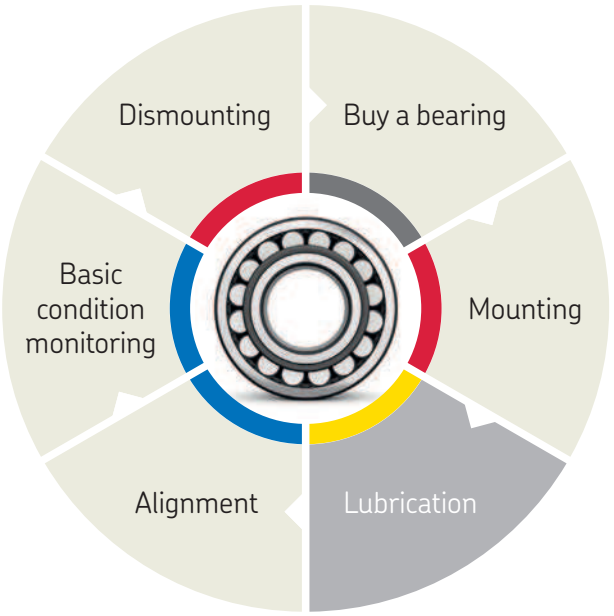
"The right lubricant,
in the right amount,
reaches the right point
at the right time using
the right method."

Alain Noordover,
Business Development Management Lubrication
CoE Lubrication Management

Lubrication



Lubrication management

Poor lubrication accounts for more than 36% of premature bearing failures

Include contamination, and this number rises to well above 50%.
The importance of proper lubrication and cleanliness is self-evident in the determination of bearing life.

From lubrication to lubrication management

A good lubrication programme can be defined by applying the 5R approach:

"The right lubricant, in the right amount, reaches the right point at the right time using the right method"

This simple and logical approach, however, requires a detailed action plan that must include aspects as varied as:

- Logistics and supply chain
- Lubricant selection
- Lubricant storage, transfer and dispensing
- Lubrication tasks planning and scheduling
- Lubricant application procedures
- Lubricant analysis and condition monitoring
- Lubricant disposal
- Training

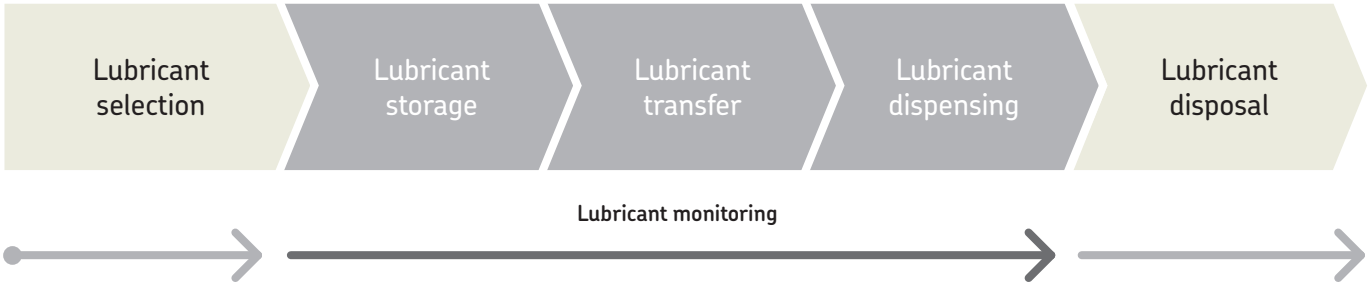
What the right lubrication programme can do for you

Increase

- Productivity
- Reliability
- Availability and durability
- Machine uptime
- Service intervals
- Safety
- Health
- Sustainability

Reduce

- Energy consumption due to friction
- Heat generation due to friction
- Wear due to friction
- Noise due to friction
- Downtime
- Operating expenses
- Product contamination
- Maintenance and repair costs
- Lubricant consumption
- Corrosion



Selecting a suitable grease for a particular bearing is a crucial step if the bearing is to meet design expectations in its application. Use the SKF LubeSelect to select the right lubricant for your application.

During storage, maintenance and transfer steps, the lubricant can easily get contaminated due to lack of lubrication knowledge or simply lack of attention. To minimize the risks of lubricant contamination in storage and transfer, we recommend the use of the Oil storage station and Oil handling containers LAOS series. For the transfer of greases, we offer an extensive range of SKF Grease Pumps, SKF Grease Filler Pumps and SKF Bearing Packer.

For the correct lubricant dispensing, consider the range of SKF Grease Guns and SKF range of single and multi point lubricators. SKF DialSet helps you select the right lubricator settings for the application.

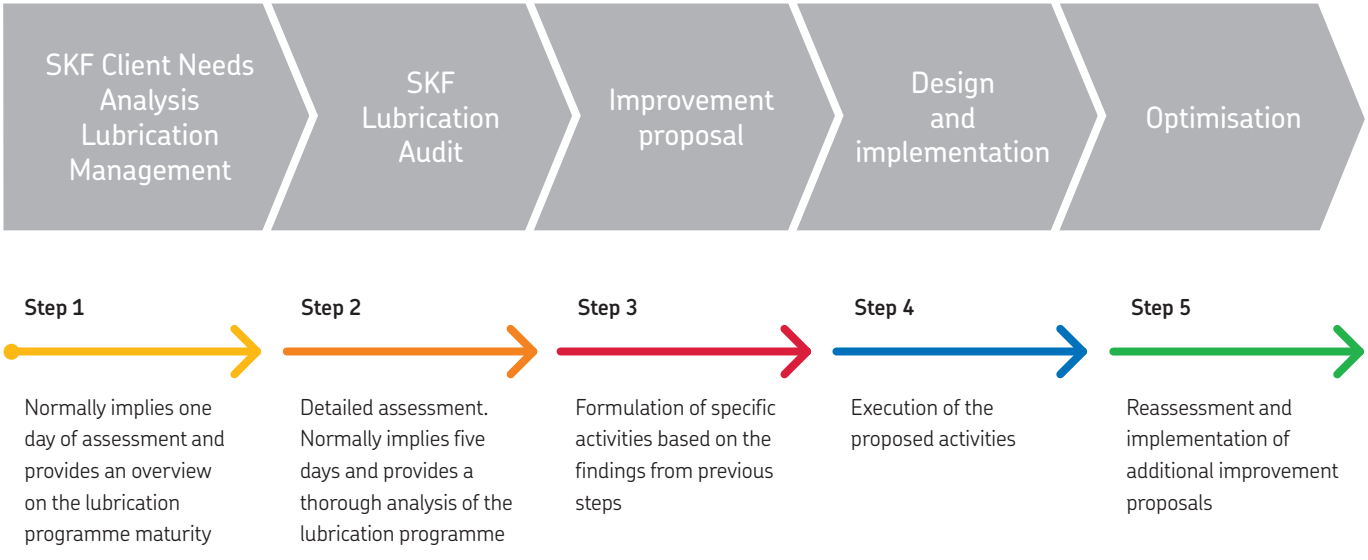
For the monitoring of the lubricant, SKF offers the following tools: SKF Oil Levellers, SKF Oil Check Monitor and SKF Grease Test Kit.

Lubricant disposal must be done according to local applicable regulations.

Lubrication management

Just as asset management takes maintenance to a higher level, a lubrication management approach allows lubrication to be seen from a wider point of view. This approach helps to effectively increase machine reliability at a lower overall cost.

SKF Lubrication Management process



Bearing greases

Understanding grease technical data

Some basic knowledge is required to understand the technical data so that you can select the proper grease. This is an excerpt of the main terms mentioned in SKF grease technical data.

Consistency

A measure of the stiffness of a grease. A proper consistency must ensure that the grease stays in the bearing without generating too much friction. It is classified according to a scale developed by the NLGI (National Lubricating Grease Institute). The softer the grease, the lower the number. Grease for bearings are typically NLGI 1, 2 or 3. The test measures how deep a cone falls into a grease sample in tenths of mm.

Classification of greases by NLGI consistency number

NLGI number	ASTM worked penetration (10^{-1} mm)	Appearance at room temperature
000	445–475	very fluid
00	400–430	fluid
0	355–385	semi-fluid
1	310–340	very soft
2	265–295	soft
3	220–250	medium hard
4	175–205	hard
5	130–160	very hard
6	85–115	extremely hard

Temperature range

Comprehends the suitable working range of the grease. It goes between the low temperature limit (LTL) and the high temperature performance limit (HTPL). LTL is defined as the lowest temperature at which the grease will allow the bearing to be started up without difficulty. Below this limit, starvation will occur and cause a failure. Above HTPL, the grease will degrade in an uncontrolled way so that grease life cannot be determined accurately. The traffic light concept illustrates these concepts.

Dropping point

Temperature at which a grease sample, when heated, will begin to flow through an opening according to DIN ISO 2176. It is important to understand that this point is considered to have limited significance for performance of the grease as it is always far above HTPL.

Viscosity

A measure of a fluid's resistance to flow. For lubricants, a proper viscosity must guarantee an adequate separation between surfaces without causing too much friction. According to ISO standards, it is measured at 40 °C *(105 °F)*, as viscosity changes with temperature. Values at 100 °C *(210 °F)* allow calculation of the viscosity index, e.g. how much the viscosity will decrease when temperature rises.

Mechanical stability

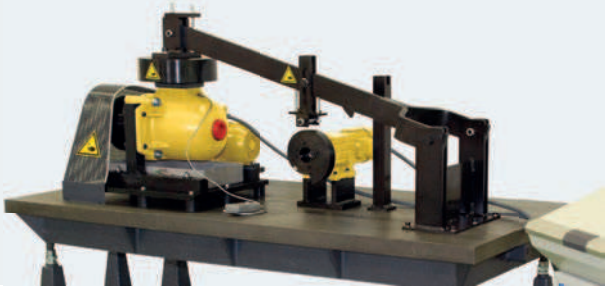
The consistency of bearing greases should not significantly change during its working life. Three main tests are normally used to analyse this behaviour:

- Prolonged penetration
  The grease sample is subjected to 100 000 strokes in a device called a grease worker. Then, the penetration is measured. The difference against penetration at 60 strokes is reported as the change in 10^{-1} mm.

- Roll stability
  A grease sample is placed in a cylinder with a roller inside. The cylinder is then rotated for 72 or 100 hours at 80 or 100 °C *(175 or 210 °F)* (the standard test demands just 2 hours at room temperature). At the end of the test period, once the cylinder has cooled to room temperature, the penetration of the grease is measured and the change in consistency is reported in 10^{-1} mm.

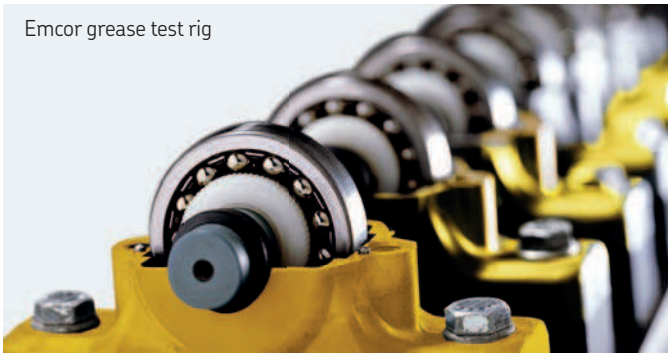
- V2F test
  A railway axlebox is subjected to vibration shocks of 1 Hz from a bouncing hammer producing an acceleration level between 12–15 g. After 72 hours at 500 r/min., the grease leaked from the housing through the labyrinth seal is collected in a tray. If it weighs less than 50 g, a rating of 'm' is granted, otherwise it is rated as 'fail'. Afterwards, the test is continued for another 72 hours at 1 000 r/min. If less than 150 grams of grease leaked after completion of both tests, then a rating of 'M' is given.

V2F grease test rig



Roll stability test rig

Emcor grease test rig



Corrosion protection

Corrosive environments demand special properties for rolling bearing greases. During the Emcor test, bearings are lubricated with a mixture of grease and distilled water. At the end of the test, a value between 0 (no corrosion) and 5 (very severe corrosion) is given. Salt water, instead of distilled water or continuous water flow (washout test), can be used to make the test more severe.

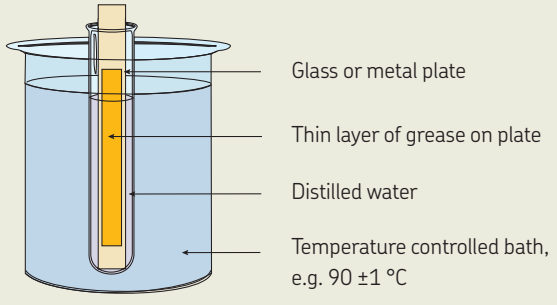
Water resistance

A glass strip is coated with the candidate grease, which is placed into a water-filled test tube. The test tube is immersed in a water bath for three hours at a specified test temperature. The change in the grease is visually evaluated and reported as a value between 0 (no change) and 3 (major change) along with the test temperature.

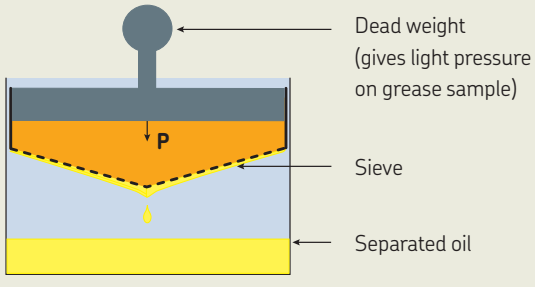
Oil separation

Lubricating greases release oil when stored for long periods of time or when used in bearings as a function of temperature. The degree of oil separation will depend upon the thickener, base oil and manufacturing method. In the test, a cup is filled with a given quantity of grease (and is weighed before the test) and a 100 gram weight is placed on top of the grease. The complete unit is placed into an oven at 40 °C *(105 °F)* for one week. At the end of the week, the amount of oil which has leaked through the sieve, is weighed and reported as a percentage of weight loss.

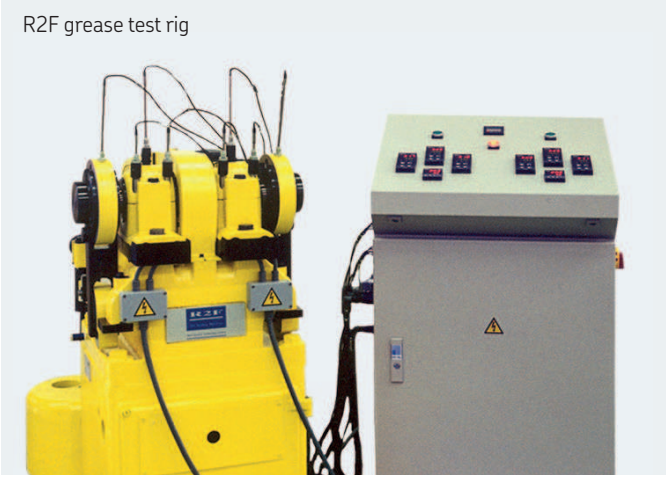
Water resistance test



Oil separation test



R2F grease test rig



R0F+ grease test rig

Lubrication ability

The R2F test assesses the high temperature performance and lubricating ability of a grease. A shaft with two spherical roller bearings in their respective housings is driven by an electric motor. The bearings are run under load, the speed may be varied and heat can be applied. The test method is carried out under two different conditions after which the wear of the rollers and the cage is measured. Test A is conducted at ambient temperature and a "pass" rating means that the grease can be used to lubricate large bearings at normal operating temperatures and also in low vibrating applications. Test B runs at 120 °C *(250 °F)* and a "pass" rating indicates suitability for large bearings at high temperatures.

Copper corrosion

Lubricating greases should protect copper alloys used in bearings from corrosive attack while in service. To assess these properties, a copper strip is immersed in the grease sample and placed in an oven. The strip is then cleaned and the degradation is observed. The result is rated by a numerical system and a rating above 2 indicates poor protection.

Rolling bearing grease life

The R0F and ROF+ tests determine the grease life and its high temperature performance limit (HTPL). Ten deep groove ball bearings are fitted into five housings and filled with a given quantity of grease. The test is undertaken at a pre-determined speed and temperature. Axial and radial loads are applied and the bearings run to failure. The time to failure is recorded in hours and a Weibull life calculation is made to establish the grease life. This information can then be used to determine re-lubrication intervals in an application.

Extreme pressure (EP) performance

The 4-ball weld load test rig uses three steel balls held in a cup. A fourth ball is rotated against the three balls at a given speed. A starting load is applied and increased at pre-determined intervals until the rotating ball seizes and welds to the stationary balls. Values above 2 600 N are typically expected in EP grease. Under the 4-ball wear scar test, SKF applies 1 400 N (standard test uses 400 N) on the fourth ball during 1 minute. The wear on the three balls is measured and values below 2 mm are considered as appropriate values for EP greases.

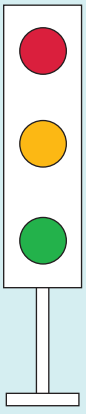
Fretting corrosion

Vibrating or oscillating conditions are typical causes for fretting corrosion. Under the FAFNIR test, two thrust ball bearings are loaded and subjected to oscillation. The wear on each bearing is then measured. A wear below 7 mg indicates good fretting protection.

Low temperature torque

The grease is applied to a test ball bearing in a vertical spindle surrounded by a cooling jacket and submitted to axial load. Two measurements are taken: the torque required to initiate the rotation and the torque required to maintain it.

SKF Traffic light concept

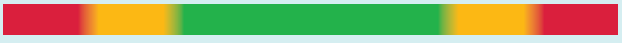


Forbidden to operate

Unsafe functioning (only for short periods)

Safe functioning i.e. with predictable grease life

Temperature →



LTL LTPL HTPL HTL

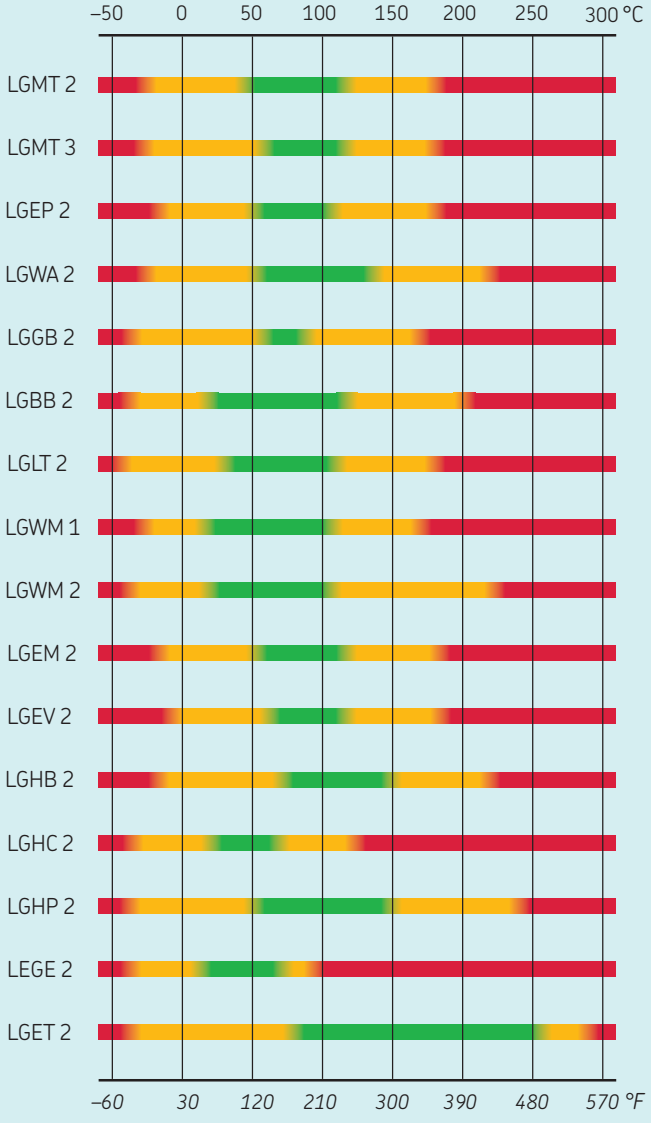
LTL – Low-temperature limit:
The lowest temperature at which the grease will allow the bearing to be started up without difficulty.

LTPL – Low-temperature performance limit:
Below this limit, the supply of grease to the contact surfaces of rolling elements and raceways may become insufficient. Values are different for roller and ball bearings.

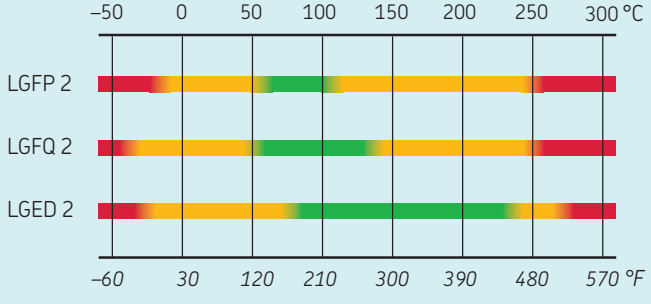
HTPL – High-temperature performance limit:
Above this limit the grease will oxidise in an uncontrolled way, so that grease life cannot be determined accurately.

HTL – High-temperature limit:
When exceeding this limit, the grease loses its structure permanently (e.g., the dropping point for soap-base greases).

Operating temperature range of greases



SKF Food Grade Lubricants



SKF lubricants offer major competitive advantages:

- Designed and tested to perform under real conditions
- Product data include specific test results enabling a better selection
- Strict quality control of every production batch helps ensure consistent performance
- Quality control allows SKF to offer a five–year shelf-life [1] from the date of production

Production processes and raw materials greatly influence grease properties and performance. It is virtually impossible to select or compare greases based only on their composition. Therefore, performance tests are needed to provide crucial information. In over 100 years, SKF has accrued vast knowledge about the interaction of lubricants, materials and surfaces.

This knowledge has led SKF, in many cases, to set industry standards in bearing lubricant testing. Emcor, ROF, ROF+, V2F, R2F and Bequiet are just some of the multiple tests developed by SKF to assess the performance of lubricants under bearing operating conditions. Many of them are widely used by lubricant manufacturers worldwide.

1) SKF food grade and biodegradable lubricants offer a two-year shelf-life from the date of production.

SKF Engineering and Research Centre in the Netherlands

Grease compatibility

When a given lubricating grease is intended to be replaced by another one in a given application, there is always a question about whether or not they are both compatible. But how is compatibility defined? And what is actually evaluated?

In order to declare two greases as “compatible“, they are mixed in different proportions and the mechanical stability of the different mixtures is evaluated. Evidently, an excess of hardening or softening would lead to a lubrication failure and therefore it is the first parameter to be assessed. Additional parameters as dropping point are included in the standard method ASTM D6185.

The key point to be understood is that, although two greases might not suffer drastic consistency changes when mixed, no assessment is done on the performance of the mixture since in general the process of replacing a grease by another one is considered as a transition that is to be executed as fast as possible. In practical terms it means that as much as possible of the old grease is expected to be removed and the relubrication periods are expected to be reduced in order to smooth the process. Additionally, it is virtually impossible to assess the performance of a mixture that will be continuously changing while new relubrication tasks are executed. Therefore, please keep these concepts in mind when using the tables presented in the following page and as general rule try always to remove as much as possible the old grease. In case of doubt or additional mixtures not mentioned in it, please consult an SKF application engineer.

Thickener compatibility chart

	Lithium	Calcium	Sodium	Lithium complex	Calcium complex	Sodium complex	Barium complex	Aluminium complex	Clay (Bentonite)	Common polyurea [1]	Calcium sulphonate complex
Lithium	+	●	–	+	–	●	●	–	●	●	+
Calcium	●	+	●	+	–	●	●	–	●	●	+
Sodium	–	●	+	●	●	+	+	–	●	●	–
Lithium complex	+	+	●	+	+	●	●	+	–	–	+
Calcium complex	–	–	●	+	+	●	–	●	●	+	+
Sodium complex	●	●	+	●	●	+	+	–	–	●	●
Barium complex	●	●	+	●	–	+	+	+	●	●	●
Aluminium complex	–	–	–	+	●	–	+	+	–	●	–
Clay (Bentonite)	●	●	●	–	●	–	●	–	+	●	–
Common polyurea [1]	●	●	●	–	+	●	●	●	●	+	+
Calcium sulphonate complex	+	+	–	+	+	●	●	–	–	+	+

Base oil compatibility chart

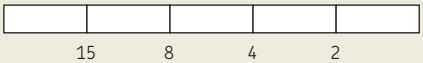
	Mineral/PAO	Ester	Polyglycol	Silicone: Methyl	Silicone: Phenyl	Polyphenylether	PFPE
Mineral/ PAO	+	+	–	–	+	●	–
Ester	+	+	+	–	+	●	–
Polyglycol	–	+	+	–	–	–	–
Silicone: Methyl	–	–	–	+	+	–	–
Silicone: Phenyl	+	+	–	+	+	+	–
Polyphenyl-ether	●	●	–	–	+	+	–
PFPE	–	–	–	–	–	–	+

+ = Compatible
● = Test required
– = Incompatible

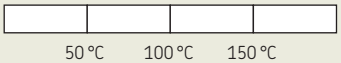
[1] SKF high performance, high temperature bearing grease LGHP 2 is not a common polyurea type grease. It is a di-urea bearing grease, which has successfully been tested for compatibility with lithium and lithium complex thickened greases i.e. LGHP 2 is compatible with such greases.

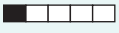
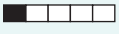
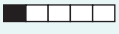
Grease	Description	Application examples	Load	Temperature
LGMT 2	General purpose industrial and automotive	Automotive wheel bearings Conveyors and fans		
LGMT 3	General purpose industrial and automotive	Vertical shaft or outer bearing ring rotation Car, truck and trailer wheel bearings		
LGEP 2	Extreme pressure	Forming and press section of paper mills Heavy machinery, vibrating screens		
LGWA 2	Wide temperature, extreme pressure	Wheel bearings in cars, trailers and trucks Electric motors		
LGGB 2	Biodegradable, low toxicity	Agricultural and forestry equipment Water treatment and irrigation		
LGBB 2	Wind turbine blade and yaw bearing grease	Wind turbine blade and yaw slewing bearings		
LGLT 2	Low temperature, extremely high speed	Textile and machine tool spindles Small electric motors and robots		
LGWM 1	Extreme pressure, low temperature	Main shaft of wind turbines Spherical roller thrust bearing applications		
LGWM 2	High load, wide temperature	Main shaft of wind turbines Heavy duty off road or marine applications		
LGEM 2	High viscosity plus solid lubricants	Jaw crushers Construction machinery		
LGEV 2	Extremely high viscosity with solid lubricants	Trunnion bearings Support and thrust rollers on rotary kilns and dryers		
LGHB 2	EP high viscosity, high temperature	Paper machines Work roll bearings and continuous casting in steel industry		
LGHC 2	High load, high temperature	Rolling stands Ball mills		
LGHP 2	High performance polyurea grease	Electric motors Fans, even at high speed		
LEGE 2	Low friction grease	Electrical motors high speed applications		
LGET 2	Extreme temperature	Ovens Textile dryers		

[1] mm^2/s at 40 °C *(105 °F)* = cSt.



C = basic dynamic load rating, kN
P = equivalent dynamic bearing load, kN



Speed	Thickener / Base Oil	NLGI	Base oil viscosity [1]	Vertical shaft	Outer ring rotation	Oscillating movements	Severe Vibrations	Frequent start up	Rust inhibiting
	Li/Min	2	110	●			+		+
	Li/Min	3	125	+	●		+		●
	Li/Min	2	200	●		●	+	+	+
	Lix/Min	2	185	●	●	●	●	+	+
	Li-Ca/Ester	2	110	●		+	+	+	●
	Lix/PAO	2	68			+	+	+	+
	Li/PAO	2	18	●				●	●
	Li/Min	1	200			+		+	+
	CaSx/Min-PAO	1–2	80	●	●	+	+	+	+
	Li-Ca/Min	2	500	●		+	+	+	+
	Li-Ca/Min	2	1020	●		+	+	+	+
	CaSx/Min	2	425	●	+	+	+	+	+
	CaSx/Min	2	450	●	+	+	+	+	+
	PU/Min	2–3	96	+			●	●	+
	Li/Ester	2-3	25	+				●	+
	PTFE/PFPE	2	400	●	+	+	●	●	●

Wide applications greases

Special requirements

Low temperatures

High loads

High temperatures

Speed ($n\ d_m$)

for ball bearings		100 000	300 000	500 000
for roller bearings SRB/TRB/CARB	30 000	75 000	210 000	
for roller bearings CRB	30 000	75 000	270 000	

● = Suitable

\+ = Recommended

$n\ d_m$ = rotational speed, r/min x 0,5 (D+d), mm

	LGMT 2	LGMT 3	LGEP 2	LGWA 2	LGGB 2	LGBB 2	LGLT 2
DIN 51825 code	K2K-30	K3K-30	KP2G-20	KP2N-30	KPE 2K-40	KP2G-40	K2G-50
NLGI consistency class	2	3	2	2	2	2	2
Thickener	Lithium	Lithium	Lithium	Lithium complex	Lithium/ calcium	Lithium complex	Lithium
Colour	Red brown	Amber	Light brown	Amber	Off white	Yellow	Beige
Base oil type	Mineral	Mineral	Mineral	Mineral	Synthetic (Ester)	Synthetic (PAO)	Synthetic (PAO)
Operating temperature range	–30 to +120 °C *(–20 to +250 °F)*	–30 to +120 °C *(–20 to +250 °F)*	–20 to +110 °C *(–5 to +230 °F)*	–30 to +140 °C *(–20 to +285 °F)*	–40 to +90 °C *(–40 to +195 °F)*	–40 to +120 °C *(–40 to +250 °F)*	–50 to +110 °C *(–60 to +230 °F)*
Dropping point DIN ISO 2176	>180 °C *(>355 °F)*	>180 °C *(>355 °F)*	>180 °C *(>355 °F)*	>250 °C *(>480 °F)*	>170 °C *(>340 °F)*	>200 °C *(390 °F)*	>180 °C *(>355 °F)*
Base oil viscosity							
40 °C, mm^2/s	110	125	200	185	110	68	18
100 °C, mm^2/s	11	12	16	15	13		4,5
Penetration DIN ISO 2137							
60 strokes, 10^{-1} mm	265–295	220–250	265–295	265–295	265–295	265–295	265–295
100 000 strokes, 10^{-1} mm	+50 max. (325 max.)	280 max.	+50 max. (325 max.)	+50 max. (325 max.)	+50 max. (325 max.)	+50 max.	+50 max.
Mechanical stability							
Roll stability, 50 hrs at 80 °C, 10^{-1} mm	+50 max.	295 max.	+50 max.	+50 max. change	+70 max. (350 max.)	+50 max.	
V2F test	'M'	'M'	'M'	'M'			
Corrosion protection							
Emcor: – standard ISO 11007	0–0	0–0	0–0	0–0	0–0	0–0	0–1
– water washout test	0–0	0–0	0–0	0–0 [1]			
– salt water test (100% seawater)	0–1 [1]		1–1 [1]			0–1 [1]	
Water resistance							
DIN 51 807/1, 3 hrs at 90 °C	1 max.	1 max.[1]	1 max.	1 max.	0 max.	1 max.	1 max.
Oil separation							
DIN 51 817, 7 days at 40 °C, static, %	1–6	1–3	2–5	1–5	0,8–3	4 max, 2.5 [1]	<4
Lubrication ability							
R2F, running test B at 120 °C	Pass	Pass	Pass	Pass, 100 °C *(210 °F)*	Pass, 100 °C *(210 °F)* [1]		
R2F, cold chamber test, –30 °C, +20 °C							
Copper corrosion							
DIN 51 811	2 max. 110 °C *(230 °F)*	2 max. 130 °C *(265 °F)*	2 max. 110 °C *(230°F)*	2 max. 100 °C *(210°F)*		1 max. 120 °C *(250 °F)*	1 max. 100 °C *(210 °F)*
Rolling bearing grease life							
ROF test		1 000 min.,			>300,		>1 000,
L_{50} life at 10 000 r/min., hrs		130 °C *(265 °F)*			120 °C *(250 °F)*		20 000 r/min. 100 °C *(210 °F)*
EP performance							
Wear scar DIN 51350/5, 1 400 N, mm			1,4 max.	1,6 max.	1,8 max.	0,4 [1]	
4–ball test, welding load DIN 51350/4, N			2 800 min.	2 600 min.	2 600 min.	5 500 [1]	2 000 min.
Fretting corrosion							
ASTM D4170 FAFNIR test at +25 °C mg			5,7 [1]			0–1 [1]	
Low temperature torque							
IP186, starting torque, m Nm [1]	98, –30 °C *(–20 °F)*	145, –30 °C *(–20 °F)*	70, –20 °C *(–5 °F)*	40, –30 °C *(–20 °F)*		313, –40 °C *(–40 °F)*	32, –50 °C *(–60 °F)*
IP186, running torque, m Nm [1]	58, –30 °C *(–20 °F)*	95, –30 °C *(–20 °F)*	45, –20 °C *(–5 °F)*	30, –30 °C *(–20 °F)*		75, –40 °C *(–40 °F)*	21, –50 °C *(–60 °F)*

[1] Typical value
[2] ISO 2160, 140 °C *(285 °F)*

Special requirements

Wide applications greases

LGWM 1	LGWM 2	LGEM 2	LGEV 2	LGHB 2	LGHC 2	LGHP 2	LEGE 2	LGET 2
KP1G-30	KP2G-40	KPF2K-20	KPF2K-10	KP2N-20	KP2N-20	K2N-40	KE2N-50	KFK2U-40
1	1–2	2	2	2	2	2–3	2–3	2
Lithium	Calcium sulphonate complex	Lithium/calcium	Lithium/ calcium	Calcium sulphonate complex	Complex calcium sulphonate	Di–urea	Lithium	PTFE
Brown	Yellow	Black	Black	Brown	Brown	Blue	Light brown	Off white
Mineral	Synthetic (PAO)/ Mineral	Mineral	Mineral	Mineral	Mineral	Mineral	Ester	PFPE
–30 to +110 °C *(–20 to +230 °F)*	–40 to +110 °C *(–40 to +230 °F)*	–20 to +120 °C *(–5 to +250 °F)*	–10 to +120 °C *(15 to 250 °F)*	–20 to +150 °C *(–5 to +300 °F)*	–20 to +140 °C *(–5 to +284 °F)*	–40 to +150 °C *(–40 to +300 °F)*	–50 to +150 °C *(–58 to +302 °F)*	–40 to +260 °C *(–40 to +500 °F)*
>170 °C *(>340 °F)*	>300 °C *(>570 °F)*	>180 °C *(>355 °F)*	>180 °C *(>355 °F)*	>220 °C *(>430 °F)*	>300 °C *(>570 °F)*	>240 °C *(>465 °F)*	>185 °C *(>365 °F)*	>300 °C *(>570 °F)*
200 16	80 8,6	500 32	1 020 58	425 26,5	450 31	96 10,5	25 4,9	400 38
310–340 +50 max.	280–310 +30 max	265–295 325 max.	265–295 325 max.	265–295 –20 to +50 (325 max.)	265–295 +30 max.	245–275 365 max.	240–270 330 max.	265–295 –
	+50 max.	345 max. 'M'	+50 max. 'M'	–20 to +50 change 'M'	–20 to +30 change	365 max.	310 max. [1]	±30 max. 130 °C *(265 °F)*
0–0 0–0	0–0 0–0 0–0 [1]	0–0 0–0 [1]	0–0 0–0 [1] 0–0 [1]	0–0 0–0 0–0 [1]	0–0 0–0 [1] 0–1	0–0 0–0 0–0	0–0 0–0 [1]	1–1 max.
1 max.	1 max.	1 max.	1 max.	1 max.	1 max.	1 max.	0 max.	0 max.
8–13	3 max.	1–5	1–5	1–3, 60 °C *(140 °F)*	2 [1]	1–5 [1]	1.4 [1]	13 max. 30 hrs 200 °C *(390 °F)*
	Pass, 140 °C *(285 °F)* Pass, Pass	Pass, 100 °C *(210 °F)*		Pass, 140 °C *(285 °F)*	Pass, 140 °C *(285 °F)*	Pass		
2 max. 90 °C *(>195 °F)*	2 max. 100 °C *(210 °F)*	2 max. 100 °C *(210 °F)*	1 max. 100 °C *(210 °F)*	2 max. 150 °C *(300 °F)*	1b max.	1 max. 150 °C *(300 °F)*	1b [2]	1 max. 150 °C *(300 °F)*
	1 824 [1], 110 °C *(230 °F)*			>1 000, 130 °C *(265 °F)*		1 000 min. 150 °C *(300 °F)*	1 000 min. 150 °C *(300 °F)*	>1 000 [1] at 220 °C *(428 °F)*
1,8 max. 3 200 min. [1]	1,5 max. [1] 4 000 min. [1]	1,2 max. 3 400 min.	1,2 max. 3 000 min.	0,86 [1] 4 000 min.	1,2 [1] 4 000 min. [1]			8 000 min.
5,5 [1]	5,2 / 1,1 at –20 °C *(–5 °F)* [1]			0 [1]		7 [1]		
178, –30 °C *(–20 °F)* 103, –30 °C *(–20 °F)*	249, –40 °C *(–40 °F)* 184, –40 °C *(–40 °F)*	160, –20 °C *(–5 °F)* 98, –20 °C *(–5 °F)*	96, –10 °C *(14 °F)* 66, –10 °C *(14 °F)*	250, –20 °C *(–5 °F)* 133, –20 °C *(–5 °F)*	224, –20 °C (–5 °F) 62, –20 °C (–5 °F)	1 000, –40 °C *(–40 °F)* 280, –40 °C *(–40 °F)*	300 max 100 max	

High loads

Low temperatures

High temperatures

LGMT 2

General purpose industrial and automotive bearing grease

SKF LGMT 2 is mineral oil based, lithium soap thickened grease with excellent thermal stability within its operating temperature range. This premium quality, general purpose grease is suitable for a wide range of industrial and automotive applications.

- Excellent oxidation stability
- Good mechanical stability
- Excellent water resistance and rust inhibiting properties

Typical applications

- Agricultural equipment
- Automotive wheel bearings
- Conveyors
- Small electric motors
- Industrial fans

Available pack sizes

Packsize	Designation
35 g tube	LGMT 2/0.035
200 g tube	LGMT 2/0.2
420 ml cartridge	LGMT 2/0.4
1 kg can	LGMT 2/1
5 kg can	LGMT 2/5
18 kg pail	LGMT 2/18
50 kg drum	LGMT 2/50
180 kg drum	LGMT 2/180

Technical data

Designation	LGMT 2
DIN 51825 code	K2K-30
NLGI consistency class	2
Thickener	Lithium
Colour	Red brown
Base oil type	Mineral
Operating temperature range	–30 to +120 °C *(–20 to +250 °F)*
Dropping point DIN ISO 2176	>180 °C *(>355 °F)*
Base oil viscosity	
40 °C, mm^2/s	110
100 °C, mm^2/s	11
Penetration DIN ISO 2137	
60 strokes, 10^{-1} mm	265–295
100 000 strokes, 10^{-1} mm	+50 max. (325 max.)
Mechanical stability	
Roll stability, 50 hrs at 80 °C, 10^{-1} mm	
V2F test	+50 max. 'M'
Corrosion protection	
Emcor:	
– standard ISO 11007	0–0
– water washout test	0–0
– salt water test (100% seawater)	0–1 [1]
Water resistance	
DIN 51 807/1, 3 hrs at 90 °C	1 max.
Oil separation	
DIN 51 817, 7 days at 40 °C, static, %	1–6
Lubrication ability	
R2F, running test B at 120 °C	Pass
Copper corrosion	
DIN 51 811	2 max. at 110 °C *(230 °F)*
Shelf life	5 years

[1] Typical value

LGMT 3

General purpose industrial and automotive bearing grease

SKF LGMT 3 is mineral oil based, lithium soap thickened grease. This premium quality, general purpose grease is suitable for a wide range of industrial and automotive applications requiring stiff grease.

- Excellent rust inhibiting properties
- High oxidation stability within its recommended temperature range

Typical applications

- Bearings >100 mm *(3.9 in.)* shaft size
- Outer bearing ring rotation
- Vertical shaft applications
- Continuous high ambient temperatures >35 °C *(95 °F)*
- Propeller shafts
- Agricultural equipment
- Car, truck and trailer wheel bearings
- Large electric motors

Available pack sizes

Packsize	Designation
420 ml cartridge	LGMT 3/0.4
0,5 kg can	LGMT 3/0.5
1 kg can	LGMT 3/1
5 kg can	LGMT 3/5
18 kg pail	LGMT 3/18
50 kg drum	LGMT 3/50
180 kg drum	LGMT 3/180
TLMR	page 166

Technical data

Designation	LGMT 3
DIN 51825 code	K3K-30
NLGI consistency class	3
Thickener	Lithium
Colour	Amber
Base oil type	Mineral
Operating temperature range	–30 to +120 °C *(–20 to +250 °F)*
Dropping point DIN ISO 2176	>180 °C *(>355 °F)*
Base oil viscosity	
40 °C, mm^2/s	125
100 °C, mm^2/s	12
Penetration DIN ISO 2137	
60 strokes, 10^{-1} mm	220–250
100 000 strokes, 10^{-1} mm	280 max.
Mechanical stability	
Roll stability, 50 hrs at 80 °C, 10^{-1} mm	295 max.
V2F test	'M'
Corrosion protection	
Emcor: – standard ISO 11007	0–0
– water washout test	0–0
Water resistance	
DIN 51 807/1, 3 hrs at 90 °C	1 max. [1]
Oil separation	
DIN 51 817, 7 days at 40 °C, static, %	1–3
Lubrication ability	
R2F, running test B at 120 °C	Pass
Copper corrosion	
DIN 51 811	2 max. at 130 °C *(265 °F)*
Rolling bearing grease life	
R0F test	1 000 min. at 130 °C
L_{50} life at 10 000 r/min., hrs	*(265 °F)*
Shelf life	5 years

[1] Typical value

LGEP 2

High load, extreme pressure bearing grease

SKF LGEP 2 is mineral oil based, lithium soap thickened grease with extreme pressure additives. This grease provides good lubrication in general applications subjected to harsh conditions and vibrations.

- Excellent mechanical stability
- Extremely good corrosion inhibiting properties
- Excellent EP performance

Typical applications

- Pulp and paper making machines
- Jaw crushers
- Dam gates
- Work roll bearings in steel industry
- Heavy machinery, vibrating screens
- Crane wheels, sheaves
- Slewing bearings

Available pack sizes

Packsize	Designation
420 ml cartridge	LGEP 2/0.4
1 kg can	LGEP 2/1
5 kg can	LGEP 2/5
18 kg pail	LGEP 2/18
50 kg drum	LGEP 2/50
180 kg drum	LGEP 2/180
TLMR	page 166

Technical data

Designation	LGEP 2
DIN 51825 code	KP2G-20
NLGI consistency class	2
Thickener	Lithium
Colour	Light brown
Base oil type	Mineral
Operating temperature range	–20 to +110 °C *(–5 to +230 °F)*
Dropping point DIN ISO 2176	>180 °C *(>355 °F)*
Base oil viscosity:	
40 °C, mm^2/s	200
100 °C, mm^2/s	16
Penetration DIN ISO 2137	
60 strokes, 10^{-1} mm	265–295
100 000 strokes, 10^{-1} mm	+50 max. (325 max.)
Mechanical stability:	
Roll stability, 50 hrs at 80 °C, 10^{-1} mm	+50 max.
V2F test	'M'
Corrosion protection	
Emcor: – standard ISO 11007	0–0
– water washout test	0–0
– salt water test (100% seawater)	1–1 [1]
Water resistance	
DIN 51 807/1, 3 hrs at 90 °C	1 max.
Oil separation	
DIN 51 817, 7 days at 40 °C, static, %	2–5
Lubrication ability	
R2F, running test B at 120 °C	Pass
Copper corrosion	
DIN 51 811	2 max. at 110 °C *(230 °F)*
EP performance	
Wear scar DIN 51350/5, 1 400 N, mm	1,4 max
4–ball test, welding load DIN 51350/4, N	2 800 min.
Fretting corrosion	
ASTM D4170 (mg)	5,7 [1]
Shelf life	5 years

[1] Typical value

LGWA 2

High load, extreme pressure, wide temperature range bearing grease

SKF LGWA 2 is a premium quality mineral oil based, lithium complex grease with extreme pressure (EP) performance. LGWA 2 is recommended for general industrial and automotive applications, when loads or temperatures exceed the range of general purpose greases.

- Excellent lubrication at peak temperatures up to 220 °C *(430 °F)* for short periods
- Protection of wheel bearings operating under severe conditions
- Effective lubrication in wet conditions
- Good water and corrosion resistance
- Excellent lubrication under high loads and low speeds

Typical applications

- Wheel bearings in cars, trailers and trucks
- Washing machines
- Fan and electric motors

Available pack sizes

Packsize	Designation
200 g tube	LGWA 2/0.2
420 ml cartridge	LGWA 2/0.4
1 kg can	LGWA 2/1
5 kg can	LGWA 2/5
18 kg pail	LGWA 2/18
50 kg drum	LGWA 2/50
180 kg drum	LGWA 2/180
LAGD, TLSD, TLMR	page 162, 164, 166

Technical data

Designation	LGWA 2
DIN 51825 code	KP2N-30
NLGI consistency class	2
Thickener	Lithium complex
Colour	Amber
Base oil type	Mineral
Operating temperature range	–30 to +140 °C *(–20 to +285 °F)*
Dropping point DIN ISO 2176	>250 °C *(>480 °F)*
Base oil viscosity	
40 °C, mm^2/s	185
100 °C, mm^2/s	15
Penetration DIN ISO 2137	
60 strokes, 10^{-1} mm	265–295
100 000 strokes, 10^{-1} mm	+50 max. (325 max.)
Mechanical stability	
Roll stability, 50 hrs at 80 °C, 10^{-1} mm	+50 max. change
V2F test	'M'
Corrosion protection	
Emcor: – standard ISO 11007	0–0
– water washout test	0–0 [1]
Water resistance	
DIN 51 807/1, 3 hrs at 90 °C	1 max.
Oil separation	
DIN 51 817, 7 days at 40 °C, static, %	1–5
Lubrication ability	
R2F, running test B at 120 °C	Pass at 100 °C *(210 °F)*
Copper corrosion	
DIN 51 811	2 max. at 100 °C *(210 °F)*
EP performance	
Wear scar DIN 51350/5, 1 400 N, mm	1,6 max.
4–ball test, welding load DIN 51350/4, N	2 600 min.
Shelf life	5 years

[1] Typical value

LGGB 2

Biodegradable bearing grease

SKF LGGB 2 is a biodegradable, low toxicity, synthetic ester oil based grease, using a lithium-calcium thickener. Its special formulation makes it most suitable for applications where environmental contamination is a concern.

- Good performance in applications with steel-on-steel spherical plain bearings, ball bearings and roller bearings
- Good low temperature start-up performance
- Good corrosion inhibiting properties
- Suitable for medium to high loads

Typical applications

- Agricultural and forestry equipment
- Construction and earthmoving equipment
- Mining and conveying equipment
- Water treatment and irrigation
- Locks, dams, bridges
- Linkages, rod ends

Available pack sizes

Packsize	Designation
420 ml cartridge	LGGB 2/0.4
5 kg can	LGGB 2/5
18 kg pail	LGGB 2/18
180 kg drum	LGGB 2/180
LAGD	page 162

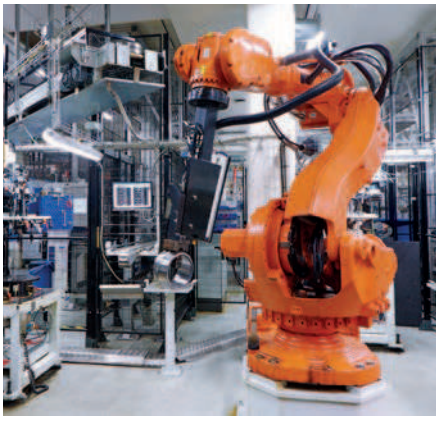
Technical data

Designation	LGGB 2
DIN 51825 code	KPE 2K-40
NLGI consistency class	2
Thickener	Lithium/calcium
Colour	Off white
Base oil type	Synthetic ester
Operating temperature range	–40 to +90 °C *(–40 to +195 °F)*
Dropping point DIN ISO 2176	>170 °C *(>340 °F)*
Base oil viscosity	
40 °C, mm^2/s	110
100 °C, mm^2/s	13
Penetration DIN ISO 2137	
60 strokes, 10^{-1} mm	265–295
100 000 strokes, 10^{-1} mm	+50 max. (325 max.)
Mechanical stability	
Roll stability, 50 hrs at 80 °C, 10^{-1} mm	+70 max. (350 max.)
Corrosion protection	
Emcor: – standard ISO 11007	0–0
Water resistance	
DIN 51 807/1, 3 hrs at 90 °C	0 max.
Oil separation	
DIN 51 817, 7 days at 40 °C, static, %	0,8–3
Lubrication ability	
R2F, running test B at 120 °C	Pass at 100 °C *(210 °F)* [1]
Rolling bearing grease life	
R0F test L_{50} life at 10 000 r/min., hrs	>300 at 120 °C *(250 °F)*
EP performance	
Wear scar DIN 51350/5, 1 400 N, mm	1,8 max.
4–ball test, welding load DIN 51350/4, N	2 600 min.
Shelf life	2 years

[1] Typical value

LGBB 2

Bearing grease for oscillating conditions



SKF LGBB 2 is a lithium complex/synthetic PAO oil based grease specially designed for extreme conditions involving very low speeds, high loads, low temperatures and oscillating conditions. This grease provides an outstanding fretting and false brinelling protection for bearings under high load in oscillating conditions.

- Excellent false brinelling protection
- Excellent performance under high loads
- Excellent performance at low temperature starting torque
- Good pumpability down to low temperatures
- Excellent water resistance
- Excellent corrosion protection
- High thermal and mechanical stability

Typical applications

- Wind turbine blade and yaw bearing applications
- Robotic arms
- Slewing bearings in cranes or metal industry

Available pack sizes

Packsize	Designation
420 ml cartridge	LGBB 2/0.4
18 kg pail	LGBB 2/18
180 kg drum	LGBB 2/180

Technical data

Designation	LGBB 2
DIN 51825 code	KP2G-40
NLGI consistency class	2
Thickener	Lithium complex
Colour	Yellow
Base oil type	Synthetic (PAO)
Operating temperature range	–40 to +120 °C *(–40 to +250 °F)*
Dropping point DIN ISO 2176	>200 °C *(390 °F)*
Base oil viscosity	
40 °C, mm^2/s	68
Penetration DIN ISO 2137	
60 strokes, 10^{-1} mm	265–295
100 000 strokes, 10^{-1} mm	+50 max.
Mechanical stability	
Roll stability, 50h at 80 °C, 10^{-1} mm	+50 max.
Corrosion protection	
Emcor: – Standard ISO 11007	0–0
– Salt water test (100% sea water)	0–1 [1]
Water resistance	
DIN 51 807/1, 3 hours at 90 °C	1 max.
Oil separation	
DIN 51817, 7 days at 40 °C, static, %	4 max, 2,5 [1]
Copper corrosion	
DIN 51 811	1 max. at 120 °C *(250 °F)*
EP performances	
Wear scar DIN 51350/5, 1400 N, mm	0,4 [1]
4-ball test, welding load DIN 51350/4, N	5 500 [1]
Rolling bearing lubrication ability	
Fe8, DIN 51819, 80 kN, 80 °C, C/P 1.8, 500 h	pass
False brinellng resistance	
ASTM D4170 FAFNIR test, mg	0–1 [1]
Shelf life	5 years

[1] Typical value

LGLT 2

Low temperature, extremely high speed bearing grease

SKF LGLT 2 is a fully synthetic oil based grease using lithium soap. Its unique thickener technology and low viscosity oil (PAO) provide excellent lubrication performances at low temperatures –50 °C *(–60 °F)* and extremely high speeds (n dm values of 1,6 × 10^6 can be reached).

- Low friction torque
- Quiet running
- Extremely good oxidation stability and resistance to water

Typical applications

- Textile spinning spindles
- Machine tool spindles
- Instruments and control equipment
- Small electric motors used in medical and dental equipment
- In-line skates
- Printing cylinders
- Robots

Available pack sizes

Packsize	Designation
180 g tube	LGLT 2/0.2
0,9 kg can	LGLT 2/1
25 kg pail	LGLT 2/25
170 kg drum	LGLT 2/180

Technical data

Designation	LGLT 2
DIN 51825 code	K2G-50
NLGI consistency class	2
Thickener	Lithium
Colour	Beige
Base oil type	Synthetic (PAO)
Operating temperature range	–50 to +110 °C *(–60 to +230 °F)*
Dropping point DIN ISO 2176	>180 °C *(>355 °F)*
Base oil viscosity	
40 °C, mm^2/s	18
100 °C, mm^2/s	4,5
Penetration DIN ISO 2137	
60 strokes, 10^{-1} mm	265–295
100 000 strokes, 10^{-1} mm	+50 max.
Corrosion protection	
Emcor: – standard ISO 11007	0–1
Water resistance	
DIN 51 807/1, 3 hrs at 90 °C	1 max.
Oil separation	
DIN 51 817, 7 days at 40 °C, static, %	<4
Copper corrosion	
DIN 51 811	1 max. at 100 °C *(210 °F)*
Rolling bearing grease life	
ROF test	>1 000,
L_{50} life at 10 000 r/min., hrs	20 000 r/min. at 100 °C *(210 °F)*
EP performance	
4–ball test, welding load DIN 51350/4, N	2 000 min.
Shelf life	5 years

LGWM 1

Extreme pressure low temperature bearing grease

SKF LGWM 1 is a low consistency mineral oil based grease, using a lithium soap and containing extreme pressure additives. It is extremely suitable for the lubrication of bearings operating under both radial and axial loads.

- Good oil film formation at low temperatures down to –30 °C *(–20 °F)*
- Good pumpability down to low temperatures
- Good corrosion protection
- Good water resistance

Typical applications

- Wind turbine main shafts
- Screw conveyors
- Centralised lubrication systems
- Spherical roller thrust bearing applications

Available pack sizes

Packsize	Designation
420 ml cartridge	LGWM 1/0.4
5 kg can	LGWM 1/5
50 kg drum	LGWM 1/50
180 kg drum	LGWM 1/180
TLMR	page 166

Technical data

Designation	LGWM 1
DIN 51825 code	KP1G-30
NLGI consistency class	1
Thickener	Lithium
Colour	Brown
Base oil type	Mineral
Operating temperature range	–30 to +110 °C *(–20 to +230 °F)*
Dropping point DIN ISO 2176	>170 °C *(>340 °F)*
Base oil viscosity	
40 °C, mm^2/s	200
100 °C, mm^2/s	16
Penetration DIN ISO 2137	
60 strokes, 10^{-1} mm	310–340
100 000 strokes, 10^{-1} mm	+50 max.
Corrosion protection:	
Emcor: – standard ISO 11007	0–0
– water washout test	0–0
Water resistance	
DIN 51 807/1, 3 hrs at 90 °C	1 max.
Oil separation	
DIN 51 817, 7 days at 40 °C, static, %	8–13
Copper corrosion	
DIN 51 811	2 max. at 90 °C *(>195 °F)*
EP performance	
Wear scar DIN 51350/5, 1 400 N, mm	1,8 max.
4–ball test, welding load DIN 51350/4, N	3 200 min. [1]
Fretting corrosion	
ASTM D4170 (mg)	5,5 [1]
Shelf life	5 years

[1] Typical value

LGWM 2

High load, wide temperature bearing grease

SKF LGWM 2 is a synthetic-mineral oil based grease using the latest complex calcium sulphonate thickener technology. It is suitable for applications subjected to high loads, wet environments and fluctuating temperatures.

- Excellent corrosion protection
- Excellent mechanical stability
- Excellent high load lubricating capacity
- Good false brinelling protection
- Good pumpability down to low temperatures

Typical applications

- Wind turbine mains shafts
- Heavy duty off road applications
- Snow exposed applications
- Marine and offshore applications
- Spherical roller thrust bearing applications

Available pack sizes

Packsize	Designation
420 ml cartridge	LGWM 2/0.4
5 kg can	LGWM 2/5
18 kg pail	LGWM 2/18
50 kg drum	LGWM 2/50
180 kg drum	LGWM 2/180
LAGD, TLSD, TLMR	page 162, 164, 166

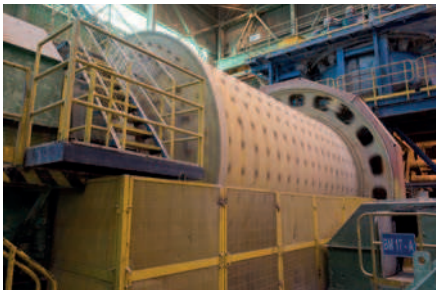
Technical data

Designation	LGWM 2
DIN 51825 code	KP2G-40
NLGI consistency class	1–2
Thickener	Calcium sulphonate complex
Colour	Yellow
Base oil type	Synthetic (PAO)/ Mineral
Operating temperature range	–40 to +110 °C *(–40 to +230 °F)*
Dropping point DIN ISO 2176	>300 °C *(>570 °F)*
Base oil viscosity	
40 °C, mm^2/s	80
100 °C, mm^2/s	8,6
Penetration DIN ISO 2137	
60 strokes, 10^{-1} mm	280–310
100 000 strokes, 10^{-1} mm	+30 max.
Mechanical stability	
Roll stability, 50 hrs at 80 °C, 10^{-1} mm	+50 max.
Corrosion protection	
Emcor: – standard ISO 11007	0–0
– water washout test	0–0
– salt water test (100% seawater)	0–0 [1]
Water resistance	
DIN 51 807/1, 3 hrs at 90 °C	1 max.
Oil separation	
DIN 51 817, 7 days at 40 °C, static, %	3 max.
Lubrication ability	
R2F, running test B at 120 °C	Pass at 140 °C *(285 °F)*
R2F, Cold chamber test (+20 °C)	Pass
R2F, Cold chamber test (–30 °C)	Pass
Copper corrosion	
DIN 51 811	2 max. at 100 °C *(210 °F)*
Rolling bearing grease life	
ROF test	
L_{50} life at 10 000 r/min., hrs	1 824 [1] at 110 °C *(230 °F)*
EP performance	
Wear scar DIN 51350/5, 1 400 N, mm	1,5 max. [1]
4–ball test, welding load DIN 51350/4, N	4 000 min. [1]
Fretting corrosion	
ASTM D4170 FAFNIR test at +25 °C, mg	5,2 [1]
ASTM D4170 FAFNIR test at –20 °C, mg	1,1 [1]
Shelf life	5 years

[1] Typical value

LGEM 2

High viscosity bearing grease with solid lubricants



SKF LGEM 2 is a high viscosity, mineral oil based grease using a lithium/calcium soap.
Its content of molybdenum disulphide and graphite provides extra protection for harsh applications subjected to high loads, heavy vibrations and slow rotations.

- High oxidation stability
- Molybdenum disulphide and graphite provide lubrication even if the oil film breaks down

Typical applications

- Rolling element bearings running at low speed and very high loads
- Jaw crushers
- Track laying machines
- Lift mast wheels
- Building machines such as mechanical rams, crane arms and crane hooks

Available pack sizes

Packsize	Designation
420 ml cartridge	LGEM 2/0.4
5 kg can	LGEM 2/5
18 kg pail	LGEM 2/18
180 kg drum	LGEM 2/180
LAGD, TLSD	page 162, 164

Technical data

Designation	LGEM 2
DIN 51825 code	KPF2K-20
NLGI consistency class	2
Thickener	Lithium/calcium
Colour	Black
Base oil type	Mineral
Operating temperature range	–20 to +120 °C *(–5 to +250 °F)*
Dropping point DIN ISO 2176	>180 °C *(>355 °F)*
Base oil viscosity	
40 °C, mm^2/s	500
100 °C, mm^2/s	32
Penetration DIN ISO 2137	
60 strokes, 10^{-1} mm	265–295
100 000 strokes, 10^{-1} mm	325 max.
Mechanical stability	
Roll stability, 50 hrs at 80 °C, 10^{-1} mm	345 max.
V2F test	'M'
Corrosion protection	
Emcor: – standard ISO 11007	0–0
– water washout test	0–0 [1]
Water resistance	
DIN 51 807/1, 3 hrs at 90 °C	1 max.
Oil separation	
DIN 51 817, 7 days at 40 °C, static, %	1–5
Lubrication ability	
R2F, running test B at 120 °C	Pass at 100 °C *(210 °F)*
Copper corrosion	
DIN 51 811	2 max. at 100 °C *(210 °F)*
EP performance	
Wear scar DIN 51350/5, 1 400 N, mm	1,2 max.
4–ball test, welding load DIN 51350/4, N	3 400 min.
Shelf life	5 years

[1] Typical value

LGEV 2

Extremely high viscosity bearing grease with solid lubricants

SKF LGEV 2 is a mineral oil based grease, using a lithium-calcium soap. Its high content of molybdenum disulphide and graphite, in conjunction with an extremely high viscosity oil, provide outstanding protection under the harshest conditions involving high loads, slow rotations and severe vibrations.

- Extremely suitable for lubricating large sized spherical roller bearings subject to high loads and slow rotations, a situation where microslip is likely to occur
- Extremely mechanically stable providing good water resistance and corrosion protection

Typical applications

- Trunnion bearings on rotating drums
- Support and thrust rollers on rotary kilns and dryers
- Bucket wheel excavators
- Slewing ring bearings
- High pressure roller mills
- Crushers

Available pack sizes

Packsize	Designation
35 g tube	LGEV 2/0.035
420 ml cartridge	LGEV 2/0.4
5 kg can	LGEV 2/5
18 kg pail	LGEV 2/18
50 kg drum	LGEV 2/50
180 kg drum	LGEV 2/180
TLMR	page 166

Technical data

Designation	LGEV 2
DIN 51825 code	KPF2K-10
NLGI consistency class	2
Thickener	Lithium/calcium
Colour	Black
Base oil type	Mineral
Operating temperature range	–10 to +120 °C *(15 to 250 °F)*
Dropping point DIN ISO 2176	>180 °C *(>355 °F)*
Base oil viscosity	
40 °C, mm^2/s	1 020
100 °C, mm^2/s	58
Penetration DIN ISO 2137	
60 strokes, 10^{-1} mm	265–295
100 000 strokes, 10^{-1} mm	325 max.
Mechanical stability	
Roll stability, 72 hrs at 100 °C, 10^{-1} mm	+50 max.
V2F test	'M'
Corrosion protection	
Emcor: – standard ISO 11007	0–0
– water washout test	0–0 [1]
– salt water test (100% seawater)	0–0 [1]
Water resistance	
DIN 51 807/1, 3 hrs at 90 °C	1 max.
Oil separation	
DIN 51 817, 7 days at 40 °C, static, %	1–5
Copper corrosion	
DIN 51 811	1 max. at 100 °C *(210 °F)*
EP performance	
Wear scar DIN 51350/5, 1 400 N, mm	1,2 max.
4–ball test, welding load DIN 51350/4	3 000 min.
Shelf life	5 years

[1] Typical value

LGHB 2

High load, high temperature, high viscosity bearing grease

SKF LGHB 2 is a high viscosity, mineral oil based grease, using the latest complex calcium-sulphonate soap technology. Formulated to withstand high temperatures and extreme loads, it is suitable for a wide range of applications, especially in the cement, mining and metals segments. This grease contains no additives and the extreme pressure properties arise from the soap structure.

- Excellent load capacity, anti-oxidation and corrosion protection even with large water ingress
- Withstands peak temperatures of 200 °C *(390 °F)*

Typical applications

- Steel on steel plain bearings
- Pulp and paper making machines
- Asphalt vibrating screens
- Continuous casting machines
- Sealed spherical roller bearings operating up to 150 °C *(300 °F)*
- Work roll bearings in steel industry
- Mast rollers of fork lift trucks

Available pack sizes

Packsize	Designation
420 ml cartridge	LGHB 2/0.4
5 kg can	LGHB 2/5
18 kg pail	LGHB 2/18
50 kg drum	LGHB 2/50
180 kg drum	LGHB 2/180
LAGD, TLSD, TLMR	page 162, 164, 166

Technical data

Designation	LGHB 2
DIN 51825 code	KP2N-20
NLGI consistency class	2
Thickener	Calcium sulphonate complex
Colour	Brown
Base oil type	Mineral
Operating temperature range	–20 to +150 °C *(–5 to +300 °F)*
Dropping point DIN ISO 2176	>220 °C *(>430 °F)*
Base oil viscosity	
40 °C, mm^2/s	400–450
100 °C, mm^2/s	26,5
Penetration DIN ISO 2137	
60 strokes, 10^{-1} mm	265–295
100 000 strokes, 10^{-1} mm	–20 to +50 (325 max.)
Mechanical stability	
Roll stability, 72 hrs at 100 °C, 10^{-1} mm	–20 to +50 change
V2F test	'M'
Corrosion protection	
Emcor: – standard ISO 11007	0–0
– water washout test	0–0
– salt water test (100% seawater)	0–0 [1]
Water resistance	
DIN 51 807/1, 3 hrs at 90 °C	1 max.
Oil separation	
DIN 51 817, 7 days at 40 °C, static, %	1–3 at 60 °C *(140 °F)*
Lubrication ability	
R2F, running test B at 120 °C	Pass at 140 °C *(285 °F)*
Copper corrosion	
DIN 51 811	2 max. at 150 °C *(300 °F)*
Rolling bearing grease life	
R0F test, L_{50} life at 10 000 r/min., hrs	>1 000 at 130 °C *(265 °F)*
EP performance	
Wear scar DIN 51350/5, 1 400 N, mm	0,86 [1]
4–ball test, welding load DIN 51350/4, N	4 000 min.
Fretting corrosion	
ASTM D4170 (mg)	0 [1]
Shelf life	5 years

[1] Typical value

LGHC 2

High load, water resistant, high temperature bearing grease

LGHC 2 is a mineral oil based grease based on calcium sulphonate complex technology.
It is formulated to withstand high loads, large amounts of water and high temperatures.
It is most suitable for heavy applications, especially in the cement, mining and metals segments.

- Good mechanical stability
- Excellent corrosion protection
- Excellent high load lubricating capacity

Typical applications

- Roll stands in metallurgical industry
- Continuous casters
- Vibrating screens
- Ball mills bearings

Available pack sizes

Packsize	Designation
50 kg drum	LGHC 2/50
180 kg drum	LGHC 2/180

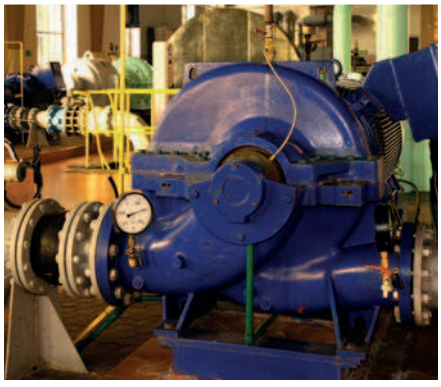
Technical data

Designation	LGHC 2
DIN 51825	KP2N-20
NLGI consistency class	2
Soap type	Calcium sulphonate complex
Colour	Brown
Base oil type	Mineral
Operating temperature range	–20 to +140 °C *(–4 to +284 °F)*
Dropping point, DIN ISO 2176	>280 °C *(>536 °F)*
Base oil viscosity	
40 °C, mm^2/s	450
100 °C, mm^2/s	31
Penetration DIN ISO 2137	
60 strokes, 10^{-1} mm	265-295
100 000 strokes, 10^{-1} mm	+30 max.
Mechanical stability	
Roll stability, 50 hrs at 80 °C, 10^{-1} mm	–20 to +30 max.
Corrosion protection	
Emcor: – standard ISO 11007	0–0
– salt water test (100% sea water)	0–1
Water resistance	
DIN 51 807/1,	
3 hrs at 90 °C	1 max.
Water wash out ASTM D1294, %	2 max.
Oil separation	
DIN 51 817,	
7 days at 40 °C, static, %	2*
Lubrication ability	
R2F, running test B at 120 °C	Pass at 140 °C
Copper corrosion	
DIN 51 811, 100 °C	1b max.
EP performances	
Wear scar, DIN 51350/5, 1 400 N, mm	1.2*
Weld load, DIN 51350/4, N	4 000*
Shelf life	5 years

[1] Typical value

LGHP 2

High performance, high temperature bearing grease



SKF LGHP 2 is a premium quality mineral oil based grease, using a modern Polyurea (di-urea) thickener. It is suitable for electric motors and similar applications.

- Extremely long life at high temperatures
- Wide temperature range
- Excellent corrosion protection
- High thermal and mechanical stability
- Good start-up performance at low temperatures
- Compatibility with common polyurea and lithium thickened greases
- Low noise properties

Typical applications

- Electric motors: Small, medium and large
- Industrial fans, including high speed fans
- Water pumps
- Rolling bearings in textile, paper processing and drying machines
- Applications with medium and high speed ball (and roller) bearings operating at medium and high temperatures
- Clutch release bearings, Vertical shaft applications, Kiln trucks and rollers

Available pack sizes

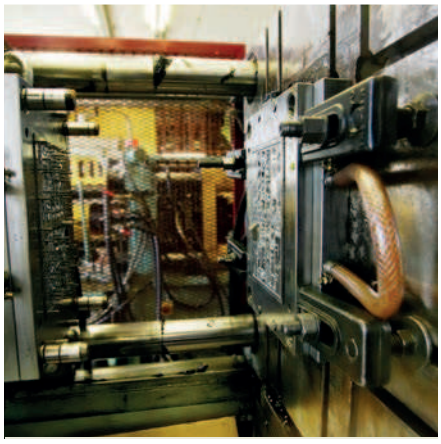
Packsize	Designation
420 ml cartridge	LGHP 2/0.4
1 kg can	LGHP 2/1
5 kg can	LGHP 2/5
18 kg pail	LGHP 2/18
50 kg drum	LGHP 2/50
180 kg drum	LGHP 2/180
LAGD, TLSD, TLMR	page 162, 164, 166

Technical data

Designation	LGHP 2
DIN 51825 code	K2N-40
NLGI consistency class	2–3
Thickener	Di–urea
Colour	Blue
Base oil type	Mineral
Operating temperature range	–40 to +150 °C *(–40 to +300 °F)*
Dropping point DIN ISO 2176	>240 °C *(>465 °F)*
Base oil viscosity	
40 °C, mm^2/s	96
100 °C, mm^2/s	10,5
Penetration DIN ISO 2137	
60 strokes, 10^{-1} mm	245–275
100 000 strokes, 10^{-1} mm	365 max.
Mechanical stability	
Roll stability, 50 hrs at 80 °C, 10^{-1} mm	365 max.
Corrosion protection	
Emcor: – standard ISO 11007	0–0
– water washout test	0–0
– salt water test (100% seawater)	0–0
Water resistance	
DIN 51 807/1, 3 hrs at 90 °C	1 max.
Oil separation	
DIN 51 817, 7 days at 40 °C, static, %	1–5 [1]
Lubrication ability	
R2F, running test B at 120 °C	Pass
Copper corrosion	
DIN 51 811	1 max. at 150 °C *(300 °F)*
Rolling bearing grease life	
R0F test, L_{50} life at 10 000 r/min., hrs	1 000 min. at 150 °C *(300 °F)*
Fretting corrosion	
ASTM D4170 (mg)	7 [1]
Shelf life	5 years

[1] Typical value

LGET 2



Important note:

LGET 2 is a fluorinated grease and is not compatible with other greases, oils and preservatives (except LGED 2). Therefore, very thorough cleaning of bearings and systems is essential before applying fresh grease.

Extreme temperature, extreme condition bearing grease

SKF LGET 2 is a synthetic fluorinated oil based grease, using a PTFE thickener. It is especially suitable for applications at extremely high temperatures from 200 °C *(390 °F)* up to 260 °C *(500 °F)*.

- Long life in aggressive environments such as very reactive areas with a presence of high purity gaseous oxygen and hexane
- Excellent oxidation resistance
- Good corrosion resistance
- Excellent water and steam resistance

Typical applications

- Kiln truck wheels
- Load rollers in copying machines
- Textile dryers
- Film stretching tenders
- Electric motors running at extreme temperatures
- Emergency / hot fans
- Vacuum pumps

Note: the density of LGET 2 is about 1.9 g.cm^3. This value is twice as high as the average density of a typical bearing grease.

Available pack sizes

Packsize	Designation
50 g *(25 ml)* syringe	LGET 2/0.050
1 kg can	LGET 2/1

Technical data

Designation	LGET 2
DIN 51825 code	KFK2U-40
NLGI consistency class	2
Thickener	PTFE
Colour	Off white
Base oil type	PFPE
Operating temperature range	–40 to +260 °C *(–40 to +500 °F)*
Dropping point DIN ISO 2176	>300 °C *(>570 °F)*
Base oil viscosity	
40 °C, mm^2/s	400
100 °C, mm^2/s	38
Penetration DIN ISO 2137	
60 strokes, 10^{-1} mm	265–295
Mechanical stability	
Roll stability, 50 hrs at 80 °C, 10^{-1} mm	±30 max. 130 °C *(265 °F)*
Corrosion protection	
Emcor:	
– standard ISO 11007	1–1 max.
Water resistance	
DIN 51 807/1, 3 hrs at 90 °C	0 max.
Oil separation	
DIN 51 817, 7 days at 40 °C, static, %	13 max. 30 hrs at 200 °C *(390 °F)*
Copper corrosion	
DIN 51 811	1 max. at 150 °C *(300 °F)*
Rolling bearing grease life	
ROF test	
L_{50} life at 10 000 r/min., hrs	>1 000 [1] at 220 °C *(428 °F)*
EP performance	
4–ball test, welding load DIN 51350/4, N	8 000 min.
Shelf life	5 years

[1] Typical value

LEGE 2

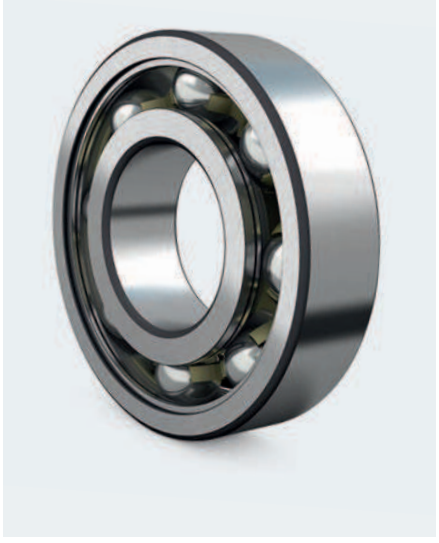
Low friction bearing grease

SKF LEGE 2 grease combines a fully synthetic ester oil with a unique lithium soap thickener. This premium quality, low friction grease has been specially developed for high performance in low friction SKF ball bearings.

- Low friction torque
- Low level of power loss
- Quiet running behavior
- Extremely good oxidation stability
- Wide temperature range

Typical applications

- Electrical motors
- High speed / High temperature fans
- Vertical shafts



Available pack sizes

Packsize	Designation
420 ml cartridge	LEGE 2/0.4
1 kg can	LEGE 2/1

Technical data

Designation	LEGE 2
DIN 51825 code	KE2N-50
NLGI consistency class	2–3
Soap type	Lithium
Colour	Light brown
Base oil type	Ester
Operating temperature range	–50 to +150 °C *(–58 to +302 °F)*
Dropping point DIN ISO 2176	> 185 °C *(365 °F)*
Base oil viscosity	
40 °C, mm^2/s	25
100 °C, mm^2/s	4,9
Penetration DIN ISO 2137	
60 strokes, 10^{-1} mm	240–270
100 000 strokes, 10^{-1} mm	330 max.
Corrosion protection	
SKF Emcor standard ISO 11007	0-0
SKF Emcor 0,5% salt water	0-0 [1)]
Water resistance	
DIN 51 807/1, 3hrs at 90 °C	0 [1)]
Oil separation	
DIN 51 817, 7 days at 40 °C, static, %	1.4 [1)]
Copper corrosion	
ISO 2160 at 140 °C	1b [1)]
Mechanical stability	
Roll stability, 50 hrs at 80 °C,	310 max. [1)]
Low temperature performance	
Torque ASTM D1478-63, mNm	
Starting torque at –40 °C	300 max.
Running torque at –40 °C	100 max.
BeQuiet + test	GN3 min, GN4 [1)]
Rolling bearing grease life	
ROF test	
L_{50} life at 10 000 r/min., hrs	>1 000 at 150 °C *(302 °F)*
Shelf life	5 years

[1)] Typical value

Food Grade Lubricants

Grease	Description	Application examples	Base oil	Temperature range [1] LTL	HTPL
LGFP 2	General purpose food grade grease	Food processing equipment Wrapping machines Bottling machines	Medical white oil	–20 °C *(–5 °F)*	+110 °C *(+230 °F)*
LGFQ 2	High load, water resistant and wide temperature food grade grease	Pellet presses Mills Mixers	PAO	–40 °C *(–40 °F)*	+140 °C *(+284 °F)*
LGED 2	High temperature & harsh environment bearing grease	Bakery/brick oven equipment Glass industry Vacuum pumps	PFPE	–30 °C *(–22 °F)*	+240 °C *(+464 °F)*
LFFH 46	Food grade hydraulic oil	Presses and oil circulating systems	PAO	–60 °C *(–76 °F)*	+140 °C *(+284 °F)*
LFFH 68	Food grade hydraulic oil	Presses and oil circulating systems	PAO	–50 °C *(–58 °F)*	+140 °C *(+284 °F)*
LFFG 220	Food grade gear oil	Enclosed gear boxes as in filling machines or conveyor lines	PAO	–40 °C *(–40 °F)*	+140 °C *(+284 °F)*
LFFG 320	Food grade gear oil	Enclosed gear boxes as in filling machines or conveyor lines	PAO	–35 °C *(–31 °F)*	+140 °C *(+284 °F)*
LFFM 80	Food grade chain oil	High humidity applications as proof ovens and pasta driers	Mineral /ester	–30 °C *(–22 °F)*	+120 °C *(+248 °F)*
LHFP 150	Food grade chain oil	General chain lubrication as in confectionery industries and fruit and vegetable processing.	PAO/ester	–30 °C *(–22 °F)*	+120 °C *(+248 °F)*
LFFT 220	Food grade chain oil	High temperature applications as bakery ovens	Ester	0 °C *(32 °F)*	+250 °C *(482 °F)*
LDTS 1	Food grade dry film lubricant	Conveyors in bottling lines using PET, carton, glass or can packages	Mineral/PTFE	–5 °C *(25 °F)*	+60 °C *(140 °F)*

SKF lubricants for non bearing applications

Grease	Description	Application examples	Thickener/Base Oil	Temperature range [1] LTL	HTPL
LMCG 1	Grid and gear coupling grease	Grid and gear couplings Flexible heavy duty grid and gear coupling	Polyethylene / mineral	0 °C *(32 °F)*	120 °C *(248 °F)*
LGLS 0	Low temperature chassis grease	Plain bearings and chassis sliding surfaces. Centralized lubrication systems	Anhydrous calcium / mineral	–40 °C *(–40 °F)*	+100 °C *(+212 °F)*
LGLS 2	Chassis grease	Slow plain and rolling bearings Lubrication systems under medium to high ambient temperatures	Anhydrous calcium / mineral	–20 °C *(–4 °F)*	+120 °C *(+248 °F)*
LHMT 68	Chain Oil	Ideal for medium temperatures and dusty environments	Mineral	–15 °C *(5 °F)*	+90 °C *(194 °F)*
LHHT 265	Chain Oil	Ideal for high load and/or high temperature conditions	PAO/ester	–15 °C *(5 °F)*	+250 °C *(482 °F)*

[1] LTL = Low Temperature Limit
HTPL = High Temperature Performance Limit

LGFP 2

General purpose food grade grease

SKF LGFP 2 is a clean, non-toxic bearing grease, which is based on medical white oil using an aluminium complex soap.

- High resistance to water
- Excellent grease life
- Excellent corrosion resistance
- An essentially neutral pH value
- NSF H1 registered and Halal and Kosher certified

Typical applications

- Multi-pack cassette bearings
- Wrapping machines
- Conveyor bearings
- Bottling machines

Available pack sizes

Packsize	Designation
420 ml cartridge	LGFP 2/0.4
1 kg can	LGFP 2/1
18 kg pail	LGFP 2/18
180 kg drum	LGFP 2/180
LAGD, TLSD, TLMR	page 162, 164, 166

Technical data

Designation	LGFP 2
NLGI consistency class	2
DIN 51825 code	K2G-20
Colour	Transparent
Soap type	Aluminium complex
Base oil type	Medical white oil
Operating temperature range	–20 to +110 °C *(–5 to +230 °F)*
Dropping point DIN ISO 2176	>250 °C *(>480 °F)*
Base oil viscosity	
40 °C, mm^2/s	150
100 °C, mm^2/s	15,3
Penetration DIN ISO 2137	
60 strokes, 10^{-1} mm	265–295
100 000 strokes, 10^{-1} mm	+30 max.
Corrosion protection	
Emcor: – standard ISO 11007	0–0 [1]
Water resistance	
DIN 51 807/1, 3 hrs at 90 °C	1 max.
Oil separation	
DIN 51 817, 7 days at 40 °C, static, %	1–5
Rolling bearing grease life	
ROF test	
L_{50} life at 10 000 r/min., hrs	1 000 at 110 °C *(230 °F)* [1]
EP performance	
4–ball test,	
welding load DIN 51350/4, N	1 100 min.
Shelf life	2 years
NSF Reg. No.	128004

[1] Typical value

LGFQ 2

High load, water resistant and wide temperature food grade grease

SKF LGFQ 2 is a synthetic oil based grease using the latest complex calcium sulphonate thickener technology. It is suitable for applications subjected to high loads, wet environment and fluctuating temperatures encountered in the food and beverage industry.

- Excellent corrosion protection
- Excellent mechanical stability
- Excellent high load lubricating capacity
- Good false brinelling protection
- Good pumpability down to low temperatures
- NSF ISO 21469 registered and Halal and Kosher certified

Typical applications

- Pellet presses (pet food, sugar, salt)
- Mixers
- Mills
- Centralized lubrication systems

Available pack sizes

Packsize	Designation
420 ml cartridge	LGFQ 2/0.4
18 kg pail	LGFQ 2/18
50 kg drum	LGFQ 2/50
180 kg drum	LGFQ 2/180
LAGD, TLSD	page 162, 164

Technical data

Designation	LGFQ 2
DIN 51825	KP1/2N-40
Thickener	Complex calcium sulphonate
NLGI grade	1–2
Colour	Brown
Base oil type	Synthetic (PAO)
Operating temperature range	–40 to +140 °C *(–40 to +284 °F)*
Dropping point, DIN ISO 2176	>300 °C *(>570 °F)*
Base oil viscosity	
40 °C, mm^2/s	320
100 °C, mm^2/s	30
Penetration DIN ISO 2137	
60 strokes	280–310
100 000 strokes	+30 max.
Mechanical stability	
Roll stability, 50h at 80 °C, 10^{-1} mm	–20 to +30 max.
Corrosion protection	
Emcor: – standard ISO 11007	0–0
– salt water test (0.5% NaCl) DIN 51802	0–0
Water resistance	
DIN 51807/1, 3 hrs at 90 °C	1 max.
Water wash out ASTM D1264, %	0
Oil separation	
DIN 51817, 7 days at 40 °C, %	3 max.
Lubrication ability	
R2F, running test B at 120 °C	Pass
Copper corrosion	
DIN 51811	1b max. at 100 °C *(210 °F)*
EP performances	
DIN 51350/5, wear scar, 1 400 N, mm	1 max.
DIN 51350/4, weld load, N	>4 000
Fretting corrosion	
ASTM D4170 FAFNIR test, mm	0,8 [1]
Shelf life	2 years
NSF Reg. No.	153759

[1] Typical value

LGED 2

High temperature and harsh environment food grade grease

SKF LGED 2 is a food grade NSF H1 certified grease based on a synthetic fluorinated oil using a PTFE thickener. It is suitable for extremely high temperature from 180 °C *(392 °F)* up to 240 °C *(464 °F)* and/or agressive environments such as acids/alkalis, vacuum, oxygen etc.

- Excellent oxidation resistance
- Very low evaporation losses at high temperature
- Good corrosion resistance
- Long life in aggressive environments such as very reactive areas with a presence of high purity gaseous oxygen and hexane
- NSF H1 registered

Typical applications

- Bakery/brick oven equipment
- Glass industry
- Kiln truck wheels
- Load rollers in copying machines
- Wafer baking equipment
- Textile dryers
- Film streching tenders
- High temperature fans
- Vacuum pumps

Important note:

LGED 2 is a fluorinated grease and is not compatible with other greases, oils and preservatives (except LGET 2). Therefore, very thorough cleaning of bearings and systems is essential before applying fresh grease.

Note: the density of LGED 2 is about 1.9 g.cm^3. This value is twice as high as the average density of a typical bearing grease.

Available pack sizes

Packsize	Designation
1 kg can	LGED 2/1

Technical data

Designation	LGED 2
DIN 51825 code	KFK2U-30
NLGI consistency class	2
Thickener	PTFE
Colour	Off white
Base oil type	PFPE
Operating temperature range	–30 to +240 °C *(–22 to +464 °F)*
Dropping point DIN ISO 2176	>300 °C *(>570 °F)*
Base oil viscosity	
40 °C, mm^2/s	460
100 °C, mm^2/s	42
Penetration DIN ISO 2137	
60 strokes, 10^{-1} mm	265–295
100 000 strokes, 10^{-1} mm	271 [1]
Corrosion protection	
Skf Emcor:	
– standard ISO 11007	0–0 [1]
EP performance	
4–ball test,	
welding load DIN 51350/4, N	8 000 min.
Water resistance	
DIN 51 807/1, 3 hrs at 90 °C	1 max.
Copper corrosion	
ISO 2160	1 max. at 100 °C *(210 °F)*
Rolling bearing grease life	
ROF test	
L_{50} life at 10 000 r/min., hrs	>700, at 220 °C *(430 °F)*
Evaporation losses	
6 weeks at 200 °C, % weight losses	<3,5%
Density	
at 20 °C, g/cm^3	1,96
Shelf life	2 years
NSF Reg. No.	156010

[1] Typical value

LFFH 46

LFFH 68

Food grade hydraulic oil

SKF LFFH 46 and LFFH 68 are synthetic hydraulic fluids suitable for lubrication of machinery used in the food industry.

- Excellent anti-wear performance
- Excellent water separation properties
- Excellent protection against corrosion
- NSF H1 registered and Halal and Kosher certified

Typical applications

- Hydraulic systems, Hydrostatic gears, Circulating oil systems

LFFG 220

LFFG 320

Food grade gear oil

SKF LFFG 220 and LFFG 320 are synthetic gear oils suitable for lubrication of machinery used in the food industry.

- Excellent EP properties
- High viscosity index resulting in minimum variation of viscosity with change of temperature
- Excellent protection against corrosion
- NSF H1 registered and Halal and Kosher certified

Typical applications

- Enclosed gear boxes, Packaging, Conveyers

Available pack sizes

Pack sizes	LFFH 46	LFFH 68	LFFG 220	LFFG 320
22 l can	LFFH 46/22	LFFH 68/22	LFFG 220/22	LFFG 320/22

Technical data

Designation	LFFH 46	LFFH 68	LFFG 220	LFFG 320
Appearance	Yellowish	Yellowish	Pale yellow	Pale yellow
Operating temperature range	–60 to +140 °C *(–76 to +284 °F)*	–50 to +140 °C *(–58 to +284 °F)*	–40 to +140 °C *(–40 to +284 °F)*	–35 to +140 °C *(–31 to +284 °F)*
Base oil type	Synthetic (PAO)	Synthetic (PAO)	Synthetic (PAO)	Synthetic (PAO)
Base oil viscosity ISO 3104 40 °C, mm^2/s 100 °C, mm^2/s	 46 7,9	 68 10,6	 220 25	 320 33,4
Density ISO 12185, 15 °C, kg/m^3	836	843	847	852
Flash point DIN/EN/ISO 2592 COC	248 °C	258 °C	276 °C *(529 °F)*	278 °C *(532 °F)*
Pourpoint ISO 3016	<–60 °C	<–60 °C	–48 °C *(–54 °F)*	–45 °C *(–49 °F)*
FZG-Test A/8.3/90 Failure Load Stage DIN 51354-2	12	>12	>12	>12
Viscosity Index DIN ISO 2909	142	143	143	147
Shelf life	2 years	2 years	2 years	2 years
NSF Reg. No.	149599	149600	149597	149598

LFFM 80

LHFP 150

LFFT 220

Food grade chain oil

Our food grade chain oil range is specifically developed for food and beverage applications where high temperature, high humidity and low temperatures are critical factors to consider in the selection of the correct oil.

LFFM 80 – High moisture chain oil LFFM 80 exhibits particularly good performance in high moisture environments such as in proofers and pasta driers as well as in applications where condensation might occur. This low viscosity semi-synthetic base oil prevents residue build-up on the chains and offers good wear and corrosion protection.

LHFP 150 – General purpose chain oil LHFP 150 excels in low to elevated temperature applications such as in confectionery industries and fruit and vegetable processing. The formulation is based on a synthetic oil and the product provides good corrosion and wear protection together with good aging and oxidation stability.

LFFT 220 – High temperature performance chain oil LFFT 220 is mainly for use in bakery ovens or other equipment subjected to high temperatures. It provides good wear protection and low evaporation losses at elevated temperatures along with excellent oxidation resistance due to its formulation and synthetic base.

NSF H1 registered and Halal certified

Available pack sizes

Pack sizes	LFFM 80	LHFP 150	LFFT 220
5 l can	LFFM 80/5	LHFP 150/5	LFFT 220/5
LAGD, TLSD	page 162, 164	page 162, 164	page 162, 164

Technical data

Designation	LFFM 80	LHFP 150	LFFT 220
Appearance	White	Colourless	Yellow
Base oil type	Semi synthetic (mineral/ester)	Synthetic (PAO)/Ester	Synthetic (Ester)
Specific gravity	0,91	0,85	0,95
Operating temperature range	–20 to +120 °C (*–4 to +248 °F*)	–30 to +120 °C (*–22 to +248 °F*)	0 to 250 °C (*32 to 482 °F*)
Base oil viscosity:			
40 °C, mm^2/s	approx. 80	ISO VG 150	ISO VG 220
100 °C, mm^2/s	approx. 10	approx. 19	approx. 17
Flash point	>200 °C (*>392 °F*)	>200 °C (*>392 °F*)	>250 °C (*>482 °F*)
NSF Reg. No.	146767	136858	146768
Shelf life	2 years	2 years	2 years

LDTS 1

Food grade dry film lubricant

SKF Dry Film Lubricant LDTS 1 has been specially developed for automatic lubrication of plastic flat top chain conveyors in the beverage processing industry. The lubricant consists of synthetic oil and is doped with PTFE solid lubricant.

After storage a separation of the ingredients could be observed in the container, this is normal. Shaking the product will bring it to a normal status. Automatic lubrication systems must have an stirring mechanism. SKF Dry Lubrication System for conveyors is most suitable.

- Cost savings by eliminating high volume of water and soluble lubricant
- Improved operator safety by reducing slip hazards
- Quality of packaging is maintained by elimination of moisture
- Reduced risk of product contamination by minimising microbiological growth
- Enhanced line efficiency by avoiding replacement costs and associated unplanned production stops
- Reduced cleaning costs
- NSF H1 registered

Typical applications

- Conveyors in bottling lines using PET, carton, glass or can packages.

Available pack sizes

Pack sizes	Designation
5 l can	LDTS 1/5

Technical data

Designation	LDTS 1		
Composition	Mineral oils, hydrocarbons, additives, PTFE	Flash point after evaporation of the solvent	>170 °C (*340 °F*)
Appearance	White	NSF Reg. No.	139739
Operating temperature range	–5 to +60 °C (*25 to 140 °F*)	Shelf life	2 years
Viscosity at 40 °C (*104 °F*)	ca. 28 mm^2/s		
Pour point	<0 °C		
Density 25 °C (*77 °F*)	ca. 841 kg/m^3		
Flash point of the preparation	ca. 100 °C (*210 °F*)		

Lubricants for non bearing applications

LMCG 1

Grid and gear coupling grease

LMCG 1 is a polyethylene thickened and mineral oil based grease which also uses a lithium complex thickening technology. The grease is formulated to withstand high centrifugal forces and high-torque applications for grid and gear (flexible) couplings even where severe shock loadings, misalignment and vibration occur.

Leakage is prevented at high speeds and the grease is stable in consistency. The special additive formulations make the grease suitable for applications subjected to high loads, high torque, wet environments, a wide range of speed regimes and wide range of temperatures.

- Excellent resistance to oil separation
- High acceleration and high operating speeds
- Excellent high-torque lubrication
- High corrosion protection
- Exceeds AGMA Type CG-1 and AGMA Type CG-2 requirements

Typical industries

- Heavy industries (mining, mineral processing, cement, steel, pulp & paper).
- Marine industry.
- General machinery (petrochemical, power generation plants, etc.).

Applications

- Grid and gear couplings
- Flexible heavy duty grid and gear coupling

Available pack sizes

Packsize	LMCG 1
35 g tube	LMCG 1/0.035
420 ml cartridge	LMCG 1/0.4
2 kg can	LMCG 1/2
18 kg pail	LMCG 1/18

Technical data

Designation	LMCG 1
DIN 51825 code	GOG1G-0
NLGI consistency class	1
Thickener	Polyethylene
Colour	Brown
Base oil type	Mineral
Operating temperature range	0 to 120 °C *(32 to 248 °F)*
Dropping point IP 396	210 °C *(410 °F)*
Base oil viscosity	
40 °C, mm^2/s	761
100 °C, mm^2/s	44
Penetration DIN ISO 2137	
60 strokes, 10^{-1} mm	310–340
Corrosion protection	
SKF Emcor standard ISO 11007	0–0
EP performance	
Wear scar DIN 51350/5, 1 400 N, mm	0,5 max.
4–ball test, welding load DIN 51350/4	3 200 N [1]
Koppers Method	
K36, 24h, ASTM D4425	<24%
Shelf life	5 years

[1] Typical value

LGLS 0

LGLS 2

Low temperature chassis grease

SKF LGLS 0 is a semi-fluid chassis grease that has been developed to be used via lubrication systems under low to medium temperatures.

Chassis grease

SKF LGLS 2 is a chassis grease that has been developed to be used ideally via lubrication systems under medium to high ambient temperatures.

- Excellent pumpability at low to medium temperatures (LGLS 0)
- Excellent pumpability at medium to high temperatures (LGLS 2)
- Excellent water resistance and corrosion protection
- Excellent anti-wear properties
- Excellent adhesion to surfaces

Typical applications

- Construction equipment
- Heavy duty off-road applications such as excavators, wheel loaders, etc
- Forestry and agricultural equipment such as forwarders and harvesters
- Collector trucks
- Joints
- Slow plain and rolling bearings

Available pack sizes

Pack sizes	LGLS 0	LGLS 2
18 kg pail	LGLS 0/18	LGLS 2/18
50 kg drum	LGLS 0/50	–
180 kg drum	LGLS 0/180	LGLS 2/180

Technical data

Designation	LGLS 0	LGLS 2
DIN 51825 code	KP0G-40	KP2K-20
NLGI consistency class	0	2
Thickener	Anhydrous calcium	Anhydrous calcium
Colour	Red	Red
Base oil type	Mineral oil and polymers	Mineral oil and polymers
Operating temperature range	–40 to +100 °C *(–40 to +212 °F)*	–20 to +120 °C *(–4 to +248 °F)*
Dropping point IP 396	>120 °C *(>248 °F)*	>140 °C *(>284 °F)*
Base oil viscosity		
40 °C, mm^2/s	1 370	1 300
100 °C, mm^2/s	96	106
Penetration DIN ISO 2137		
60 strokes, 10^{-1} mm	355–385	265 -295
Corrosion protection		
SKF Emcor standard ISO 11007	0-0	0-0
SKF Emcor water wash out	-	0-0
Water washout		
ISO 11009, 1h/80 °C	-	2%
Flow pressure	<1 400 mbar at –40 °C	<1 400 mbar at –20 °C
EP performance		
4–ball test, welding load DIN 51350/4	3 200 N	2 800 N
4–ball test, wear scar DIN 51350/5 at 1 400 N	-	<2
Shelf life	5 years	5 years

LHMT 68

LHHT 265

Chain oil

Designed to fulfill the requirements of most industrial chain applications

LHMT 68 - SKF LHMT 68 is ideal for medium temperatures and dusty environments like those of cement and material handling industries, where a high penetration and light film are required.

LHHT 265 - SKF LHHT 265 synthetic oil is ideal for high load and/or high temperature conditions, like those found in the pulp and paper and textile industries. It doesn't form any residue at high temperatures and it is neutral towards seals and polymers.

- Increase chain life and re-lubrication interval
- Reduce oil consumption and energy consumption

Typical applications

- Conveyor chains
- Drive chains
- Lift chains

Available pack sizes

Pack sizes	LHMT 68	LHHT 265
5 l can	LHMT 68/5	LHHT 265/5
LAGD, TLSD	page 162, 164	page 162, 164

Technical data

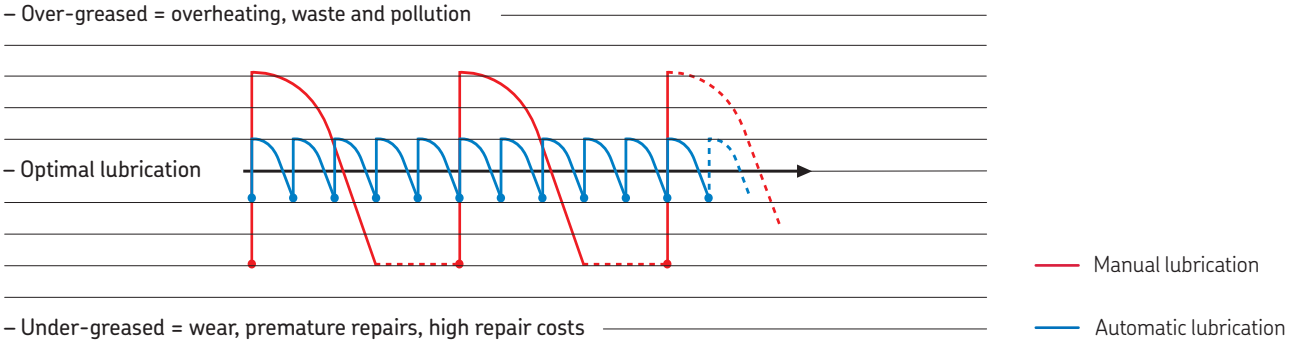
Designation	LHMT 68	LHHT 265
Description	Medium temperature oil	High temperature oil
Specific gravity	0,85	0,92
Colour	Yellowish brown	Yellow orange
Base oil type	Mineral	Synthetic (PAO)/Ester
Operating temperature range	–15 to +90 °C (*5 to 194 °F*)	Up to 250 °C (*482 °F*)
Base oil viscosity:		
40 °C, mm^2/s	ISO VG 68	approx. 265
100 °C, mm^2/s	approx. 9	approx. 30
Flash point	>200 °C (*392 °F*)	approx. 260 °C (*500 °F*)
Shelf life	*5 years*	5 years

Automatic grease dispensing tools

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.

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

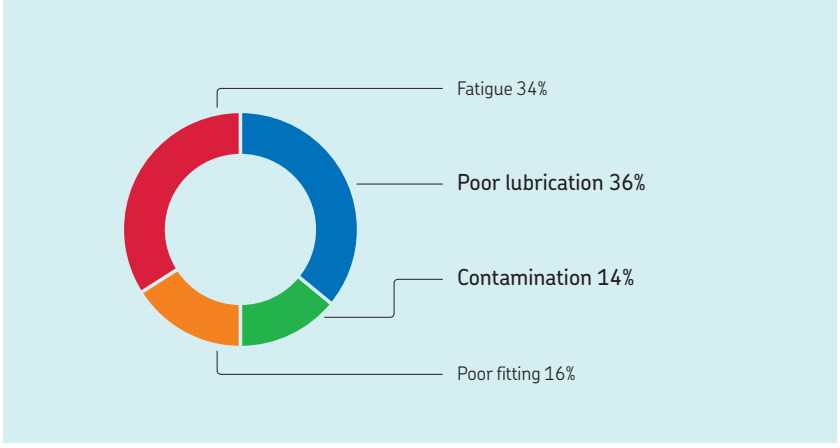
Lubrication points on rooftops or other high elevations can create a significant challenge, and the safety implications are evident. Due to apprehension, these lubrication points often are not lubricated properly and equipment reliability suffers.

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

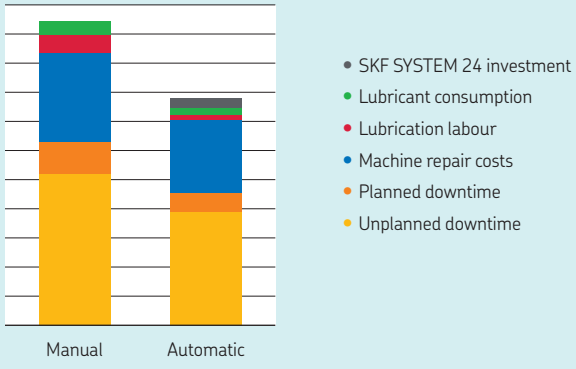
Positive pressure prevents contaminants from entering the bearing through the seal. SKF SYSTEM 24 lubricators can provide fresh lubricant and purge seals of smaller-sized bearings operating at lower speeds, while larger bearings may benefit from a separate lubricator for lubrication and seal purging.

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.

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.

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)

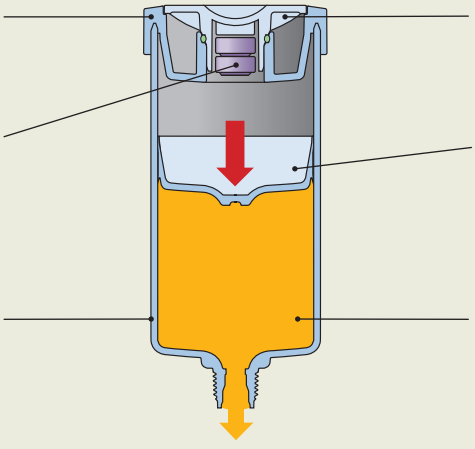
SKF DialSet helps to calculate the correct dispense rate.

Multiple accessories are available for LAGD lubricators.
More information can be found on pages 170-171.

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 details

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
LGHP 2	High load, high temperature, high viscosity	LAGD 60/HP2	LAGD 125/HP2
LGFP 2	Food compatible NSF H1 certified	LAGD 60/FP2	LAGD 125/FP2
LGWM 2	High loads, wide temperature	–	LAGD 125/WM2
LGFQ 2	High load and wide temperature food grade	–	LAGD 125/FQ2
Chain oils [1]			
LHMT 68	Medium temperature oil	LAGD 60/HMT68	LAGD 125/HMT68
LHHT 265	High temperature oil	–	LAGD 125/HHT26
LFFM 80	Food grade (NSF H1) oil	–	LAGD 125/FFM80
LHFP 150	Food grade (NSF H1) oil	–	LAGD 125/HFP15
LFFT 220	Food grade (NSF H1) oil	–	LAGD 125/FFT22
	Empty unit suitable for oil filling only	LAGD 60/U	LAGD 125/U

[1] Includes non-return valve

Technical data

Designation	LAGD 60 and LAGD 125
Grease capacity	
LAGD 60	60 ml *(2 US fl. oz)*
LAGD 125	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	R1/4
Maximum feed line length with:	
grease	300 mm *(11.8 in.)*
oil	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 60	approx 200 g *(7.1 oz)*
LAGD 125	approx 130 g *(4.6 oz)* Lubricant included

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.
LGHP 2 should not be used with ambient temperatures over 40 °C (105 °F) or have a time setting longer than 6 months.

Electro-mechanical single point automatic lubricators

SKF TLSD 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
- Refill sets include battery pack
- Suitable for both direct and remote installation
- Complete sets are supplied ready to use, including the drive unit, battery pack, filled lubricant canister and matching support plate.

Typical applications

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

SKF DialSet helps to calculate the correct dispense rate.

Drive unit - TLSD 1-DU

Top part of TLSD with electric drive and time setting wheel. Supplied with plastic cap.

Refill set - e.g. LGWA 2/SD250

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

Support plate

TLSD 1-SP for grease lubrication.
TLSD 1-SPV for oil lubrication with integrated non return valve

Multiple accessories are available for TLSD lubricators.
More information can be found on pages 170-171.

A The unit can be programmed to dispense lubricant in 1, 2, 3, 4, 6, 8, 9, 10 and 12 month settings.

B The same drive unit can be used with both cartridge versions by simply adjusting the 125/250 ml switch.

C Traffic light LEDs are visual from all sides because of the presence of dual LEDs on the sides of the lubricator. The meaning of the lights is as follows:

- **Green light:** The lubricator is properly functioning.
- **Yellow light:** The lubricator is still functioning, but soon some action will be required. Yellow light serves as a pre-warning light.
- **Red light:** The lubricator stopped operating.

Ordering details

Grease	Description	Complete unit 125	Complete unit 250	Refill set 125	Refill 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
LGHP 2	High performance, high temperature	TLSD 125/HP2	TLSD 250/HP2	LGHP 2/SD125	LGHP 2/SD250
LGFP 2	Food compatible NSF H1 certified	TLSD 125/FP2	TLSD 250/FP2	LGFP 2/SD125	LGFP 2/SD250
LGWM 2	High loads, wide temperature	–	–	LGWM 2/SD125	LGWM 2/SD250
LGFQ 2	High load and wide temperature food grade	–	–	LGFQ 2/SD125	LGFQ 2/SD250
Chain oils					
LHMT 68	Medium temperature oil	TLSD 125/HMT68	TLSD 250/HMT68	LHMT 68/SD125	LHMT 68/SD250
LHHT 265	High temperature oil	–	–	LHHT 265/SD125	LHHT 265/SD250
LHFP 150	Food grade oil (NSF H1)	–	–	LHFP 150/SD125	LHFP 150/SD250

Technical data

Designation	TLSD 125/... and TLSD 250/...
Grease capacity	
TLSD 125	125 ml *(4.2 US fl. oz)*
TLSD 250	250 ml *(8.5 US fl. oz)*
Emptying time	User adjustable: 1, 2, 3, 4, 6, 8, 9, 10 and 12 months
Lowest grease purge	
TLSD 125	0,3 ml *(0.01 US fl. oz)* per day
TLSD 250	0,7 ml *(0.02 US fl. oz)* per day
Highest grease purge	
TLSD 125	4,1 ml *(0.13 US fl. oz)* per day
TLSD 250	8,3 ml *(0.28 US fl. oz)* per day
Ambient temperature range	
TLSD 1-BAT	0 to 50 °C *(30 to 120 °F)*
Maximum operating pressure	5 bar *(75 psi)*
Drive mechanism	Electro mechanical
Connection thread	G1/4
Maximum feed line length with:	
grease	Up to 3 meters *(10 ft)* [1]
oil	Up to 5 meters *(16 ft)*
LED status indicators	
Green led (each 30 sec)	OK
Yellow led (each 30 sec)	Pre warning, low battery power
Yellow led (each 5 sec)	Pre warning, high back pressure
Red led (each 5 sec)	Warning, stopped on error
Red led (each 2 sec)	Warning, empty cartridge
Protection class assembled lubricator	IP 65
Battery pack	
TLSD 1-BAT	4,5 V 2,7 Ah/Alkaline manganese
Recommended storage temperature	20 °C *(70 °F)*
Storage life of lubricator	3 years [2] (2 years for LGFP 2 and Oils)
Total weight (incl. packaging)	
TLSD 125	635 g *(22.5 oz)*
TLSD 250	800 g *(28.2 oz)*

[1] The maximum feed line length is dependent on ambient temperature, grease type and back pressure created by the application.
[2] 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

SKF TLMR 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

SKF DialSet helps to calculate the correct dispense rate.

Multiple accessories are available for TLMR lubricators.
More information can be found on pages 170-171.

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.

Ordering details

Grease	Description	TLMR 101 refill sets (cartridge and battery) 120 ml	TLMR 101 refill sets (cartridge and battery) 380 ml	TLMR 201 cartridges 120 ml	TLMR 201 cartridges 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
LGHP 2	High performance, high temperature bearing grease	–	LGHP 2/MR380B	–	LGHP 2/MR380
LGFP 2	Food grade bearing grease NSF H1 certified	LGFP 2/MR120B	LGFP 2/MR380B	LGFP 2/MR120	LGFP 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

Technical data

Designation	TLMR 101 and TLMR 201
Grease capacity	120 ml *(4.1 US fl. oz)* 380 ml *(12.8 US fl. oz)*
Emptying time	User adjustable: 1,2,3,6,9,12, 18, 24 months or purge
Lowest setting	
120 ml cartridge	0,16 ml *(0.005 US fl. oz)* per day
380 ml cartridge	0,5 ml *(0.016 US fl. oz)* per day
Highest setting	
120 ml cartridge	3,9 ml *(0.13 US fl. oz)* per day
380 ml cartridge	12,5 ml *(0.42 US fl. oz)* per day
Purge	31 ml *(1 US fl. oz)* per hour
Ambient temperature range	–25 to +70 °C *(–13 to +158 °F)*
Maximum operating pressure	30 bar *(435 psi)*
Drive mechanism	Electro mechanical
Connection thread	G1/4 female
Maximum feed line length [2]	Up to 5 meters *(16 ft)*
LED status indicators	
Green LED (every 8 sec)	OK
Green and red LED (every 8 sec)	Almost empty
Red LED (every 8 sec)	Error
Protection class	
DIN EN 60529	IP 67
DIN 40 050 Teil 9	IP 6k9k
Power	
TLMR 101	4 AA Lithium batteries
TLMR 201	12 -24 Volt DC via M12-A connection

[1] 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

SKF MultiPoint Automatic Lubricators TLMP 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 × 1,5 mm
8 ×	18 ×	Straight tube connectors for application G1/8
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)

LAGF 1-F

LAGF 1-H

Filter to avoid grease contamination from airborne particles

Stirring paddle to prevent grease separation

Durable, metal housing for long service life

Pump element features maximum operating pressure of 120 bar *(1 740 psi)*

Grease nipple

LED display for simple programming

Divider block provides flexibility of using one to eight outlets

Cycle control sensor ensures lubricant is delivered to outlets

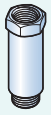
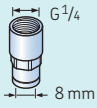
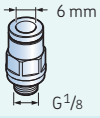
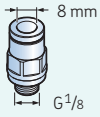
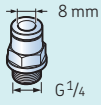
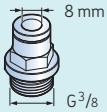
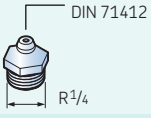
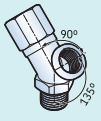
Alarm indicates when reservoir is empty or when outlet is blocked

Technical data

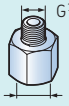
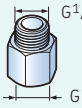
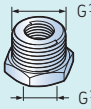
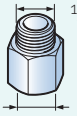
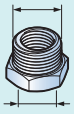
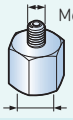
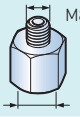
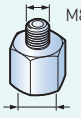
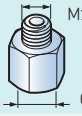
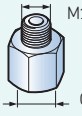
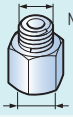
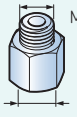
Designation	TLMP 1008 and TLMP 1018
Number of lubrication outlets	
TLMP 1008	1–8
TLMP 1018	1–18
Suitable grease consistency	NLGI 2, 3
Maximum pressure	205 bar *(2970 psi)*
Maximum distance length to lubrication point	5 m *(16 ft)*
Dispense rate	0,1 - 40 cm^3/day *(0.003 -1.35 US fl.oz/day)* per outlet
Output pump element	Approx. 0,2 cm^3 (per cycle), approx. 1,7 cm^3 (per minute)
Reservoir size	1 litre
Useable reservoir volume	Approx. 0,5–0,9 litres *(17–30 US fl.oz)*
Filling	Via hydraulic lubrication fitting $R^1/_4$
Installation position	Vertical (max deviation ±5°)
Power Supply Connector	EN 175301-803 DIN 43650/A
Alarms	blocked feed lines, empty reservoir internal and external
External steering	By disconnecting power supply
Ambient temperature	–25 to +70 °C *(–13 to +160 °F)*
IP rating	IP 67
Lubrication tubes	
TLMP 1008	20 m *(65 ft)*, 6 × 1,5 mm, Nylon
TLMP 1018	50 m *(164 ft)*, 6 × 1,5 mm, Nylon
Weight	Approx. 6 kg *(13 lb)*
Ordering details 8 oulets	
TLMP 1008/24DC	24 V DC (–20/+30%)
TLMP 1008/120V	120 V AC 60 Hz (±10%)
TLMP 1008/230V	230 V AC 50 Hz (±10%)
Ordering details 18 oulets	
TLMP 1018/24DC	24 V DC (–20/+30%)
TLMP 1018/120V	120 V AC 60 Hz (±10%)
TLMP 1018/230V	230 V AC 50 Hz (±10%)

A full range for enhanced versatility of SKF automatic lubricators

Connectors

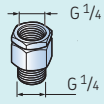
	LAPA 45 ● ● ●	Angle connection 45°
	LAPA 90 ● ● ●	Angle connection 90°
	LAPE 35 ● ● ●	Extension 35 mm
	LAPE 50 ● ● ●	Extension 50 mm
	LAPF F1/4 ● ●	Tube connection female G1/4
	LAPF M 1/8 S ●	Tube connection male G1/8 for 6 × 4 tube
	LA PF M 1/4 S ●	Tube connection male G1/4 for 6 × 4 tube
	LAPF M 1/8 ● ●	Tube connection male G1/8
	LAPF M 1/4 ● ●	Tube connection male G1/4
	LAPF M 1/4SW ● ● ●	Extra strong 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

Connectors

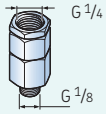
	LAPN 1/8 ● ● ●	Nipple G1/4 – G1/8
	LAPN 1/4 ● ● ●	Nipple G1/4 – G1/4
	LAPN 1/2 ● ● ●	Nipple G1/4 – G1/2
	LAPN 1/4 UNF ● ● ●	Nipple G1/4 – 1/4 UNF
	LAPN 3/8 ● ● ●	Nipple G1/4 – G3/8
	LAPN 6 ● ● ●	Nipple G1/4 – M6
	LAPN 8 ● ● ●	Nipple G1/4 – M8
	LAPN 8x1 ● ● ●	Nipple G1/4 – M8 × 1
	LAPN 10 ● ● ●	Nipple 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

● SKF LAGD Series
● SKF TLSD Series
● SKF TLMR Series

Non return valves (for oil applications)

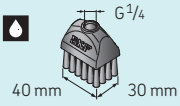


LAPV 1/4 — Non-return valve G1/4

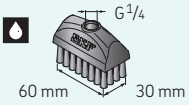


LAPV 1/8 — Non-return valve G1/8

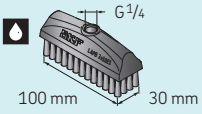
Brushes (for oil applications)



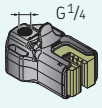
LAPB 3x4E1 — Brush 30 × 40 mm



LAPB 3x7E1 — Brush 30 × 60 mm



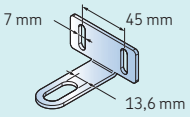
LAPB 3x10E1 — Brush 30 × 100 mm



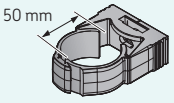
LAPB 5-16E1 — Elevator brush, 5–16 mm gap

LAPB 5-16/2K
Elevator kit for 5, 9 or 16 mm rail

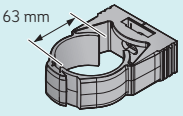
Mounting and protecting devices and extras



LAPC 13 — Bracket

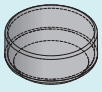


LAPC 50 — Clamp



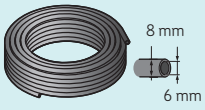
LAPC 63 — Clamp

LAPP 4 — Protection base



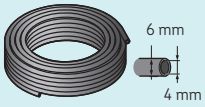
LAPP 6 — Protection cap

LAPT 1000 — Flexible tube, 1 000 mm long, 8 × 6 mm

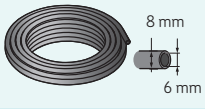


LAPT 5000 — Flexible tube, 5 000 mm long, 8 × 6 mm

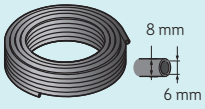
LAPT 1000S — Extra strong flexible tube, 1 000 mm long, 6 × 4 mm



LAPT 5000S — Extra strong flexible tube, 5 000 mm long, 6 × 4 mm



LAPT 1000SW — Extra strong flexible tube, 1 000 mm long, 8 × 6 mm



LAPT 5000SW — Extra strong flexible tube, 5 000 mm long, 8 × 6 mm

TLMR 201-1 — Cable plug M12 for TLMR 201 (cable diameter 4–6 mm)

Manual grease dispensing tools

A basic element of lubrication plans

The main pitfall of manual lubrication is ensuring accuracy and top cleanliness. Lubricant film in the application can be over 40 times thinner than the smallest visible particle. The SKF range of manual lubrication tools is designed to help you with the storage, handling, dosing and supplying of lubricants for your machinery in a clean and easy way.

A comprehensive range to meet your needs

SKF Grease Guns

SKF Grease Guns are suitable for agricultural, industrial, automotive and construction industries amongst others. Except for the SKF LAGP 400, which is designed for emptying cartridges only, all of them are equipped with a grease filling fitting. This fitting enables the use of SKF Grease Filler Pumps to refill the guns with loose grease, thus keeping contaminants out of the grease.

LAGP 400

TLGH 1

1077600

To lubricate open bearings

Grease packer LAGP 400

The grease packer LAGP 400 is a low-pressure alternative for emptying SKF grease cartridges. It provides an easy and clean alternative to manual grease packing of open bearings.

- Supplied with three spout caps
- Applies grease to open applications such as bearings or open gears

Easy grease filling

Grease guns TLGH 1 and 1077600

The SKF Grease Guns are ideal for agricultural, industrial and construction industries and for private use. The SKF Grease Guns are delivered with a 175 mm *(6.9 in.)* long extension pipe with hydraulic gripping nozzle.

- For use with cartridges and loose grease
- Knurled body for firm and safe grip
- High quality steel is dent-resistant for easy cartridge loading
- Special piston design for smooth emptying of cartridges
- Volume/stroke
  - TLGH 1: 0,9 cm^3 *(0.055 $in.^3$)*
  - 1077600: 1,5 cm^3 *(0.092 $in.^3$)*

Selection chart and technical data – SKF Grease Guns

Designation	LAGP 400	TLGH 1	1077600	1077600/SET	LAGH 400
Drive	Manual	Manual	Manual	Manual	Manual One hand
Maximum pressure		400 bar *(5 800 psi)*	400 bar *(5 800 psi)*	400 bar *(5 800 psi)*	300 bar *(4 350 psi)*
Volume per stroke	20 cm^3 *(1.2 $in.^3$)*	Approx. 0,9 cm^3 *(0.05 $in.^3$)*	Approx. 1,5 cm^3 *(0.09 $in.^3$)*	Approx. 1,5 cm^3 *(0.09 $in.^3$)*	Approx. 0,8 cm^3 *(0.05 $in.^3$)*
Weight	0,35 kg *(12 oz)*	1,5 kg *(3.3 lb)*	1,5 kg *(3.3 lb)*	Complete: 2,4 kg *(5.3 lb)*	1,2 kg *(2.6 lb)*
Reservoir	Suitable for the SKF grease cartridges.	Loose grease (ca. 500 cm^3) or grease cartridges.	Loose grease (ca. 500 cm^3) or grease cartridges.	Loose grease (ca. 500 cm^3) or grease cartridges.	Loose grease (ca. 500 cm^3) or grease cartridges.
Discharge pipe length	–	175 mm *(6.9 in.)*	175 mm *(6.9 in.)*	175 mm *(6.9 in.)*	300 mm *(12 in.)*
Accessories	–	1077601	1077601	1077601	1077601

Note: 1077601: Flexible 500 mm *(19.7 in.)* long pressure hose with hydraulic gripping nozzle.

1077600/SET

LAGH 400

1077600 H

The 1077600 is also available with a with 300 mm *(12 in.)* high pressure hose with a hydraulic gripping nozzle

1077600/SET

The 1077600 is also available as a complete set. Set includes: Extension pipe, Snap-on high pressure hose, Snap-on extension pipe with cardan nozzle, Snap-on extension pipe for flat-head grease fittings (Ø16 mm), Female and pointed nozzle

Easy grease filling with one hand

Grease gun LAGH 400

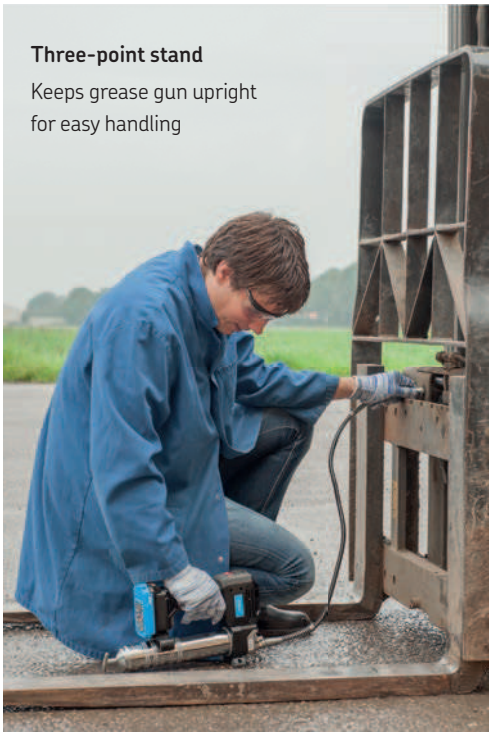
Suitable for grease filling by grease filler pumps and also suitable for grease cartridges. Ergonomic design, flexible hose and possibility to mount the hose in both vertical and horizontal position make it easy to use.

- Easy-to-use: only one hand is needed to operate the gun
- Refillable: grease filling nipple and de-airing valve allow filling up by filler or grease pump
- Heavy duty: operating pressure up to 300 bar *(4 350 psi)*
- Flexible hydraulic type hose: can be bent, can be mounted both horizontally and vertically on the gun

Technology and reliability in a durable design

SKF Battery Driven Grease Gun TLGB 20

Developed to maximize efficiency, the SKF Battery Driven Grease Gun TLGB 20 includes an integrated grease meter to help prevent over- and under-lubrication. This unique tool features a durable, ergonomic design with a three-point stand for operator comfort and convenience and a 20-volt, lithium-ion battery for longer life. Suitable for a variety of manual lubrication tasks, the TLGB 20 can be used to lubricate bearings and machines in industrial and manufacturing environments, as well as agricultural and construction vehicles.



Three-point stand

Keeps grease gun upright for easy handling

The tool's display indicates battery charge level, amount of grease dispensed, pump/motor speed and blocked lubrication points. This versatile grease gun provides two flow rates – low and high – and can dispense up to 15 grease cartridges per battery charge. The TLGB 20 can deliver pressures up to 700 bar *(10 000 psi)* and features a built-in light to illuminate the work area.

Integrated grease meter delivers precise lubrication

The TLGB 20's grease meter allows the technician to see exactly how much lubricant has been dispensed in order to avoid over- and under-lubrication. Under-lubrication can lead to premature bearing failure or contaminants entering the bearing. Over-lubrication wastes grease and can cause serious complications as well. In applications involving fast-moving equipment, such as electric motors, too much lubricant can cause high temperatures to develop and can damage seals, allowing contamination ingress. High temperatures also reduce lubricant life significantly, thereby increasing operational costs.

Integrated grease meter

Tracks how much grease has been dispensed

Two-speed flow rate

Enables adjustment from low-volume to high-volume flow to suit the application

Battery charge display

Indicates lithium battery charge level

Technical data

Designation	TLGB 20 and TLGB 20/110V
Display	Grease meter Battery capacity gauge Alert of blocked fittings Alert of loss of prime
Grease output	
Low speed setting	100 ml/min. *(3.5 oz/min.)* at 70 bar pressure
High speed setting	160 ml/min. *(5.5 oz/min.)* at 70 bar pressure
Maximum operating pressure	400 bar *(6 000 psi)*
Maximum peak pressure	700 bar *(10 000 psi)*
Cartridges per battery charge	15 cartridges (free flow, low speed) 5 cartridges (200 bar counter pressure, low speed)
Length of hose	900 mm *(36 in.)*
Battery type	Li-Ion
Battery output	20V DC maximum (without workload)
Battery capacity	1 500 mAh
Voltage charger, V/Hz	
TLGB 20	200–240 V/50–60 Hz
TLGB 20/110V	110–120 V/60 Hz
Carrying case dimensions	590 × 110 × 370 mm *(23.2 × 4.3 × 14.5 in.)*
Weight	3,0 kg *(6.5 lb)*
Total weight (incl.case)	5,7 kg *(12.7 lb)*
Accessories	
TLGB 20-1	Shoulder strap
TLGB 20-2	20 V Li-Ion battery

Optimum cleanliness when filling your grease guns

SKF Grease Filler Pumps LAGF series

Best lubrication practices say that each type of grease requires an individual grease gun and the refilling has to be a clean process. SKF Grease Filler Pumps are designed to help achieve this goal.

- Quick filling: low pressure high stroke volume
- Easy installation: all necessary items are included
- Reliable: tested and approved for all SKF greases
- Appropriate as a complement for SKF Bearing Packer VKN 550

Technical data

Designation	LAGF 18	LAGF 50
Maximum pressure	30 bar *(430 psi)*	30 bar *(430 psi)*
Volume/stroke	approx. 45 cm^3 *(1.5 US fl. oz)*	approx. 45 cm^3 *(1.5 US fl. oz)*
Suitable drum dimensions:		
inside diameter	265–285 mm *(10.4–11.2 in.)*	350–385 mm *(13.8–15.2 in.)*
maximum inside height	420 mm *(16.5 in.)*	675 mm *(26.6 in.)*
Weight	5 kg *(11 lb)*	7 kg *(15 lb)*

Contamination free grease filling

SKF Bearing Packer VKN 550

The sturdy and easy-to-use SKF Bearing Packer VKN 550 is designed to completely fill open bearings such as tapered roller bearings. They can be used with a standard grease gun, air-operated grease pump or grease filler pump.

- Flushes the grease right between the rolling elements
- Closed system: the cover lid prevents ingress of dirt

Note: Most suitable in conjunction with SKF Grease Filler Pumps LAGF Series

Technical data

Designation	VKN 550
Bearing range	
inner diameter (d)	19 to 120 mm *(0.7 to 4.7 in.)*
outer diameter (D)	max. 200 mm *(7.9 in.)*

For high volume requirements

SKF Grease Pumps LAGG series

SKF manual and air-operated grease pumps are designed to supply large amounts of grease. This is useful when large housings have to be filled or when numerous points have to be lubricated. They are also suitable for topping up centralised lubrication systems reservoirs.

- Full range: pumps available for 18, 50 or 180 kg *(39, 110 or 400 lb)* grease drums
- High pressure: maximum of 420 bar *(6 090 psi)* for air-driven models
- Reliable: tested and approved for SKF greases
- Easy and ready to install
- 3,5 m *(11.5 ft)* of tubing included

Accessories

Designation	Description
LAGT 18-50	Trolley for 18 kg *(40 lb)* cans and 50 kg *(110 lb)* drums
LAGT 180	Trolley for drums up to 200 kg *(440 lb)*

LAGG 18M

LAGG 18AE

LAGG 50AE

LAGG 180AE

Technical data

Designation	LAGG 18M	LAGG 18AE	LAGG 50AE	LAGG 180AE
Description	Grease pump for 18 kg *(39.6 lb)* drums	Mobile grease pump for 18 kg *(39.6 lb)* drums	Grease pump for 50 kg *(110 lb)* drums	Grease pump for 180 kg *(396 lb)* drums
Power source	Manual	Air–pressure	Air–pressure	Air–pressure
Max. pressure	500 bar *(7 250 psi)*	420 bar *(6 090 psi)*	420 bar *(6 090 psi)*	420 bar *(6 090 psi)*
Suitable drum	265–285 mm *(10.4–11.2 in.)*	265–285 mm *(10.4–11.2 in.)*	350–385 mm *(13.8–15.2 in.)*	550–590 mm *(21.7–23.2 in.)*
Mobility	Stationary	Trolley included (LAGT 18-50)	Stationary	Stationary
Maximum flow rate	1,6 cm^3/stroke *(0.05 US fl. oz)*	200 cm^3/min. *(6.8 US fl. oz)*	200 cm^3/min. *(6.8 US fl. oz)*	200 cm^3/min. *(6.8 US fl. oz)*
Suitable grease NLGI class	000–2	0–2	0–2	0–2

Accurate grease quantity measurement

SKF Grease Meter LAGM 1000E

The amount delivered per stroke by grease guns depends on many variables.
It is generally difficult to supply an accurate quantity of grease when manually lubricating bearings. The right amount of grease, however, is critical for the bearings' service life, as over- or under-greasing can result in machine breakdown. Although a common practice is to weigh the grease per stroke, this procedure does not consider the backpressure, the ongoing wear inside the grease gun or any other variables.

The SKF Grease Meter LAGM 1000E accurately measures grease discharge in volume or weight in metric (cm^3 or g) or US units (US fl. oz or oz), making conversion calculations unnecessary.

- Suitable for most NLGI 0-3 greases
- A rubber sleeve protects the electronics in case of impact and is also oil and grease resistant
- The backlit LCD displays large and clear-to-read digits
- Maximum pressure of 700 bar *(10 000 psi)*
- Compact and lightweight design
- Corrosion-resistant aluminium housing
- Fits with all SKF manual grease guns and air-operated grease pumps
- Fixed installation in conjunction with a lubrication system possible.

Technical data

Designation	LAGM 1000E
Housing material	Aluminium, anodised
Weight	0,3 kg *(0.66 lb)*
IP rating	IP 67
Suitable greases	NLGI 0 to NLGI 3
Maximum operating pressure	700 bar *(10 000 psi)*
Maximum grease flow	1 000 cm^3/min *(34 US fl. oz/min)*
Thread connections	M10x1
Display	Lit LCD (4 digits / 9 mm)
Accuracy	±3% from 0 to 300 bar, ±5% from 300 to 700 bar
Selectable units	cm^3, g, US fl. oz or oz
Display lamp auto switch off	15 seconds after last pulse
Battery type	1 × 1,5 V AA Alkaline
Unit auto switch off	Programmable

Renew or upgrade your equipment

SKF Grease Nozzles LAGS 8

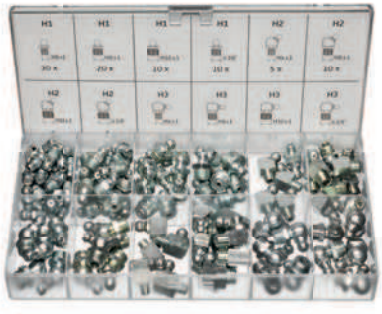
The SKF Grease Nozzles LAGS 8 kit provides practical accessories for daily lubrication, such as connectors, couplings and nozzles that are most widely used in the industry.

Technical data

Designation	LAGS 8
Maximum working pressure	400 bar *(5 800 psi)*
Minimum burst pressure	800 bar *(11 600 psi)*
Carrying case dimensions	530 × 85 × 180 mm *(20.9 × 3.4 × 7.0 in.)*

Kit contents

LAGS 8	Quantity
Straight pipe 180 mm and nozzle (DIN 71412)	1
Hose with nozzle (DIN 71412)	1
Tube with nozzle for buttom head grease fittings (DIN 3404)	1
Tube with nozzle for Flush type grease fittings and plastic transparent cover (DIN 3405)	1
Grease fitting M10x1–G1/8	1
Grease fitting M10x1–1/8–27NPS	1
Nozzle (DIN 71412)	2



The link to your lubrication points

SKF Grease Nipples LAGN 120

The LAGN 120 grease fitting kit contains a full range of 120 standardised conical grease fittings made of precision steel, zinc plated, hardened and blue chromated.

Technical data

Designation	LAGN 120
Maximum working pressure	400 bar *(5 800 psi)*
Minimum burst pressure	800 bar *(11 600 psi)*

Kit contents

Grease fitting type		Quantity	Grease fitting type		Quantity	Grease fitting type		Quantity
M6x1	straight	30	M6x1	45°	5	M6x1	90°	5
M8x1	straight	20	M8x1	45°	10	M8x1	90°	10
M10x1	straight	10	M10x1	45°	5	M10x1	90°	5
G1/8	straight	10	G1/8	45°	5	G1/8	90°	5

Proper identification of your lubrication points

SKF Grease fitting caps and tags TLAC 50

In conjunction with the SKF Lubrication Planner software, grease fitting caps and tags offer a complete solution to protect lubrication fittings from external contamination and simultaneously allow for proper identification.

Technical data

Description	Value
Label dimensions	45 × 21 mm *(1.8 × 0.8 in.)*
Material	LLDP + 25% EVA
Temperature range	from –20 to +80 °C *(–5 to +175 °F)*
Suitable for grease fitting sizes	G1/4, G1/8, M6, M8, M10 and grease fitting head

Kits contents

Kit designation	Description
TLAC 50/B	50 blue caps and tags + 2 printable stickers sheets
TLAC 50/Y	50 yellow caps and tags + 2 printable stickers sheets
TLAC 50/R	50 red caps and tags + 2 printable stickers sheets
TLAC 50/G	50 green caps and tags + 2 printable stickers sheets
TLAC 50/Z	50 black caps and tags + 2 printable stickers sheets
TLAT 10	10 printable stickers sheets

Skin protection when handling grease

SKF Disposable Grease Resistant Gloves TMBA G11D

SKF TMBA G11D gloves are specially designed to protect skin when working with lubricants. The gloves are packed in a handy box containing 25 pairs.

- Non-powdered nitrile rubber gloves
- Tight fitting for precision wear
- Excellent resistance against lubricants
- Non-allergenic

Technical data

Designation	TMBA G11D
Pack size	25 pairs
Size	9
Colour	blue

Oil inspection and dispensing

Automatic adjustment for optimal lubricating oil level

SKF Oil Levellers LAHD series

SKF LAHD 500 and LAHD 1000 oil levellers are designed to automatically compensate oil evaporation and leakages under running conditions. This helps in maintaining the correct oil level within a bearing housing, gear box, crankcase, or similar oil bath application. The SKF LAHD series optimises machine performance and increases their service life. Furthermore, they enhance the possibility of an accurate visual inspection of the oil level.

- Optimally maintained oil level
- Extended inspection interval
- Easy visual inspection
- Compensation for evaporation losses

Typical applications

- Oil lubricated bearing housings
- Gear boxes
- Crankcases

Technical data

Designation	LAHD 500 / LAHD 1000
Reservoir volume	
LAHD 500	500 ml *(17 US fl. oz)*
LAHD 1000	1 000 ml *(34 US fl. oz)*
Boundary dimensions	
LAHD 500	Ø91 mm × 290 mm high *(3.6 × 11.4 in.)*
LAHD 1000	Ø122 mm × 290 mm high *(4.8 × 11.4 in.)*
Allowed temperature range	–20 to +70 °C *(–5 to +158 °F)*
Length of connecting tube	600 mm *(23.5 in.)*
Connection thread	G 1/2
Suitable oil types	Mineral and synthetic oils

A proper solution for oil handling

Oil handling containers LAOS series

LAOS series is comprised of an extensive assortment of drums and dispensing lids ideal for the storage and administration of fluids and oil lubricants. The lids are available in ten different colours to fit colour coded identification systems.

- Enables easier, safer and cleaner lubrication
- Allows for accurate oil consumption control
- Improves health and safety due to oil spillage minimisation
- Heat and chemically resistant
- Drum and lid threads provide tight, quick and easy assembly
- Quick closing spouts
- Vacuum valve for enhanced spilling control

Mini spout

Ideal where the reservoirs to be filled have small filling holes. Outlet diameter is approx. 7 mm *(0.28 in.)*

Stretch spout

Ideal for precise pouring tasks and difficult to access points. The 12 mm *(0.48 in.)* outlet is ideal for viscosities up to ISO VG 220.

Stumpy spout

Due to the wide opening of 25 mm *(1 in.)*, ideal for high viscosities and/or when a high flow is required.

Utility / Storage lid

Two main uses: Quick pouring if necessary and assembly of pump onto a 3, 5 or 10 L drum *(0.8, 1.3 or 2.6 US Gal)*.

Contents label

For proper marking of drum contents

LAOS series lids

Colour	Mini spout	Stretch spout	Stumpy spout	Utility / Storage lid	Contents label
Tan	LAOS 09057	LAOS 09682	LAOS 09705	LAOS 09668	LAOS 06919S
Grey	LAOS 09064	LAOS 09699	LAOS 09712	LAOS 09675	LAOS 06964S
Orange	LAOS 09088	LAOS 09798	LAOS 09729	LAOS 09866	LAOS 06940S
Black	LAOS 09095	LAOS 09804	LAOS 09736	LAOS 09873	LAOS 06995S
Dark green	LAOS 09101	LAOS 09811	LAOS 09743	LAOS 09880	LAOS 06971S
Green	LAOS 09118	LAOS 09828	LAOS 09750	LAOS 09897	LAOS 06957S
Blue	LAOS 09125	LAOS 09835	LAOS 09767	LAOS 09903	LAOS 06988S
Red	LAOS 09132	LAOS 09842	LAOS 09774	LAOS 09910	LAOS 06926S
Purple	LAOS 09071	LAOS 09392	LAOS 09388	LAOS 09408	LAOS 06933S
Yellow	LAOS 09194	LAOS 62437	LAOS 64936	LAOS 62451	LAOS 06902S

Drums

Designed with wide necks and a standard thread size. Fits any LAOS lid. Available in 5 different sizes.

Pumps

Standard pump suitable for viscosities up to ISO VG 460. High flow (approx. 14 strokes per litre/US quart). High viscosity pump for viscosities up to ISO VG 680. High efficiency with approx. 12 strokes per litre/US quart. As a protection against airborne contaminants during the pumping process, a 10 micron breather is available. For both pumps an anti-drip long discharge hose of 1,5 m *(4.9 ft)* and reducer nozzles are available.

Hose extensions

Designed to extend the reach of the lids. Two different versions available for stumpy and stretch lids. The stretch version's length can be adjusted by removing the fitting and cutting it down to the desired size.

LAOS series drums

Designation	
LAOS 09224	1,5 litre drum *(0.4 US gal)*
LAOS 63571	2 litre drum *(0.5 US gal)*
LAOS 63595	3 litre drum *(0.8 US gal)*
LAOS 63618	5 litre drum *(1.3 US gal)*
LAOS 66251	10 litre drum *(2.6 US gal)*

LAOS series pumps

Designation	
LAOS 62568	High viscosity pump (to fit LAOS utility lids)
LAOS 09423	Breather for high viscosity pump
LAOS 62567	Standard Pump (to fit LAOS utility lids)
LAOS 09422	Pump reducer nozzle

LAOS series spouts

Designation	
LAOS 67265	Stumpy spout hose extension
LAOS 62499	Stretch spout hose extension

Storage tools

Keep your oil clean from the beginning

Oil conditioning station

The reliability of oil lubricated machinery depends very much on the cleanliness of the oil. Given its liquid nature, oil easily gets contaminated from the moment it is delivered up to application in the machine.

An oil conditioning station helps to clean the oil while it is being loaded into the tanks, during delivery, and maybe most importantly while it remains in the tank. A continuous filtration process helps to ensure that the desired cleanliness level is achieved. Finally, an additional step in order to improve machine reliability, is to verify the topping up process at the machine level and its sealing conditions, in order to prevent the ingress of new contaminants. After this point, it's all about oil condition monitoring. Devices like the oil conditioning station can help to maintain the desired cleanliness level of a given machine.

Impact of cleanliness in bearing life

SKF Bearing Calculator is an online tool available from www.skf.com/kc that can be used (among others) to calculate the expected bearing life. Let's consider an SKF 22222 E under the following conditions:

- Radial load: 100 kN
- Axial load: 10 kN
- Rotational speed of the inner ring: 500 r/min
- Operating temperature: 70 °C
- Lubricant: ISO VG 100 mineral oil with VI 95

The expected life values for two different contamination levels are:

- ISO 4406 -/21/18: 1 060 hours
- ISO 4406 -/19/16: 1 950 hours

This means that by cleaning the oil, the bearing life is increased over 80%.

ISO contamination classification and filter rating

The standard method for classifying the contamination level in an oil is described in ISO 4406. In this classification system, the result of the solid particle count is converted into a code using a scale number.

A given oil with a code 22/18/13 for example, contains per millilitre of oil:

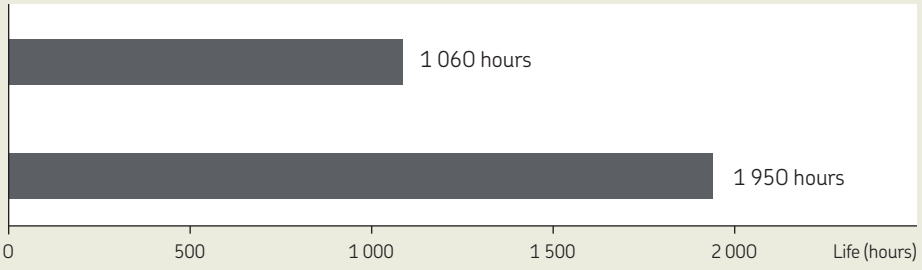
- 20 000 to 40 000 particles ≥4 µm
- 1 300 to 2 500 particles ≥6 µm
- 40 to 80 particles ≥14 µm

Sometimes, only the two larger particle size ranges are used.

Effect of oil cleanlines in bearing life

Cleanliness level
ISO -/21/18

Cleanliness level
ISO -/19/16



Features

- **Tanks** – Built in aluminized steel and available in 10 different colours and four sizes: 113, 246, 454 and 908 litre *(30, 65, 120 and 240 US gal)*
- **Scalable and configurable** – scale system to accommodate the number of lubricants required for storage and dispensing
- **Spill control** – all systems come standard with integrated spill pans for SPCC and EPA compliance and overall environmental protection
- **Fire suppression** – includes MSHA-CFR30 – rated flame resistant fire suppression hoses as standard with optional fusible link tank isolation valves and auto-shut off taps
- **Filtration** – all systems come with fluid filtration capability with a choice of micron ratings and also desiccant air breathers. Filter micron rating must be chosen according with cleanliness level targets and oil viscosity. Ask SKF for further assistance
- **All systems ship in fully assembled pods** – for efficient freight and rapid on-site installation
- **Transport** – all systems have integrated spill transport pallets for easy forklift and hand truck access for freight and workplace mobility
- **Power** – all systems can be equipped with 110 V/220 V, 50Hz / 60Hz motors, according with customer's specifications
- **High viscosity** – Each tank is equipped with an individual high viscosity pump with a flow rate of 3 US gal/min able to deliver oils up to ISO VG 680

Oil conditioning station benefits

- Helps to ensure each oil achieves the target cleanliness code (ISO 4406) prior to be delivered to the machine
- Prevents cross contamination
- Prevents the ingress of airborne particles and moisture to the stored oil
- Minimizes safety risks associated with drum handling and /or oil spillage
- Reduces risks in case of fire due to the flame resistant and fire suppression devices
- Helps to build a neat and tidy workspace

SKF offers an analysis of your current lubrication practices and proposes an improvement in various oil storage station configurations to satisfy the required application.

Standard model

- Very space efficient
- Easy relocation around the plant

Superior model

- Premium ergonomic dispensing and working surfaces
- Integrated parts, hose reels and tool storage
- Electrical protection – circuit breakers, surge protectors and motor overload protection all help to ensure safe and effective operation in demanding environments
- Numerous upgrade options

Comparison table	Standard	Superior
SPCC spill containment	●	●
Optional Fire safety	●	●
Pressurized dispensing from taps	●	●
One pump and filter per tank	●	●
One succion hose without storage per tank (storage options as accesories)	●	●
3 way filtration – fill, re-circulate, dispense	●	●
Electrical protection – circuit breakers, surge protectors, motor overload protection	–	●
Push button emergency system stop	–	●
Independent ergonomic stainless steel dispensing console	–	●
Integrated parts and tools storage	–	●
Optional hose reels	–	●

Lubrication analysis tools

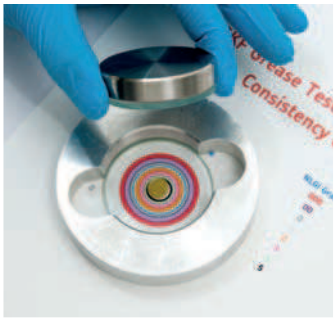
Portable grease analysis kit for field use

SKF Grease Test Kit TKGT 1

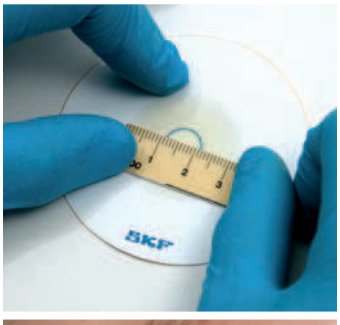
Lubricant analysis is a vital part of a predictive maintenance strategy. Until recently, however, oils were almost always analysed despite the fact that around 80% of bearings are lubricated with grease. Tribology expertise and years of research have allowed SKF to develop a complete methodology to assess grease condition.

- Extremely useful in field decision-making processes
- Allows adjustment of grease relubrication intervals according to real conditions
- Grease can be evaluated to detect possible unacceptable deviations from batch to batch
- Allows verification of the suitability of certain greases in specific applications
- Helps in the prevention of damage due to underperforming lubricant greases
- Provides more information on root cause analysis
- Requires no special training to perform the tests
- Requires no harmful chemicals
- Small sample sizes required. Only 0,5 g of grease is needed to perform all the tests

Consistency test
(Patent applied for)



Oil bleeding characteristics



Contamination evaluation

Technical data

Designation	TKGT 1		
Parts	**Components**	**Quantity**	**Specifications**
Sampling tools	Sampling syringe	1	Polypropylene
	Sampling tube	1	PTFE, length approx. 1 m
	Permanent marker	1	Black
	Sampling containers	10	35 ml polyethylene
	Gloves	10 pairs	Grease resistant nitrile (synthetic rubber), powder free, size XL, colour blue
	Disposable spatulas	1	Set of 25
	250 mm stainless steel spatula	1	Stainless steel
	150 mm stainless steel spatula	1	Stainless steel
	Scissors	1	Stainless steel
Consistency test	Housing	1	Aluminium
	Weight	1	Stainless steel
	Mask	1	Plexiglas
	Glass plates	4	
Oil bleeding test	USB heater	1	2,5 W–5 V
	USB/220/110 V adaptor	1	Universal (EU, US, UK, Australia) to USB
	Paper pack	1	Contains 50 sheets
	Ruler	1	Aluminium graduated 0,5 mm
Contamination test	Pocket microscope	1	60–100x with light
	Batteries	2	AAA
Carrying case	CD	1	Contains instructions for use, report template, and consistency test scale
	Carrying case	1	Dimensions: 530 × 110 × 360 mm *(20.9 × 4.3 × 14.2 in.)*

Note

The SKF Oil Check Monitor is not an analytical instrument. It is an instrument to only detect changes in the oil condition. The visual and numerical read-outs are merely a guide to enable trending of the comparative readings of a good oil to a used oil of the same type and brand. Do not rely solely on numerical readings.

Quick detection of oil condition changes

SKF Oil Check Monitor TMEH 1

The SKF TMEH 1 measures the changes in dielectric constant of an oil sample. By comparing measurements obtained from used and fresh samples of the same oil, the degree of change in the condition of the oil is established. Dielectric change is directly related to the oil's degradation and contamination level. The monitor allows tracking of mechanical wear and of any loss of the oil's lubricating properties.

- Hand-held and user friendly
- Numerical readout to facilitate trending
- Can store calibration (good oil) in its memory
- Shows changes in oil condition affected by such things as:
  - Water content
  - Fuel contamination
  - Metallic content
  - Oxidation

Technical data

Designation	TMEH 1
Suitable oil types	mineral and synthetic oils
Repeatability	±5%
Readout	green/red grading + numerical value (–999 to +999)
Battery	9 V Alkaline type IEC 6LR61
Battery lifetime	>150 hours or 3 000 tests
Product dimensions	250 × 32 × 95 mm *(9.8 × 1.3 × 3.7 in.)*
Carrying case dimensions	530 × 85 × 180 mm *(20.9 × 3.4 × 7.0 in.)*

Lubrication software

For access or download: skf.com/lubrication or skf.com/kc

LubeSelect for SKF greases

Advanced tool for grease selection and relubrication calculation

LubeSelect for SKF greases

Selecting a suitable grease for a particular bearing is a crucial step if the bearing is to meet design expectations in its application. SKF knowledge about bearing lubrication has been encapsulated into a computer program that can be consulted at www.skf.com/lubrication

LubeSelect for SKF greases provides you a user friendly tool to select the right grease and suggest frequency and quantity, while taking into account the particular conditions of your application. General guidelines for typical greases for different applications are also available.

SKF Lubrication Planner

A user friendly tool to administer your lubrication plan

SKF Lubrication Planner

The SKF Lubrication Planner has been developed to help in the administration of a lubrication plan, thereby bridging the gap between the need for a software platform vs. administration by a simple spreadsheet.

- Establish a mapping of lubrication points
- Create a colour coded identification system
- Get expert advice on grease selection
- Calculate relubrication quantities and intervals
- Discover the benefits of dynamic route planning
- Get expert advice on best lubrication procedures
- Keep the history of performed lubrication tasks per point

SKF Lubrication Planner is available in several languages.
Download it for free at www.skf.com/lubrication

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 multiple languages and is suitable for PC's working with Microsoft Windows. 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.

Download on the App Store

GET IT ON Google Play