

# SKF SYSTEM 24 LAGD Series

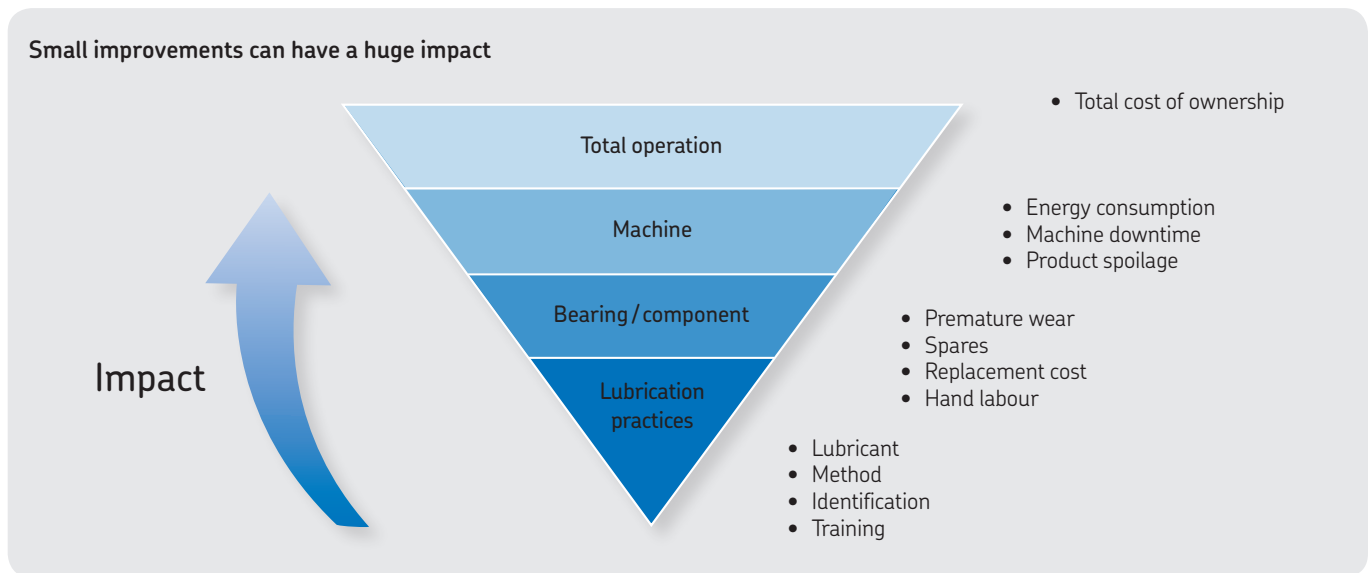


Gas driven single point  
automatic lubricators



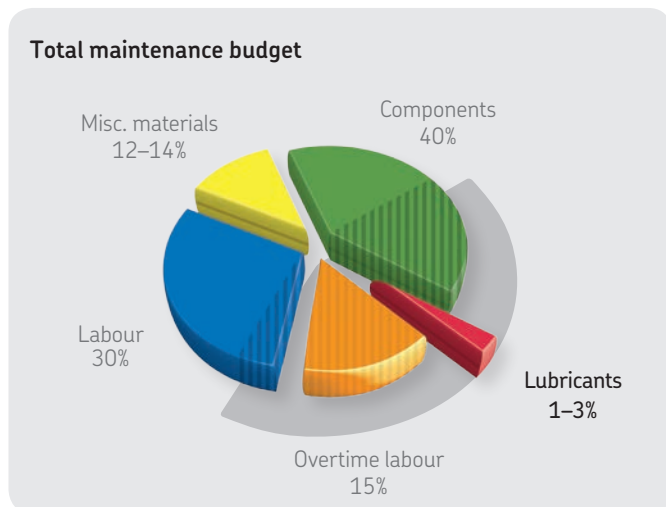
# The importance of lubrication

The impact of lubrication on the total cost of ownership is often underestimated.

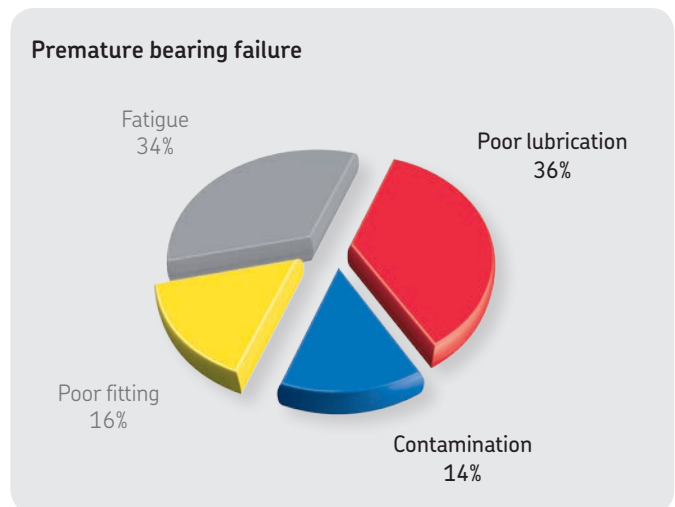


Consider the costs related to:

- Lubricant application: labour, lubricant waste, environmental impact and even accidents due to over-lubrication and spillage.
- Energy consumption due to over- or under-lubrication.
- Downtime, overtime, installation cost and spare parts due to premature failures.
- Finished product spoiled due to contamination with lubricant.



The reason for such an oversight may be the limited impact that lubricant purchases normally have on the total maintenance budget. On average, lubricant purchases amount to a mere 3%. Circa 40% of the total maintenance cost, however, is influenced by lubrication activities: In addition to the lubricant costs, half of the acquired components require relubrication (20%); overtime labour is mostly a result of machine failures typically caused by inadequate lubrication (15%); and about 5% of labour costs can be attributed to lubrication activities (1.5%).



The influence of lubrication activities on machine reliability is even larger than that though. It is generally accepted that up to 50% of premature bearing failures are due to either incorrect lubrication practices or contamination. This is closely related to the type of lubricant and the manner in which it is used.

# Benefits of automatic lubricators

Improve cleanliness, accuracy, safety and reliability

- **Improved performance:** Unlike manual lubrication, a continuous and accurate supply of small quantities of fresh and clean lubricant prevents overheating, waste and seal damage due to over-lubrication and excessive wear due to under-lubrication. Moreover, a continuous supply prevents the ingress of contaminants.
- **Reliability:** Compared to manual lubrication, automatic lubricators minimise risks like cross contamination, inadequate quantities or frequencies, or simply overlooking a lubrication point.
- **Labour saving:** Human resources can be dedicated to more value-added activities like oil analysis or contamination control.
- **Safety:** Some relubrication tasks can imply safety risks, or a machine has to be stopped to be lubricated. Likewise, preventing over-lubrication keeps the application clean and tidy thereby minimising the risk of accidents.
- **Environmental:** Optimising lubricant consumption also minimises the impact on the environment.
- **Total Cost Of Ownership:** After considering all the previously described benefits, it is clear what a large impact automatic lubrication can have on the TCO. Biggest savings are normally related to reducing downtime, machine repair costs, labour and lubricant consumption.

## Reduce the risks of failure

- Over-greased = overheating, waste and pollution

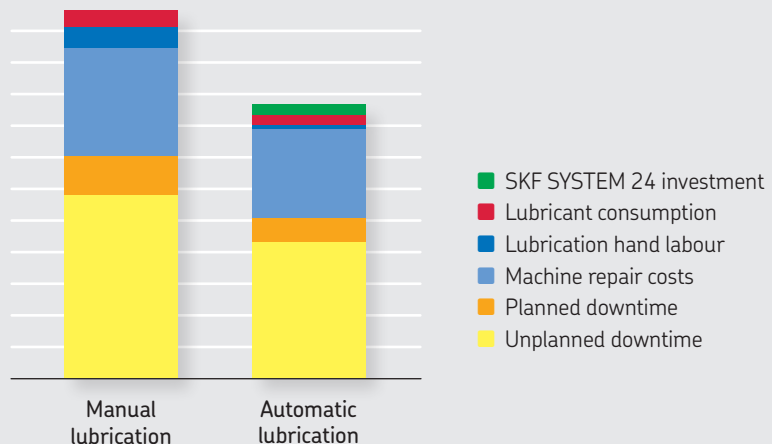
- Optimal lubrication

- Under-greased = wear, premature repairs, high repair costs

— Manual lubrication

— Automatic lubrication

## Save costs with SKF SYSTEM 24



## What automatic lubrication can do for you



### Optimisation of:

- Machine performance
- Quantities and frequencies
- Accuracy
- Safety
- Time consumption

### Minimisation of:

- Lubricant consumption
- Spillage
- Contamination risk
- Human errors
- Failures



# SKF SYSTEM 24



The SKF SYSTEM 24 LAGD consists of a transparent container filled with a specified lubricant and a cartridge containing an electrochemical gas cell. Once activated, the internal batteries are electrically connected and gas production can begin building up the pressure until the piston moves, pushing the lubricant into the application. The gas production rate is proportional to the electrical current. Therefore, each position of the dial is designed to allow a given current flow, thus adjusting the dispensing period between 1 and 12 months.

The most valuable part of the lubricator is the lubricant inside. It has to suit both your application and the dispensing device. Therefore, all the SKF lubricants in the standard range have been carefully tested to provide a seamless performance of the lubricator. Custom filling with additional lubricants can be supplied upon request.

Select the most suitable lubricant for your application through the online tool: SKF LubeSelect for SKF Greases. Define the right dispensing time for your SKF SYSTEM 24 through the online tool: SKF DialSet.

## Main features

- Toolless set up
- Stoppable
- Detailed information on the label minimises risks of improper installation
- Designed and tested for the toughest real working conditions IP 68 – Dust tight and water-proof ATEX approved for zone 0
- Optimum dial readability
- Detachable batteries for an environmentally friendly disposal
- Specially designed top ring for an optimum grip
- Transparent container facilitates inspection tasks

## Technical data

### Designation LAGD 60 and LAGD 125

<b>Grease capacity</b>	
– LAGD 60	60 ml (2 US fl. oz)
– LAGD 125	125 ml (4.2 US fl. oz)
<b>Nominal emptying time</b>	Adjustable; 1–12 months
<b>Ambient temperature range</b>	
– LAGD 60/.. and LAGD 125/..	–20 to +60 °C (–5 to +140 °F)
<b>Maximum operating pressure</b>	5 bar (75 psi) (at start-up)
<b>Drive mechanism</b>	Gas cell producing inert gas
<b>Connection thread</b>	R <sup>1</sup> / <sub>4</sub>
<b>Maximum feed line length with:</b>	
– grease	300 mm (11.8 in.)
– oil	1 500 mm (59.1 in.)

<b>Intrinsically safe approval</b>	II 1 G Ex ia IIC T6 Ga II 1 D Ex ia IIIC T85°C Da I M1 Ex ia I Ma
<b>EC Type Examination Certificate</b>	Kema 07ATEX0132 X
<b>Protection class</b>	IP 68
<b>Recommended storage temperature</b>	20 °C (70 °F)
<b>Storage life of lubricator</b>	2 years
<b>Weight</b>	LAGD 125 approx 200 g (7.1 oz) LAGD 60 approx 130 g (4.6 oz) Lubricant included

Note: For optimum performance, SKF SYSTEM 24 LAGD units filled with LGHP 2 should not be exposed to ambient temperatures over 40 °C (105 °F), or have a time setting longer than 6 months.

# SKF lubricants available in SKF SYSTEM 24



60 ml unit

## Ordering details

Greases	Description	60 ml	125 ml	Typical applications
<b>LGWA 2</b>	Wide temperature extreme pressure	LAGD 60/WA2	LAGD 125/WA2	Conveyors Electric motors Pumps and fans
<b>LGFP 2</b>	Food compatible	LAGD 60/FP2	LAGD 125/FP2	Food processing equipment Wrapping machines Bottling machines
<b>LGGB 2</b>	Biodegradable, low toxicity	–	LAGD 125/GB2	Agricultural and forestry equipment Construction and earthmoving equipment Water treatment and irrigation
<b>LGEM 2</b>	High viscosity plus solid lubricants	LAGD 60/EM2	LAGD 125/EM2	Jaw crushers Construction machinery Vibrating machinery
<b>LGHB 2</b>	EP high viscosity, high temperature	LAGD 60/HB2	LAGD 125/HB2	Steel on steel plain bearings High loads and humidity Shock loads and vibration
<b>LGHP 2</b>	High performance polyurea	LAGD 60/HP2	LAGD 125/HP2	Electric motors Pumps Fans
<b>LGWM 2</b>	High load, wide temperature	–	LAGD 125/WM2	Main shaft of wind turbines Heavy duty off road or marine applications Snow exposed applications
Oils	Description	60 ml	125 ml	Typical applications
<b>LHMT 68</b>	Medium temperature oil	LAGD 60/HMT68	LAGD 125/HMT68	Chains and guides at medium temperature
<b>LHHT 265</b>	High temperature oil	–	LAGD 125/HHT26	Chains at high temperature Wrapping machines Bottling machines
<b>LHFP 150</b>	Food compatible, NSF H1 approved oil	–	LAGD 125/HFP15	Chains and guides in food plants
<b>Empty unit</b>	Empty unit suitable for oil filling only	–	LAGD 125/U	To be filled with oil only

# Typical applications for automatic lubricators



The need to implement automatic lubricators is typically driven by:

- The optimisation of human resources
- Applications with reliability, safety or environmental implications
- Open applications where the lubricant is not retained in the application, such as chains, plain bearings, guides, etc
- Working conditions demanding frequent relubrication:
  - High Loads & High Temperature causing premature lubricant degradation
  - High Speed applications as they are extremely sensitive to over-lubrication
  - High Contamination working environments



LGWA 2

LHHT 265

LHMT 68

## Automotive manufacturing

- Blowers in paint booth sections
- Chains
- Cooling towers
- Electric motors
- Pumps



LGGB 2

LGWM 2

LHMT 68

## Construction

- Cranes
- Off road machinery
- Plain bearings
- Rod ends



LGFP 2

LHFP 150

## Food and beverage

- Blowers
- Chains exposed to water
- Driving chains for bottle conveyors
- Electric motors
- Filling machines
- Labelling machines
- Ovens
- Palletizers
- Pumps



LGWA 2

LGHB 2

LGHP 2

### Pulp and paper

- Conveyors
- Hoists
- Fans
- Pumps
- Secondary equipment
- Shaft seals (E.g. Gearboxes)



LGEM 2

LGHB 2

LGHP 2

### Steel

- Hoists
- Plain bearings
- Shaft seals (E.g. Gearboxes)
- Smelters
- Furnace blowers



LGWA 2

LGGB 2

LGHP 2

### Petrochemical, nuclear power plants and pharmaceutical

- Cooling towers
- Electric motors
- Fans & Blowers
- Pumps
- Plummer blocks
- Shaft seals (E.g. Gearboxes)



LGWA 2

LGGB 2

LGWM 2

### Marine

- On board auxiliary equipment
- Port cranes



LGEM 2

LGHB 2

LGWM 2

### Mining, mineral processing and cement

- Chains
- Conveyors
- Crushers
- Fans
- Hoists
- Loaders, trucks, shovels
- Mixers
- Packing machines
- Plain bearings & Plummer blocks
- Separators
- Shaft seals (E.g. Gearboxes)
- Vibrating screens

# Cost savings examples

The following examples show how SKF SYSTEM 24 helps end-users to save money through higher reliability and uptime. Would you like to make your own savings calculation? Contact your SKF Authorised Distributor.

A corrugated packaging company had problems with bearing life on their conveyors. Improper lubrication practices were determined to be the primary cause. The bearings were being over-lubricated and the plant was using the wrong type of grease.

The SKF SYSTEM 24 LAGD Series automatic lubricators were installed on 100 bearings. Bearing life was extended, grease purchases dropped, and productivity increased.

## Return on Investment (ROI) Summary over a 1-year period

Annual savings in bearing costs	€ 4 000
Annual savings in grease costs	€ 2 400
Value of increased machine uptime	€ 12 000
Value of lower product scrap	€ 6 000
<b>Total benefits</b>	<b>€ 24 400</b>
<b>Investment in SYSTEM 24</b>	<b>(€ 8 000)</b>
<b>Total added value</b>	<b>€ 16 400</b>
<b>ROI</b>	<b>205%</b>

**Disclaimer:** Currencies have been exchanged to Euros in order to keep consistency. Exchange rates used are the ones in place by the time of the edition of this publication. Any cost savings and revenue increases mentioned are based on results experienced by SKF customers and do not constitute a guarantee that any future results will be the same. Your particular cost savings may vary.

### Case 1

Country	Argentina
Segment	Mining
Application	Centrifugal slurry pump
<b>Problem</b>	Bearing damage due to contamination trough seals
<b>Solution</b>	SKF SYSTEM 24 generates a continuous supply of lubricant through the seals, keeping contaminants out.



<b>Benefits (12 months)</b>	Increased production availability - less unplanned downtime	€ 34 128.00
	Increased production availability - less planned downtime	–
	Reduced work related to repairs	€ 142.20
	Reduced work related to manual lubrication	€ 2 844.00
	Reduced associated repair expenses	–
	Reduced lubricant consumption	€ 342.86
	Reduced lubricant disposal cost	€ 146.94
	<b>Investment</b>	<b>(€ 1 264.55)</b>
<b>Total benefits (12 months)</b>	<b>€ 36 339.45</b>	
<b>Payback time (months)</b>	<b>0.40</b>	

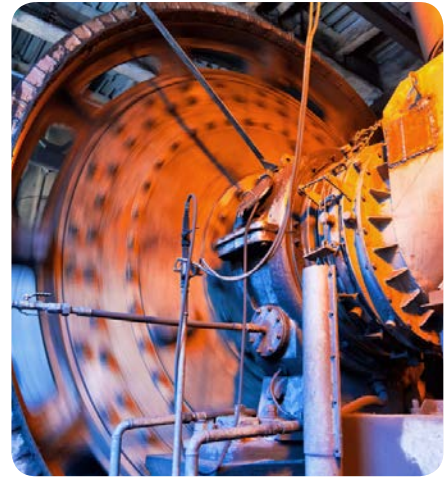


## Case 2

Country Brazil  
 Segment Mining, mineral processing  
 Application Multiple lubrication points

**Problem** The environmental conditions require frequent relubrication. However, due to the vast amount of relubrication tasks, and the limited available personnel, these were often not accomplished on time. This situation led to bearing failures and machine downtime.

**Solution** Mechanical repetitive tasks like relubrication are perfect candidates for automation, freeing time of personnel. Furthermore, by implementing SKF SYSTEM 24, lubrication technicians could dedicate their time to tasks with higher added value, like predictive lubrication (oil analysis) or contamination control (filtration).



<b>Benefits (12 months)</b>	Increased production availability - less unplanned downtime	€ 66 000.00
	Increased production availability - less planned downtime	€ 22 000.00
	Reduced work related to repairs	€ 704.00
	Reduced work related to manual lubrication	€ 220.00
	Reduced associated repair expenses	€ 1 760.00
	Reduced lubricant consumption	€ 2 184.60
	Reduced lubricant disposal cost	€ 708.40
	<b>Investment</b>	<b>(€ 2 904.00)</b>
<b>Total benefits (12 months)</b>		<b>€ 90 673.00</b>
<b>Payback time (months)</b>		<b>0.37</b>

## Case 3

Country Germany  
 Segment Material Handling  
 Application Recycling company - Shredder

**Problem** Lubrication was compromised due to the combination of high and shock loads with low temperatures. A continuous supply even at -10 °C was required.





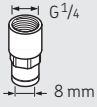
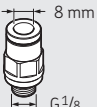
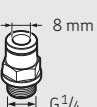
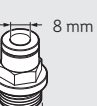


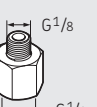
**Solution** SKF SYSTEM 24 equipped with SKF LGEM 2 grease was chosen as a suitable solution to provide lubricant under such harsh conditions.

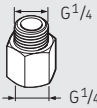
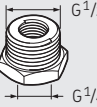
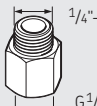
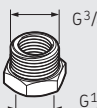
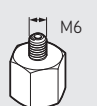
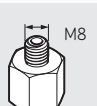
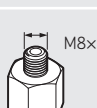






<b>Benefits (12 months)</b>	Increased production availability - less unplanned downtime	€ 50 000.00
	Increased production availability - less planned downtime	–
	Reduced work related to repairs	€ 30 000.00
	Reduced work related to manual lubrication	€ 5 000.00
	Reduced associated repair expenses	€ 2 000.00
	Reduced lubricant consumption	–
	Reduced lubricant disposal cost	–
	<b>Investment</b>	<b>(€ 3 330.00)</b>
<b>Total benefits (12 months)</b>		<b>€ 83 670.00</b>
<b>Payback time (months)</b>		<b>0.46</b>


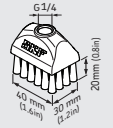

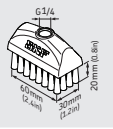

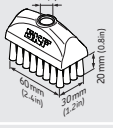

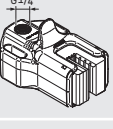


# Accessories

## Connectors

	LAPA 45	Angle connection 45°
	LAPA 90	Angle connection 90°
	LAPE 35	Extension 35 mm
	LAPE 50	Extension 50 mm
	LAPF F 1/4	Tube connection female G 1/4
	LAPF M 1/8	Tube connection male G 1/8
	LAPF M 1/4	Tube connection male G 1/4
	LAPF M 3/8	Tube connection male G 3/8
	LAPG 1/4	Grease nipple G 1/4
	LAPM 2	Y-connection
	LAPN 1/8	Nipple G 1/4 - G 1/8

	LAPN 1/4	Nipple G 1/4 - G 1/4
	LAPN 1/2	Nipple G 1/4 - G 1/2
	LAPN 1/4 UNF	Nipple G 1/4 - 1/4 UNF
	LAPN 3/8	Nipple G 1/4 - G 3/8
	LAPN 6	Nipple G 1/4 - M6
	LAPN 8	Nipple G 1/4 - M8
	LAPN 8x1	Nipple G 1/4 - M8 x 1
	LAPN 10	Nipple G 1/4 - M10
	LAPN 10x1	Nipple G 1/4 - M10 x 1
	LAPN 12	Nipple G 1/4 - M12
	LAPN 12x1.5	Nipple G 1/4 - M12 x 1.5

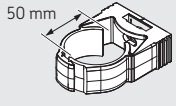


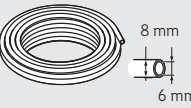
## Brushes (for oil applications)

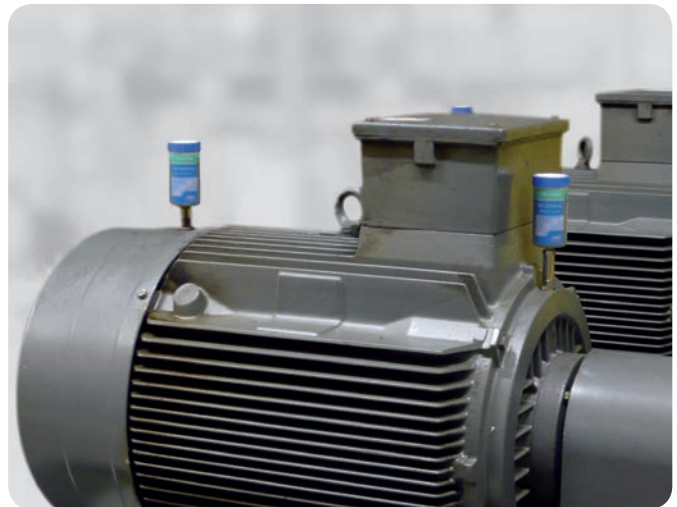
		LAPB 3x4E1	Brush 30 × 40 mm
		LAPB 3x7E1	Brush 30 × 60 mm
		LAPB 3x10E1	Brush 30 × 100 mm
		LAPB 5-16E1	Elevator brush, 5–16 mm gap
		LAPB D2	Brush round Ø20 mm

## Non return valves (for oil applications)

		LAPV 1/4	Non-return valve G <sup>1</sup> / <sub>4</sub>
		LAPV 1/8	Non-return valve G <sup>1</sup> / <sub>8</sub>

## Mounting and protecting devices

	LAPC 50	Clamp
	LAPP 4	Protection base
	LAPP 6	Protection cap
	LAPT 1000	Flexible tube, 1 000 mm long, 8 × 6 mm



# Quick tool for relubrication calculation

SKF DialSet has been designed to help you to set up your SKF automatic lubricators. After selecting the criteria and grease appropriate for your application, the program provides you with the correct settings for your SKF automatic lubricators. It also provides a quick and simple tool for relubrication intervals and quantity calculations.

- Allows quick calculation of the relubrication intervals based on the operating conditions of your application
- Calculations are based on SKF lubrication theories
- Calculated lubrication intervals depend on the properties of the selected grease, thereby minimising the risk of under- or overlubrication and optimising grease consumption
- Calculations take into account SKF automatic lubrication systems, grease dispense rates, thus facilitating the selection of the correct lubricator setting
- Recommended grease quantity depends on the grease replenishment position; side or W33 for optimum grease consumption
- Includes a complete list of the SKF SYSTEM 24 accessories
- Available online or downloadable at [www.skf.com/lubrication](http://www.skf.com/lubrication)

## DialSet stand-alone

DialSet is available in 11 languages: English, French, German, Italian, Spanish, Swedish, Portuguese, Russian, Chinese, Japanese and Thai. The program is suitable for PCs working with MS Windows 98 and later. Download it from [www.mapro.skf.com](http://www.mapro.skf.com)

## DialSet online

DialSet is also available online in the English language. The program is accessible free-of-charge from [www.mapro.skf.com](http://www.mapro.skf.com).

## DialSet for smartphones

Apps are available in English for iPhone and Android.



Ready



Set



Go



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