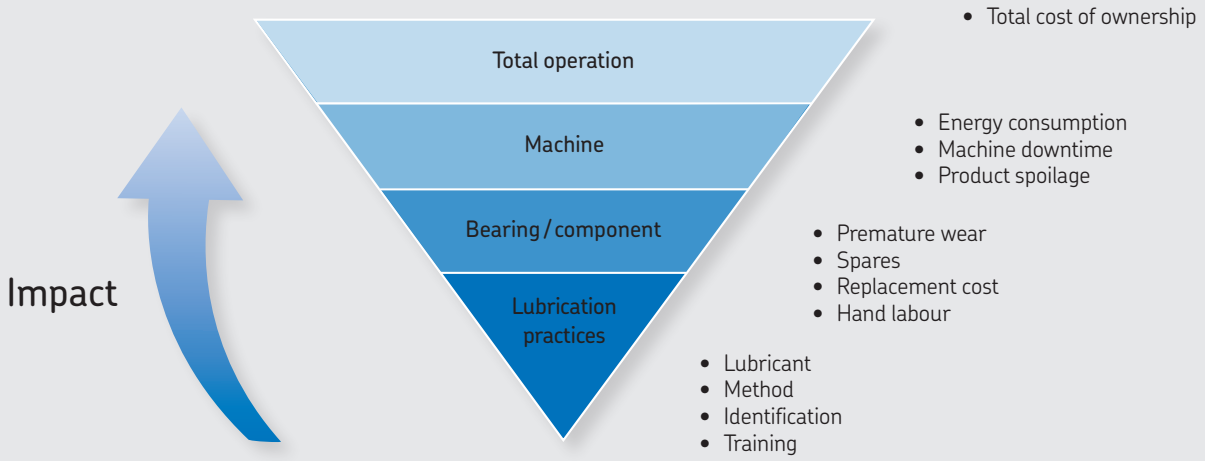
SKF SYSTEM 24
LAGD Series

Gas driven single point
automatic lubricators

The importance of lubrication

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

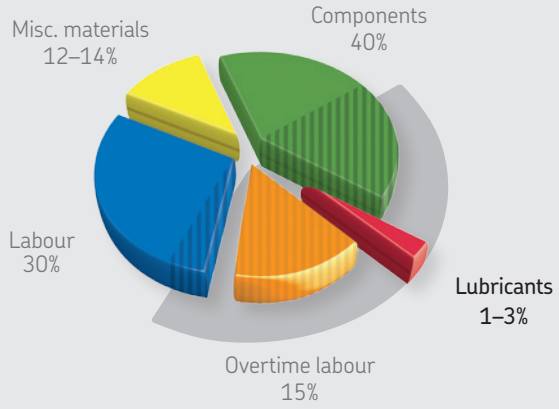
Small improvements can have a huge impact



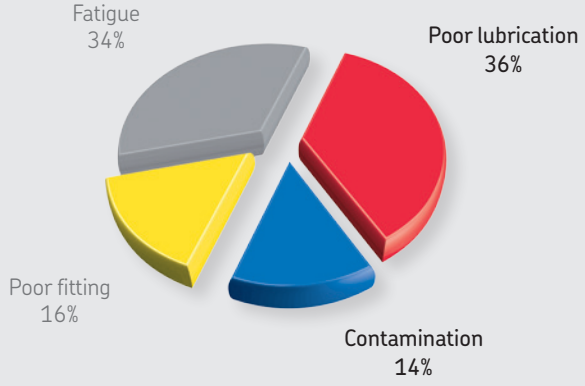
Consider the costs related to:

- 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.

Total maintenance budget



Premature bearing failure



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%).

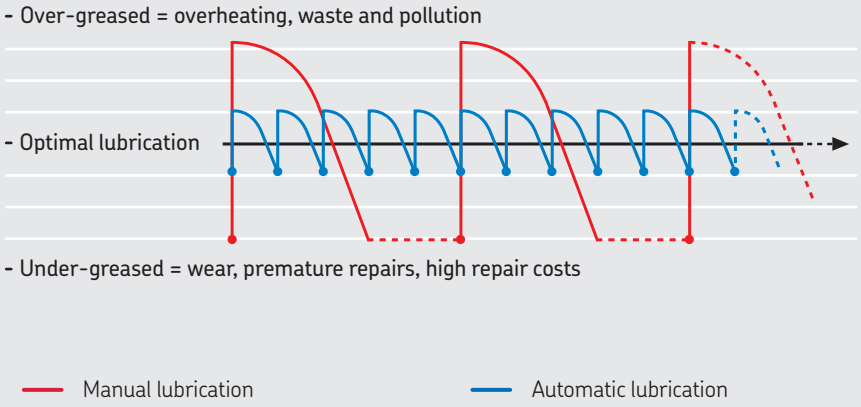
The influence of lubrication activities on machine reliability is even larger than that though. It is generally accepted that up to 50% of premature bearing failures are due to either incorrect lubrication practices or contamination. This is closely related to the type of lubricant and the manner in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

Benefits of automatic lubricators

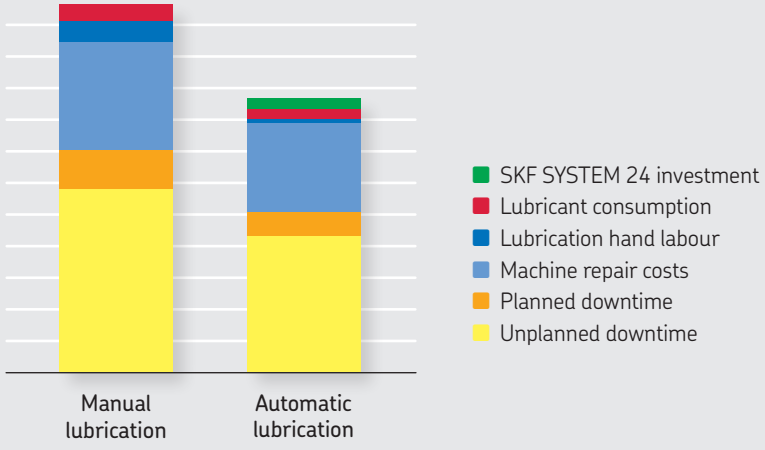
Improve cleanliness, accuracy, safety and reliability

- **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



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
Grease capacity – LAGD 60 – LAGD 125	 60 ml *(2 US fl. oz)* 125 ml *(4.2 US fl. oz)*
Nominal emptying time	Adjustable; 1–12 months
Ambient temperature range – LAGD 60/.. and LAGD 125/..	 –20 to +60 °C *(–5 to +140 °F)*
Maximum operating pressure	5 bar *(75 psi)* (at start-up)
Drive mechanism	Gas cell producing inert gas
Connection thread	R¼
Maximum feed line length with: – grease – oil	 300 mm *(11.8 in.)* 1 500 mm *(59.1 in.)*

Intrinsically safe approval	II 1 G Ex ia IIC T6 Ga II 1 D Ex ia IIIC T85°C Da I M1 Ex ia I Ma
EC Type Examination Certificate	Kema 07ATEX0132 X
Protection class	IP 68
Recommended storage temperature	20 °C *(70 °F)*
Storage life of lubricator	2 years
Weight	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
LGWA 2	Wide temperature extreme pressure	LAGD 60/WA2	LAGD 125/WA2	Conveyors Electric motors Pumps and fans
LGFP 2	Food compatible	LAGD 60/FP2	LAGD 125/FP2	Food processing equipment Wrapping machines Bottling machines
LGGB 2	Biodegradable, low toxicity	–	LAGD 125/GB2	Agricultural and forestry equipment Construction and earthmoving equipment Water treatment and irrigation
LGEM 2	High viscosity plus solid lubricants	LAGD 60/EM2	LAGD 125/EM2	Jaw crushers Construction machinery Vibrating machinery
LGHB 2	EP high viscosity, high temperature	LAGD 60/HB2	LAGD 125/HB2	Steel on steel plain bearings High loads and humidity Shock loads and vibration
LGHP 2	High performance polyurea	LAGD 60/HP2	LAGD 125/HP2	Electric motors Pumps Fans
LGWM 2	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
LHMT 68	Medium temperature oil	LAGD 60/HMT68	LAGD 125/HMT68	Chains and guides at medium temperature
LHHT 265	High temperature oil	–	LAGD 125/HHT26	Chains at high temperature Wrapping machines Bottling machines
LHFP 150	Food compatible, NSF H1 approved oil	–	LAGD 125/HFP15	Chains and guides in food plants
Empty unit	Empty unit suitable for oil filling only	–	LAGD 125/FU	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

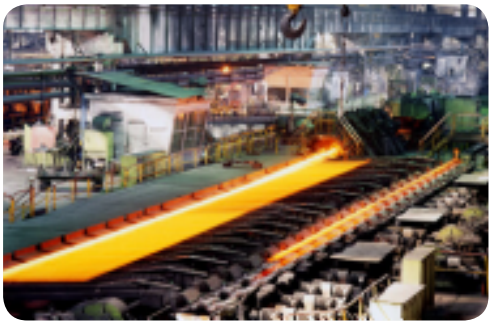
LGWA 2

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
Total benefits	**€ 24 400**
Investment in SYSTEM 24	(€ 8 000)
Total added value	€ 16 400
ROI	**205%**

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
Problem	Bearing damage due to contamination trough seals
Solution	SKF SYSTEM 24 generates a continuous supply of lubricant through the seals, keeping contaminants out.

Benefits (12 months)	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

Investment	(€ 1 264.55)
Total benefits (12 months)	€ 36 339.45
Payback time (months)	**0.40**

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 lead 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).

Benefits (12 months)		
	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

Investment	(€ 2 904.00)
Total benefits (12 months)	€ 90 673.00
Payback time (months)	**0.37**

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.

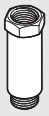
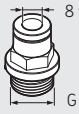
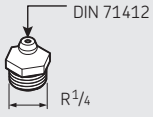
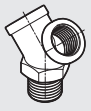
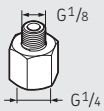
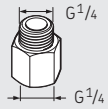
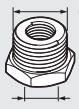
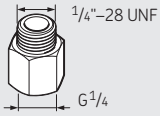
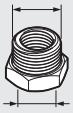
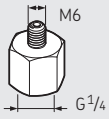
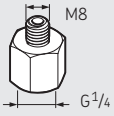
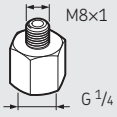
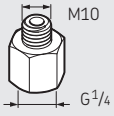
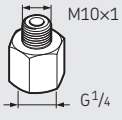
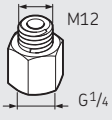
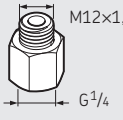
Solution SKF SYSTEM 24 equipped with SKF LGEM 2 grease was chosen as a suitable solution to provide lubricant under such harsh conditions.

Benefits (12 months)		
	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	–

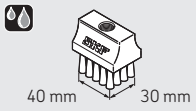
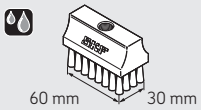
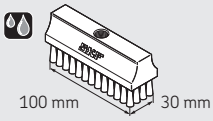
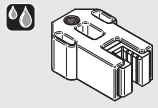
Investment	(€ 3 330.00)
Total benefits (12 months)	€ 83 670.00
Payback time (months)	**0.46**

Accessories

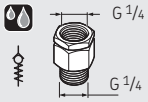
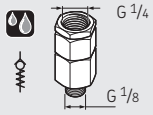
Connectors

	LAPA 45	Angle connection 45°
	LAPA 90	Angle connection 90°
	LAPE 35	Extension 35 mm
	LAPE 50	Extension 50 mm
	LAPF F1/4	Tube connection female G1/4
	LAPF M 1/8	Tube connection male G1/8
	LAPF M 1/4	Tube connection male G1/4
	LAPF M 3/8	Tube connection male G3/8
	LAPG 1/4	Grease nipple G1/4
	LAPM 2	Y-connection
	LAPN 1/8	Nipple G1/4 – G1/8
	LAPN 1/4	Nipple G1/4 – G1/4
	LAPN 1/2	Nipple G1/4 – G1/2
	LAPN 1/4 UNF	Nipple G1/4 – 1/4 UNF
	LAPN 3/8	Nipple G1/4 – G3/8
	LAPN 6	Nipple G1/4 – M6
	LAPN 8	Nipple G1/4 – M8
	LAPN 8x1	Nipple G1/4 – M8 × 1
	LAPN 10	Nipple G1/4 – M10
	LAPN 10x1	Nipple G1/4 – M10 × 1
	LAPN 12	Nipple G1/4 – M12
	LAPN 12x1.5	Nipple G1/4 – M12 × 1,5

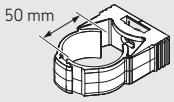
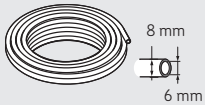
Brushes (for oil applications)

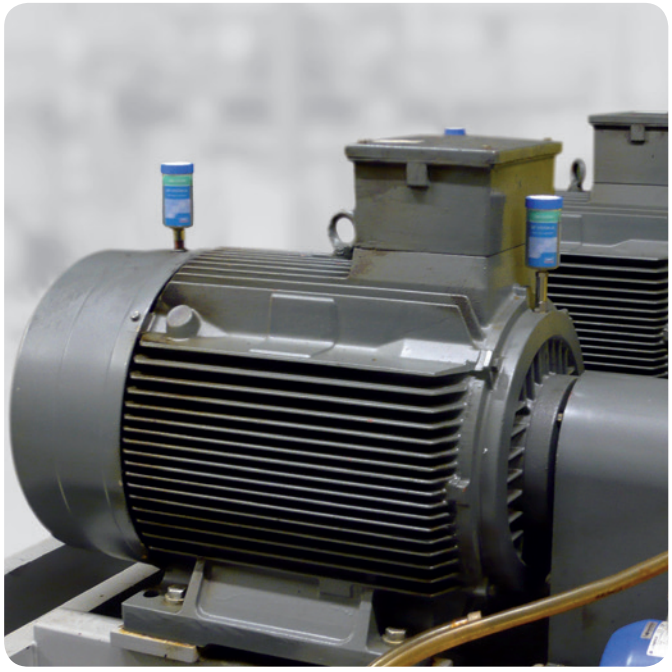
	LAPB 3x4E1	Brush 30 × 40 mm
	LAPB 3x7E1	Brush 30 × 60 mm
	LAPB 3x10E1	Brush 30 × 100 mm
	LAPB 5-16E	Elevator brush, 5–16 mm gap
	LAPB D2	Brush round Ø20 mm

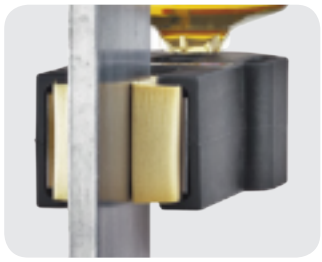
Non return valves (for oil applications)

	LAPV 1/4	Non-return valve G1/4
	LAPV 1/8	Non-return valve G1/8

Mounting and protecting devices

	LAPC 50	Clamp
	LAPP 4	Protection base
	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

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

DialSet online

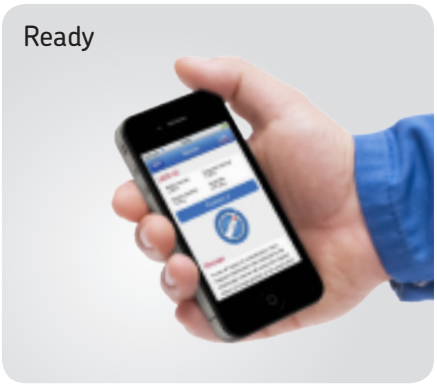
DialSet is also available online in the English language. The program is accessible free-of-charge from www.mapro.skf.com.

DialSet for smartphones

Apps are available in English for iPhone and Android.

ANDROID

Available on the iPhone App Store



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