

# SKF Automatic Lubricators

Automatic lubricators deliver safety, reliability and efficiency







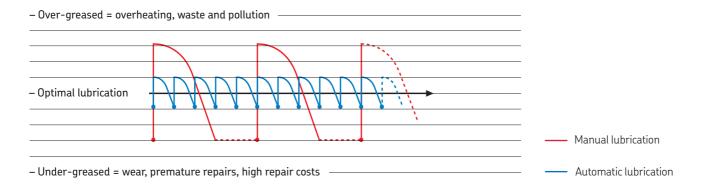




# Manual lubrication vs. automatic lubrication

Performing manual lubrication tasks can be challenging due to the vast number of lubrication points throughout a factory. Also, most of these points have varying lubrication requirements. Utilising automatic lubricators is one solution that can improve worker safety and increase machine reliability.

### Reduce the risks of failure



### Challenges associated with manual lubrication

Manual lubrication tasks can be complex and inconvenient, often requiring equipment shutdown. Manual lubrication on difficult-to-access lubrication points also can increase the possibility of worker injury and take your valuable human resources away from other tasks.

Improper manual lubrication can be a factor in creating additional challenges. Failure to lubricate every lubrication point regularly can have a negative effect on equipment reliability, production schedules and maintenance efficiency. Other results of improper manual lubrication can be lubricant waste, environmental issues, increased energy consumption and finished product spoilage due to contamination of lubricant.

### Benefits of using automatic lubricators

A lubricator is designed to automatically supply a small quantity of clean grease or oil to a lubrication point on a regular basis, thus improving bearing performance. Key benefits of using an automatic lubricator are improved employee safety, increased machine reliability and optimized maintenance operations.

SKF SYSTEM 24 lubricators are suitable for a variety of applications but often are used on pumps, electric motors, fans, blowers, conveyors and chains. They can be adjusted to ensure that the correct quantity of lubricant is delivered to the lubrication point during a predetermined period of time. This provides a more accurate control of the amount of lubricant supplied, when compared to traditional manual lubrication techniques.

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# Improving employee safety

Use of SKF SYSTEM 24 lubricators can have a positive impact on workplace safety because technicians can spend less time in confined spaces, with safety cages or guards removed, and on rooftop or elevated lubrication tasks.



### Lubrication point behind safety guards

Safety cages and guards are utilised for a reason – to protect workers and others from injury caused by moving parts. By reducing the amount of time these implements are not in place, SKF SYSTEM 24 lubricators increase safety and eliminate the need to manually lubricate difficult–to–access lubrication points.



### Elevated lubrication point

Lubrication points on rooftops or other high elevations can create a significant challenge, and the safety implications are evident. Due to apprehension, these lubrication points often are not lubricated properly and equipment reliability suffers.

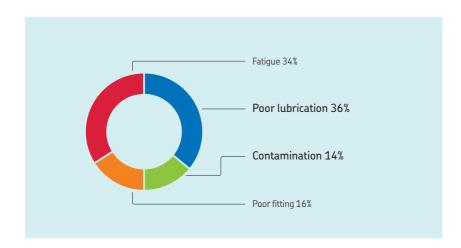


### Manual handling of lubricants

Improper handling of loose lubricant can expose technicians to chemicals. By eliminating manual handling of lubricant, SKF SYSTEM 24 lubricators reduce the potential for chemical exposure of workers.

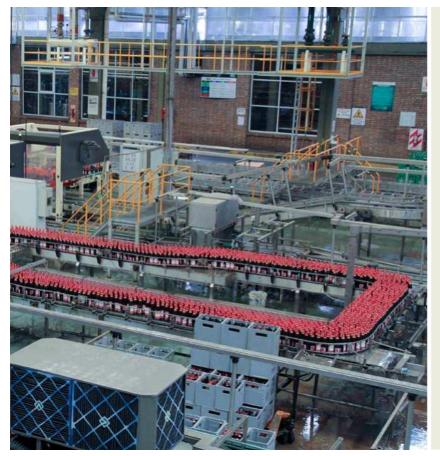
# Machine reliability

The importance of lubrication often is overlooked due to its underestimated impact on equipment total cost of ownership. However, machine reliability can be enhanced substantially with proper lubrication. As the leading supplier of bearings worldwide, SKF has conducted extensive research and determined that up to 50 percent of premature bearing failures are due to either improper lubrication practices or contamination.



### Premature bearing failure

Approximately 36 percent of premature bearing failures are due to improper lubrication, such as too much, too little or the wrong type of lubricant. Another 14 percent of bearing failures occur because of contamination via poor seals or lubricant handling practices.



### Clean, fresh lubricant

A continuous supply of clean, fresh grease or oil is essential when lubricating equipment. SKF SYSTEM 24 lubricators feature high quality SKF lubricants in a water- and dust-resistant design.

### Positive pressure

Positive pressure prevents contaminants from entering the bearing through the seal. SKF SYSTEM 24 lubricators can provide fresh lubricant and purge seals of smaller-sized bearings operating at lower speeds, while larger bearings may benefit from a separate lubricator for lubrication and seal purging.

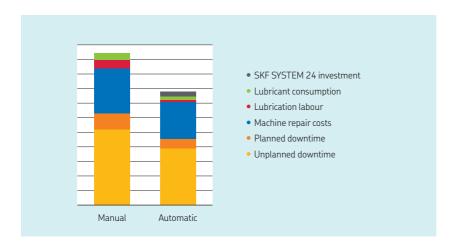
### Missed lubrication points

With manual lubrication, it is difficult and time consuming to find every lubrication point. Use of SKF SYSTEM 24 lubricators helps to ensure that each point is receiving the proper amount of lubricant on a set schedule.

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# Supporting effective maintenance

The use of automatic lubricators can have a large impact on effective maintenance. The most significant benefits usually are found in the reduction of unplanned downtime, machine repair costs, labor and lubricant consumption.



### Cost savings of automatic lubrication

Based on numerous case studies, the illustration at left represents a comparison of manual vs. automatic lubrication. The results show improvement in all areas when using automatic lubrication with the most significant found in the reduction of downtime and repair costs.



### Improved machine reliability

Using an SKF SYSTEM 24 lubricator provides increased machine reliability and, therefore, reduces unplanned downtime.

### Increased productivity

Because automatic lubricators deliver lubricant while the equipment is in operation, there is less scheduled downtime and more productivity.

### Better use of personnel

Automatic lubrication enables workers to focus on more value-added tasks, such as machine inspection.

### Lower cost of ownership

Improved equipment reliability and performance means lower machine repair costs.

# SKF SYSTEM 24



Gas driven single point automatic lubricators

### SKF LAGD series

The units are supplied ready-to-use straight from the box and filled with a wide range of high performance SKF lubricants. Tool-free activation and time-setting allow easy and accurate adjustment of lubrication flow.

- Flexible dispense rate from 1 to 12 months
- Stoppable or adjustable if required
- Intrinsic safety rating: ATEX approved for zone 0
- Transparent lubricant container allows visual inspection of dispense rate
- Compact size, permits installation in restrictive areas
- Greases and chain oils available

### Typical applications

- Applications in restrictive and hazardous locations
- Bearing housing lubrication
- Electric motors
- Fans and pumps
- Conveyors
- Cranes
- Chains (oil)
- Elevators and escalators (oil)

Multiple accessories are available for LAGD lubricators (see pages 14-15).

SKF DialSet helps to calculate the correct dispense rate (see page 16).

### Easy-grip top-cover

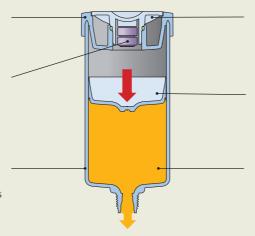
Specially designed top ring for an optimum grip

### Gas cell

Detachable batteries for an environmentally friendly disposal

### Lubricant container

Transparent lubricant container allows visual inspection of dispense rate



### Toolless dial

Allows easy and accurate adjustment of flow rate

### Piston

Special piston shape helps ensure optimum emptying of lubricator

### SKF Lubricants

Filled with high quality SKF lubricants





Ordering detail	s		
Grease	Description	Unit 60 ml	Unit 125 ml
LGWA 2	High load, extreme pressure, wide temperature range	LAGD 60/WA2	LAGD 125/WA2
LGEM 2	High viscosity bearing grease with solid lubricants	LAGD 60/EM2	LAGD 125/EM2
LGGB 2	Biodegradable	-	LAGD 125/GB2
LGHB 2	High load, high temperature, high viscosity	LAGD 60/HB2	LAGD 125/HB2
LGHQ 2	High load, high temperature, high viscosity	LAGD 60/HQ2	LAGD 125/HQ2
LGWM 2	High loads, wide temperature	-	LAGD 125/WM2
LGFG 2	General purpose food grade (NSF H1)	LAGD 60/FG2	LAGD 125/FG2
LGFQ 2	High load and wide temperature food grade (NSF H1)	-	LAGD 125/FQ2
Chain oils 1)			
LHMT 68	Medium temperature	LAGD 60/HMT68	LAGD 125/HMT68
LHHT 250	High temperature	-	LAGD 125/HT250
LFFM 100	General purpose food grade (NSF H1)	-	LAGD 125/FM100
LFFT 220	High temperature food grade (NSF H1)	-	LAGD 125/FT220
	Empty unit suitable for oil filling only	LAGD 60/U	LAGD 125/U

<sup>1)</sup> Includes non-return valve

Designation	LAGD 60 and LAGD 125		
Grease capacity LAGD 60 LAGD 125	60 ml (2 <i>US fl. oz</i> ) 125 ml (4. <i>2 US fl. oz</i> )	Intrinsically safe approval	II 1G Ex ia IICT6 Ga II 1D Ex ia IIICT <sub>200</sub> 85°C Da I M1 Ex ia I Ma
Nominal emptying time	Adjustable; 1–12 months	EC Type examination certificate	DEKRA 21ATEX0015 X
Ambient temperature range		Protection class	IP 68
LAGD 60/ and LAGD 125/	−20 to +60 °C (−5 to +140 °F)	Recommended storage temperature	20 °C (70 °F)
Maximum operating pressure	5 bar ( <i>75 psi</i> ) (at start-up)	Storage life of lubricator	2 years
Drive mechanism	Gas cell producing inert gas	Weight	,
Connection thread	R <sup>1</sup> /4	LAGD 60	approx 130 g (4.6 oz)
Maximum feed line length with:		LAGD 125	approx 200 g (7.1 oz)
grease	300 mm (11.8 in.)		Lubricant included
oil	1 500 mm (59.1 in.)		

Note: If ambient temperature is constant between 40 °C and 60 °C (105 °F and 140 °F), do not select a setting of more than 6 months for optimum performance.

# SKF SYSTEM 24

Electro-mechanical single point automatic lubricators

# SKFTLSD series

The SKF TLSD series is the first choice when a simple and reliable automatic lubricator is required under variable temperatures, or when the application conditions (such as vibration, limited space or hazardous environments) require a remote mounting.

- Filled with SKF Lubricants especially developed for bearing applications
- Maximum discharge pressure of 5 bar over the whole dispensing period
- Transparent reservoir allows visual inspection
- The drive unit can be programmed to dispense lubricant in 1, 2, 3, 4, 6, 8, 9, 10 and 12 month settings
- The drive unit can be used with both cartridge versions by adjusting the 125/250 ml switch
- Traffic light LEDs are visual from all sides because of the presence of dual LEDs on the sides of the lubricator.
- Suitable for both direct and remote installation
- Complete sets are supplied ready to use, including drive unit, battery pack, cartridge with lubricant and support plate
- Cartridge sets include battery pack

### Typical applications

- Critical applications where extreme reliability and additional monitoring is required
- Applications in restrictive and hazardous locations
- Applications requiring high volumes of lubricant

 $\label{eq:multiple accessories are available for TLSD lubricators (see pages 14-15).$ 

SKF DialSet helps to calculate the correct dispense rate (see page 16).



### Drive unit - TLSD 1-DS

Top part of TLSD with electric drive and time setting wheel. Supplied with plastic cap and support plate for grease lubrication



### Cartridge set e.g. LGWA 2/SD125

Replaceable canister filled with 125 ml or 250 ml of grease or oil. Every cartridge set is supplied with battery pack.



### Support plate

TLSD 1-SP is the support plate for grease lubrication.
TLSD 1-SPV is the support plate with integrated non-return valve for oil lubrication.

### Cabled drive unit TLSD 1-DK

For applications that are occasionally in operation

An alternative to the battery powered drive unit is the cabled drive unit. This unit is cable connected to enable direct power supply and signal transfer. Supplied with plastic cap and support plate for grease lubrication. Lubricant cartridges are available seperately.

- Possibility to lubricate only when the equipment is running
- Direct power supply
- Control and monitoring connection to the machine PLC
- For detailed information, see publication PUB MP/P8 19151 EN

















Ordering detai					
Grease	Description	Complete unit 125	Complete unit 250	Cartridge set 125	Cartridge set 250
LGWA 2	High load, extreme pressure, wide temperature range	TLSD 125/WA2	TLSD 250/WA2	LGWA 2/SD125	LGWA 2/SD250
LGEM 2	High viscosity bearing grease with solid lubricants	TLSD 125/EM2	TLSD 250/EM2	LGEM 2/SD125	LGEM 2/SD250
LGHB 2	High load, high temperature, high viscosity	TLSD 125/HB2	TLSD 250/HB2	LGHB 2/SD125	LGHB 2/SD250
LGHQ 2	High performance, high temperature	TLSD 125/HQ2	TLSD 250/HQ2	LGHQ 2/SD125	LGHQ 2/SD250
LGFG 2	General purpose food grade (NSF H1)	TLSD 125/FG2	TLSD 250/FG2	LGFG 2/SD125	LGFG 2/SD250
LGFQ 2	High load and wide temperature food grade (NSF H1)	-	-	LGFQ 2/SD125	LGFQ 2/SD250
Ola a tara e tila					
Chain oils					
LHMT 68	Medium temperature oil	TLSD 125/HMT68 1)	TLSD 250/HMT68 1)	LHMT 68/SD125 2)	LHMT 68/SD250 <sup>2)</sup>
LFFM 100	General purpose food grade (NSF H1)	_	-	LFFM 100/SD125 <sup>2)</sup>	LFFM 100/SD250 <sup>2)</sup>

<sup>1)</sup> Includes support plate with non-return valve.

<sup>&</sup>lt;sup>2)</sup> Support plate with non return valve (TLSD 1-SPV) can be ordered separately.

Technical data						
Designation	TLSD 125/ and TLSD 250/					
Grease capacity TLSD 125 TLSD 250	125 ml (4.2 <i>US fl. oz</i> ) 250 ml (8.5 <i>US fl. oz</i> )	Protection class ass lubricator Battery pack	sembled IP	65		
Emptying time	User adjustable: 1, 2, 3, 4, 6, 8, 9, 10 and	TLSD 1-BAT	4,5	5 V 2,7 A	h/Alkaline mar	nganese
Lowest grease purge TLSD 125	12 months  0,3 ml (0.01 US fl. oz) per day	Recommended stor temperature	20	) °C (70 °	,	50.0 (01)
TLSD 250	0,7 ml (0.02 US fl. oz) per day	Storage life of lubri		years <sup>2)</sup> (	(2 years for LG	FP 2 and Oils)
Highest grease purge TLSD 125 TLSD 250	4,1 ml (0.13 US fl. oz) per day 8,3 ml (0.28 US fl. oz) per day	Total weight (incl. p TLSD 125 TLSD 250	63	35 g (22 00 g (28		
Ambient temperature range TLSD 1-BAT	0 to 50 °C (30 to 120 °F)	LED status indicato	rs		TLSD 1-DS	TLSD 1-DK
Maximum operating pressure		Green OK			each 30 sec	each 3 sec
Drive mechanism  Connection thread	5 bar (75 psi)  Electro mechanical  G <sup>1</sup> / <sub>4</sub>	Warning,	high back pressu low battery powe cartridge almost e	er	each 5 sec each 30 sec -	each 1 sec - each 3 sec
Maximum feed line length with grease oil	Up to 3 meters (10 ft) 1) Up to 5 meters (16 ft)	Alarm, er	gh back pressure mpty cartridge rror in lubricator		each 2 sec each 5 sec	each 1 sec each 3 sec each 5 sec

 $<sup>1)</sup> The \ maximum \ feed \ line \ length \ is \ dependent \ on \ ambient \ temperature, \ grease \ type \ and \ back \ pressure \ created \ by \ the \ application.$ 

<sup>2)</sup> Maximum storage life is 3 years from production date, which is printed on the side of the canister. The canister and battery pack may be used at 12 month setting even if activated 3 years from production date.



Electro-mechanical single point automatic lubricators

## SKFTLMR series

The SKF Automatic Lubricant Dispenser – TLMR – is a single point automatic lubricator designed to supply grease to a single lubrication point. With a relatively high pressure of 30 bars, this lubricator can operate at long distances providing optimum results with difficult-to-reach and unsafe lubrication locations. With a wide temperature range and robust design, the TLMR lubricator is suitable for operating conditions with various levels of temperature and vibration.

- Filled with high quality SKF greases
- Temperature independent dispense rate
- Extended time setting up to 24 months
- Maximum discharge pressure of 30 bar over the whole dispensing period
- Available in two versions: TLMR 101 powered by batteries (standard Lithium AA type) and TLMR 201 powered by 12–24 V DC
- Available with non-refillable cartridges in two sizes: 120 and 380 ml

### Typical applications

- Applications requiring high lubricant consumption
- Applications experiencing high vibration in operation
- Excellent water and dust protection makes TLMR suitable for general machinery applications and food processing machinery
- Excellent high temperature performance makes TLMR suitable for engine rooms and hot fan applications
- Excellent low temperature performance makes TLMR suitable for wind turbine applications

Multiple accessories are available for TLMR lubricators (see pages 14-15).

SKF DialSet helps to calculate the correct dispense rate (see page 16).



Each TLMR is supplied with a strong mounting bracket as standard. The bracket enables the TLMR to be easily mounted on a flat surface.



For ease of use, cartridges are easily exchanged by simply screwing them into the lubricator.

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Ordering det	ails				
Grease	Description	TLMR 101 refill sets 120 ml	(cartridge and battery) 380 ml	TLMR 201 cartridges 120 ml	380 ml
LGWA 2	High load, extreme pressure, wide temperature range bearing grease	LGWA 2/MR120B	LGWA 2/MR380B	LGWA 2/MR120	LGWA 2/MR380
LGEV 2	Extremely high viscosity bearing grease with solid lubricants	-	LGEV 2/MR380B	-	LGEV 2/MR380
LGHB 2	High load, high temperature, high viscosity bearing grease	-	LGHB 2/MR380B	-	LGHB 2/MR380
LGHQ 2	High performance, high temperature bearing grease	-	LGHQ 2/MR380B	-	LGHQ 2/MR380
LGWM 1	Extreme pressure, low temperature bearing grease	-	LGWM 1/MR380B	-	LGWM 1/MR380
LGWM 2	High load, wide temperature range bearing grease	-	LGWM 2/MR380B	-	LGWM 2/MR380
LGEP 2	Extreme pressure bearing grease	-	LGEP 2/MR380B	-	LGEP 2/MR380
LGMT 3	All purpose industrial and automotive bearinggrease	-	LGMT 3/MR380B	-	LGMT 3/MR380

Complete sets	
TLMR 101/38WA2	Lubricator with 380 ml cartridge filled with LGWA 2 grease, powered by batteries.
TLMR 201/38WA2	Lubricator with 380 ml cartridge filled with LGWA 2 grease, powered by 12-24 V DC

TLMR pump		
TLMR 101	Lubricator powered by batteries	
TLMR 201 1)	Lubricator powered by 12-24 V DC	

Designation	TLMR 101 and TLMR 201		
Grease capacity	120 ml (4.1 US fl. oz)	Drive mechanism	Electro mechanical
	380 ml (12.8 US fl. oz)	Connection thread	G <sup>1</sup> /4 female
Emptying time	User adjustable: 1,2,3,6,9,12, 18, 24 months or purge	Maximum feed line length 2)	Up to 5 meters (16 ft)
Lowest setting 120 ml cartridge 380 ml cartridge	0,16 ml (0.005 US fl. oz) per day 0,5 ml (0.016 US fl. oz) per day	LED status indicators Green LED (every 8 sec) Green and red LED (every 8 sec) Red LED (every 8 sec)	OK Almost empty Error
Highest setting 120 ml cartridge 380 ml cartridge	3,9 ml (0.13 <i>US fl. oz</i> ) per day 12,5 ml (0.42 <i>US fl. oz</i> ) per day	Protection class DIN EN 60529 DIN 40 050 Teil 9	IP 67 IP 6k9k
Purge	31 ml <i>(1 US fl. oz)</i> per hour	Power	
Ambient temperature range	−25 to +70 °C (−13 to +158 °F)	TLMR 101	4 AA Lithium batteries
Maximum operating pressure	30 bar (435 <i>psi</i> )	TLMR 201	12 -24 Volt DC via M12-A connection

<sup>1)</sup> TLMR 201 is powered by a M12-A plug (TLMR 201-1) which has to be ordered separately 2) The maximum feed line length is dependent on ambient temperature, grease type and back pressure created by the application.

### Ready-to-use centralised lubrication system

# SKFTLMP series

The SKF MultiPoint Automatic Lubricator TLMP series is intended for reliable relubrication of multiple lubrication points. This sturdy automatic lubrication system is packaged as a complete kit, including the lubricator, required tubing and connectors. Designed to supply from one to eighteen lubrication points, the TLMP series features pluggable outlets and is easy to install and program via its keypad with LED display.



Featuring a reservoir capacity of nearly one litre, this versatile lubricator has a stirring paddle to prevent grease separation, making it suitable for more lubricants. With its high IP protection rating, the durable TLMP series is vibration resistant, withstands equipment washdowns and prevents contamination ingress. Also, the unit enables machine steering to temporarily disable lubrication by removing power.

### TLMP series advantages

- Easy to install and program
- Complete kit
- Suitable for one to eighteen lubrication points
- Low-level and malfunction alarms; remote notification possible
- · Machine steering by removing power
- Available in versions with different voltages
- Developed for industrial applications, as well as agricultural and off-road vehicles



The TLMP series are supplied complete with the following items

TLMP 1008	TLMP 1018	
1 ×	1 ×	Pump
1×	1×	Fitting material for the pump unit
2 ×	2 ×	Electrical connectors
20 m (65 ft)	50 m (164 ft)	plastic pipe Nylon, 6 x 1,5 mm
8 ×	18 ×	Straight tube connectors for application G <sup>1</sup> /8
8 ×	18 ×	Tube connectors plugs
7 ×	17 ×	Outlet closure plugs

### Filler nipple

Replaces standard grease nipple for quicker lubricant replenishment using filler pump. (LAGF 1-H)

### Flexible hose with filler nipple

Replaces standard grease nipple for quicker lubricant replenishment using filler pump. (LAGF 1-F)



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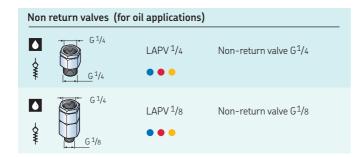


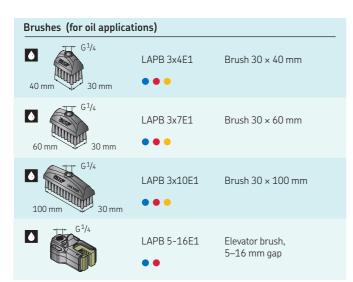
Designation	TLMP 1008 and TLMP 1018		
Number of lubrication outlets TLMP 1008 TLMP 1018	1-8 1-18	External steering  Ambient temperature	By disconnecting power supply $-25 \text{ to } +70 ^{\circ}\text{C} \left(-13 \text{ to } +160 ^{\circ}\text{F}\right)$
Suitable grease consistency	NLGI 2, 3	IP rating	IP 67
Maximum pressure	205 bar (2 970 psi)	Lubrication tubes TLMP 1008	20 m (65 ft), 6 x 1,5 mm, Nylon
Maximum distance length to		TLMP 1018	50 m (164 ft), 6 x 1,5 mm, Nylon
lubrication point		Weight	Approx. 6 kg (13 lb)
Dispense rate	0,1 - 40 cm³/day ( <i>0.003 -1.35 US fl.oz/day</i> ) per outlet	Ordering details 8 oulets TLMP 1008/24DC	24 V DC (-20/+30%)
Output pump element	Approx. 0,2 cm <sup>3</sup> (per cycle), approx. 1,7 cm <sup>3</sup> (per minute)	TLMP 1008/24DC TLMP 1008/120V TLMP 1008/230V	120 V AC 60 Hz (±10%) 230 V AC 50 Hz (±10%)
Reservoir size	1 litre	Ordering details 18 oulets	
Useable reservoir volume	Approx. 0,5–0,9 litres (17–30 US fl.oz)	TLMP 1018/24DC TLMP 1018/120V	24 V DC (-20/+30%) 120 V AC 60 Hz (±10%) 230 V AC 50 Hz (±10%)
Filling	Via hydraulic lubrication fitting R <sup>1</sup> / <sub>4</sub>	TLMP 1018/230V	
Installation position	Vertical (max deviation ±5°)		
Power Supply Connector	EN 175301-803 DIN 43650/A		
Alarms	blocked feed lines, empty reservoir internal and external		

# Accessories

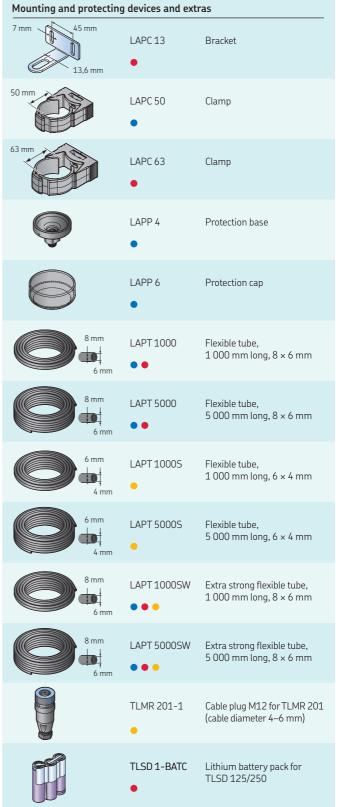
# A full range for enhanced versatility of SKF automatic lubricators













#### Stand-alone program



Online program

### DialSet for smartphones



### Quick tool for relubrication calculation

### SKF DialSet

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

#### DialSet stand-alone

The stand-alone version of DialSet is available in 11 languages: English, French, German, Italian, Spanish, Swedish, Portuguese, Russian, Chinese, Japanese and Thai. The program is suitable for PC's working with MS Windows XP and later. Download it from skf.com/lubrication

#### DialSet online

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

### DialSet for smartphones

For smartphones, apps are available in English for iPhone and Android.







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