skf.com/lubrication)

Design in 3-D and electronic CAD product catalog

SKF engineers work with modern software tools and design the products in 3-D. You can integrate the CAD data seamlessly into your layout plans. 3-D CAD data in native format are available to you in our online product catalog, and is based on the eCATALOG solutions technology of the CADENAS GmbH Co. You can configure your product online in the central lubrication section and integrate it into your design process at no charge.

(→ <http://skf-lubrication.partcommunity.com>)

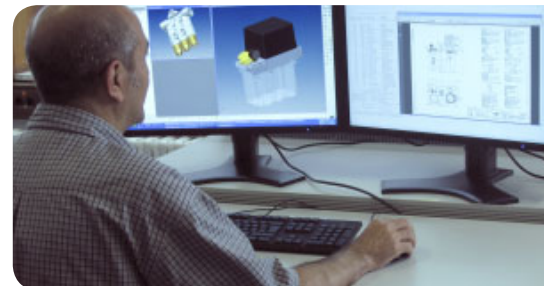
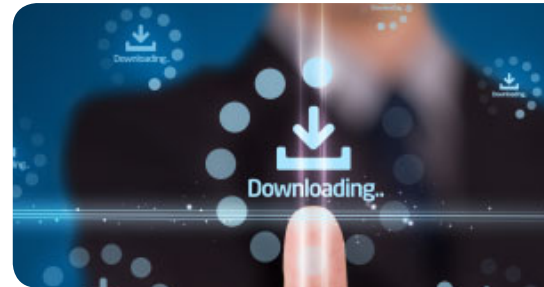
Retrofitting centralized lubrication systems

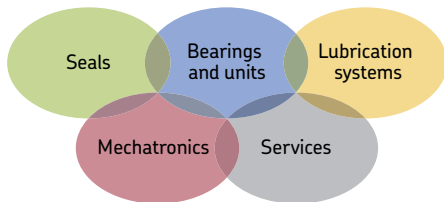
Unforeseen system downtimes are a major risk as maintenance and repair costs become unwieldy at some point. It is for that reason that SKF also offers on-site professional retrofitting of centralized lubrication systems at your location. In addition, we can also assume responsibility for maintenance and repair of your lubrication system.

Procurement logistics and synchronized production

We can tailor our logistics processes to the requirements of our customers. For example, by using synchronized electronic KANBAN systems with RFID, we enable an inventory-free supply for manufacturing and assembly that is synchronized with production.

As a result, run-through times and total outlays are optimized and the risk of loss and damage is reduced. This results in a more optimized Supply Chain Management.





The Power of Knowledge Engineering

Drawing on five areas of competence and application-specific expertise amassed over more than 100 years, SKF brings innovative solutions to OEMs and production facilities in every major industry worldwide. These five competence areas include bearings and units, seals, lubrication systems, mechatronics (combining mechanics and electronics into intelligent systems), and a wide range of services, from 3-D computer modelling to advanced condition monitoring and reliability and asset management systems. A global presence provides SKF customers uniform quality standards and worldwide product availability.

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