Lubrication

Lubricants

Lubrication management tools

Automatic lubricators

Manual lubrication tools

Lubrication software

Lubrication

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.

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

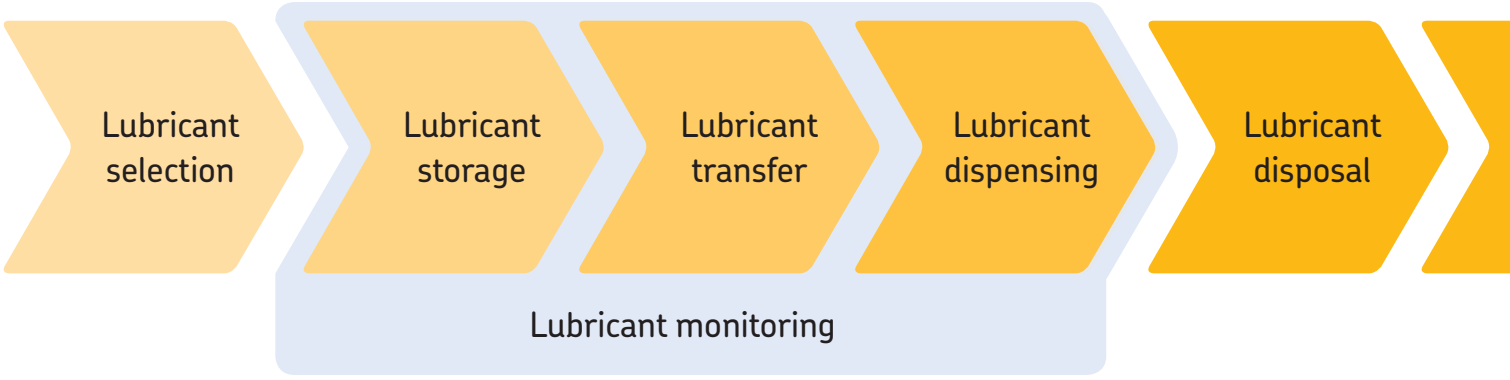
From lubrication to lubrication management

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



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.

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

- **SKF Client Needs Analysis:** Normally implies one day of assessment and provides an overview on the lubrication programme maturity
- **SKF Lubrication Audit:** Detailed assessment. Normally implies five days and provides a thorough analysis of the lubrication programme
- **Improvement proposal:** Formulation of specific activities
- **Design and implementation:** Execution of the proposed activities
- **Optimisation:** Reassessment and implementation of additional improvement proposals

SKF lubricants

SKF Engineering and Research Centre in the Netherlands

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* 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.

* SKF LGFP 2 food grade grease offers a two-year shelf-life from the date of production

SKF lubricant selection

Selecting a grease can be a delicate process. SKF has developed several tools in order to facilitate the selection of the most suitable lubricant. The wide range of tools available includes those from easy-to-use application driven tables to advanced software allowing for grease selection based upon detailed working conditions.

The basic bearing grease selection chart provides you with quick suggestions on the most commonly used greases in typical applications.

Basic bearing grease selection

Generally use if:

Speed = M, Temperature = M and Load = M	LGMT 2	General purpose

Unless:

Expected bearing temperature continuously >100 °C *(210 °F)*	LGHP 2	High temperature
Expected bearing temperature continuously >150 °C *(300 °F)*, demands for radiation resistance	LGET 2	Extremely high temperature
Low ambient –50 °C *(–60 °F)*, expected bearing temperature <50 °C *(120 °F)*	LGLT 2	Low temperature
Shock loads, heavy loads, frequent start-up / shut-down	LGEP 2	High load
Food processing industry	LGFP 2	Food processing
Biodegradable, demands for low toxicity	LGGB 2	Biodegradable

Note: – For areas with relatively high ambient temperatures, use LGMT 3 instead of LGMT 2
– For special operating conditions, refer to the SKF bearing grease selection chart

With additional information like speed, temperature, and load conditions, LubeSelect for SKF greases is the easiest way to select the right grease. For additional information, visit www.aptitudeexchange.com. Additionally, the SKF bearing grease selection chart provides you with a complete overview of SKF greases. The chart includes the main selection parameters, such as temperature, speed and load, as well as basic additional performance information.

Bearing operating parameters

Temperature

L	= Low	<50 °C	*(120 °F)*
M	= Medium	50 to 100 °C	*(120 to 230 °F)*
H	= High	>100 °C	*(210 °F)*
EH	= Extremely high	>150 °C	*(300 °F)*

Load

VH	= Very high	C/P <2
H	= High	C/P ~4
M	= Medium	C/P ~8
L	= Low	C/P ≥15

C/P = Load ratio **C** = basic dynamic load rating, kN
P = equivalent dynamic bearing load, kN

Speed		for ball bearings
EH	= Extremely high	n d_m over 700 000
VH	= Very high	n d_m up to 700 000
H	= High	n d_m up to 500 000
M	= Medium	n d_m up to 300 000
L	= Low	n d_m below 100 000

Speed		for roller bearings SRB/TRB/CARB	CRB
H	= High	n d_m over 210 000	n d_m over 270 000
M	= Medium	n d_m up to 210 000	n d_m up to 270 000
L	= Low	n d_m up to 75 000	n d_m up to 75 000
VL	= Very low	n d_m below 30 000	n d_m below 30 000

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

SKF bearing grease selection chart

Grease	Description	Application examples	Temperature range [1] LTL	HTPL	Temp.	Speed
LGMT 2	General purpose industrial and automotive	Automotive wheel bearings Conveyors and fans Small electric motors	–30 °C (–20 °F)	120 °C (250 °F)	M	M
LGMT 3	General purpose industrial and automotive	Bearings with d>100 mm Vertical shaft or outer bearing ring rotation Car, truck and trailer wheel bearings	–30 °C (–20 °F)	120 °C (250 °F)	M	M
LGEP 2	Extreme pressure	Forming and press section of paper mills Work roll bearings in steel industry Heavy machinery, vibrating screens	–20 °C (–5 °F)	110 °C (230 °F)	M	L to M
LGWA 2	Wide temperature [4], extreme pressure	Wheel bearings in cars, trailers and trucks Washing machines Electric motors	–30 °C (–20 °F)	140 °C (285 °F)	M to H	L to M
LGFP 2	Food compatible	Food processing equipment Wrapping machines Bottling machines	–20 °C (–5 °F)	110 °C (230 °F)	M	M
LGGB 2	Biodegradable, low toxicity [3]	Agricultural and forestry equipment Construction and earthmoving equipment Water treatment and irrigation	–40 °C (–40 °F)	90 °C (195 °F)	L to M	L to M
LGBB 2	Wind turbine blade and yaw bearing grease	Wind turbine blade and yaw slewing bearings	–40 °C (–40 °F)	120 °C (250 °F)	L to M	VL
LGLT 2	Low temperature, extremely high speed	Textile and machine tool spindles Small electric motors and robots Printing cylinders	–50 °C (–60 °F)	110 °C (230 °F)	L to M	M to EH
LGWM 1	Extreme pressure, low temperature	Main shaft of wind turbines Centralised lubrication systems Spherical roller thrust bearing applications	–30 °C (–20 °F)	110 °C (230 °F)	L to M	L to M
LGWM 2	High load, wide temperature	Main shaft of wind turbines Heavy duty off road or marine applications Snow exposed applications	–40 °C (–40 °F)	110 °C (230 °F)	L to M	L to M
LGEM 2	High viscosity plus solid lubricants	Jaw crushers Construction machinery Vibrating machinery	–20 °C (–5 °F)	120 °C (250 °F)	M	VL
LGEV 2	Extremely high viscosity with solid lubricants	Trunnion bearings Support and thrust rollers on rotary kilns and dryers Slewing ring bearings	–10 °C (15 °F)	120 °C (250 °F)	M	VL
LGHB 2	EP high viscosity, high temperature [5]	Steel on steel plain bearings Dryer section of paper mills Work roll bearings and continuous casting in steel industry Sealed spherical roller bearings up to 150 °C (300 °F)	–20 °C (–5 °F)	150 °C (300 °F)	M to H	VL to M
LGHP 2	High performance polyurea grease	Electric motors Fans, even at high speed High speed ball bearings at medium and high temperatures	–40 °C (–40 °F)	150 °C (300 °F)	M to H	M to H
LGET 2	Extreme temperature	Bakery equipment (ovens) Wafer baking machines Textile dryers	–40 °C (–40 °F)	260 °C (500 °F)	VH	L to M

1) LTL = Low Temperature Limit
HTPL = High Temperature Performance Limit
2) mm^2/s at 40 °C (105 °F) = cSt.
3) LGGB 2 can withstand peak temperatures of 120 °C (250 °F)
4) LGWA 2 can withstand peak temperatures of 220 °C (430 °F)
5) LGHB 2 can withstand peak temperatures of 200 °C (390 °F)

Load	Thickener / Base Oil	NLGI	Base oil viscosity [2]	Vertical shaft	Fast outer ring rotation	Oscillating movements	Severe Vibrations	Shock load or frequent start up	Rust inhibiting properties
L to M	Lithium soap / mineral oil	2	110	●			+		+
L to M	Lithium soap / mineral oil	3	120	+	●		+		●
H	Lithium soap / mineral oil	2	200	●		●	+	+	+
L to H	Lithium complex soap / mineral oil	2	185	●	●	●	●	+	+
L to M	Aluminium complex / medical white oil	2	130	●					+
M to H	Lithium-calcium soap / synthetic ester oil	2	110	●		+	+	+	●
M to H	Lithium complex soap / synthetic PAO oil	2	68			+	+	+	+
L	Lithium soap / synthetic PAO oil	2	18	●				●	●
H	Lithium soap / mineral oil	1	200			+		+	+
L to H	Complex calcium sulphonate / synthetic PAO oil / mineral oil	2	80	●	●	+	+	+	+
H to VH	Lithium soap / mineral oil	2	500	●		+	+	+	+
H to VH	Lithium-calcium soap / mineral oil	2	1020	●		+	+	+	+
L to VH	Complex calcium sulphonate / mineral oil	2	400	●	+	+	+	+	+
L to M	Di-urea / mineral oil	2 to 3	96	+			●	●	+
H to VH	PTFE / synthetic fluorinated polyether oil	2	400	●	+	+	●	●	●

Wide applications greases

Special requirements

Low temperatures

High loads

High temperatures

● = Suitable + = Recommended

	LGMT 2	LGMT 3	LGEP 2	LGWA 2	LGFP 2	LGGB 2
	General purpose industrial and automotive	General purpose industrial and automotive	Extreme pressure	Wide temperature, extreme pressure	Food compatible	Biodegradable, low toxicity
DIN 51825 code	K2K-30	K3K-30	KP2G-20	KP2N-30	K2G-20	KPE 2K-40
NLGI consistency class	2	3	2	2	2	2
Soap type	Lithium	Lithium	Lithium	Lithium complex	Aluminium complex	Lithium/ calcium
Colour	Red brown	Amber	Light brown	Amber	Transparent	Off white
Base oil type	Mineral	Mineral	Mineral	Mineral	Medical white oil	Synthetic ester
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)*	–20 to +110 °C *(–5 to +230 °F)*	–40 to +90 °C *(–40 to +195 °F)*
Dropping point DIN ISO 2176	>180 °C *(>355 °F)*	>180 °C *(>355 °F)*	>180 °C *(>355 °F)*	>250 °C *(>480 °F)*	>250 °C *(>480 °F)*	>170 °C *(>340 °F)*
Base oil viscosity 40 °C, mm^2/s 100 °C, mm^2/s	 110 11	 120–130 12	 200 16	 185 15	 130 7,3	 110 13
Penetration DIN ISO 2137 60 strokes, 10^{-1} mm 100 000 strokes, 10^{-1} mm	 265–295 +50 max. (325 max.)	 220–250 280 max.	 265–295 +50 max. (325 max.)	 265–295 +50 max. (325 max.)	 265–295 +30 max.	 265–295 +50 max. (325 max.)
Mechanical stability Roll stability, 50 hrs at 80 °C, 10^{-1} mm V2F test	 +50 max. 'M'	 295 max. 'M'	 +50 max. 'M'	 +50 max. change 'M'		 +70 max. (350 max.)
Corrosion protection Emcor: – standard ISO 11007 – water washout test – salt water test (100% seawater)	 0–0 0–0 0–1*	 0–0 0–0	 0–0 0–0 1–1*	 0–0 0–0*	0–0	0–0
Water resistance DIN 51 807/1, 3 hrs at 90 °C	1 max.	2 max.	1 max.	1 max.	1 max.	0 max.
Oil separation DIN 51 817, 7 days at 40 °C, static, %	1–6	1–3	2–5	1–5	1–5	0,3–3
Lubrication ability R2F, running test B at 120 °C R2F, cold chamber test, –30 °C, +20 °C	 Pass, 120 °C *(250 °F)*	 Pass 120 °C *(250 °F)*	 Pass, 120 °C *(250 °F)*	 Pass, 100 °C *(210 °F)*		 Pass, 100 °C *(210 °F)**
Copper corrosion DIN 51 811, 110 °C	2 max. 110 °C *(265 °F)*	2 max. 130 °C *(265 °F)*	2 max.	2 max.		
Rolling bearing grease life R0F test L_{50} life at 10 000 r/min., hrs		 1 000 min., 130 °C *(265 °F)*			 1 000, 110 °C *(230 °F)*	 >300, 120 °C *(250 °F)*
EP performance Wear scar DIN 51350/5, 1 400 N, mm 4–ball test, welding load DIN 51350/4, N			 1,4 max 2 800 min.	 1,6 max. 2 600 min.	 1 100 min.	 1,8 max. 2 600 min.
Fretting corrosion ASTM D4170 FAFNIR test at –20 °C, +25 °C mg			 5,7*			
Low temperature torque IP186, starting torque, m Nm* IP186, running torque, m Nm*	 98, –30 °C *(–20 °F)* 58, –30 °C *(–20 °F)*	 145, –30 °C *(–20 °F)* 95, –30 °C *(–20 °F)*	 70, –20 °C *(–5 °F)* 45, –20 °C *(–5 °F)*	 40, –30 °C *(–20 °F)* 30, –30 °C *(–20 °F)*	 137, –30 °C *(–20 °F)* 51, –30 °C *(–20 °F)*	
Available pack sizes	35, 200 g tube 420 ml cartridge 1, 5, 18, 50, 180 kg	420 ml cartridge 0,5, 1, 5, 18, 50, 180 kg, TLMR	420 ml cartridge 1, 5, 18, 50, 180 kg TLMR	35, 200 g tube 420 ml cartridge 1, 5, 18, 50, 180 kg LAGD, TLSD, TLMR	420 ml cartridge 1, 18, 180 kg LAGD, TLSD, TLMR	420 ml cartridge 5, 18, 180 kg LAGD

* Typical value

Special requirements

Wide applications greases

LGBB 2	LGLT 2	LGWM 1	LGWM 2	LGEM 2	LGEV 2	LGHB 2	LGHP 2	LGET 2
Wind turbine blade and yaw bearing grease	Low temperature, extremely high speed	Extreme pressure, low temperature	High load, wide temperature	High viscosity plus solid lubricants	Extremely high viscosity with solid lubricants	EP high viscosity, high temperature	High performance polyurea grease	Extreme temperature
KP2G-40	K2G-50	KP1G-30	KP2G-40	KPF2K-20	KPF2K-10	KP2N-20	K2N-40	KFK2U-40
2	2	1	1–2	2	2	2	2–3	2
Lithium complex	Lithium	Lithium	Complex calcium sulphonate	Lithium	Lithium/ calcium	Complex calcium sulphonate	Di–urea	PTFE
Yellow	Beige	Brown	Yellow	Black	Black	Brown	Blue	Off white
Synthetic (PAO)	Synthetic (PAO)	Mineral	Synthetic (PAO)/ Mineral	Mineral	Mineral	Mineral	Mineral	Synthetic (fluorinated polyether)
–40 to +120 °C *(–40 to +250 °F)*	–50 to +110 °C *(–60 to +230 °F)*	–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)*	–40 to +150 °C *(–40 to +300 °F)*	–40 to +260 °C *(–40 to +500 °F)*
>200 °C *(390 °F)*	>180 °C *(>355 °F)*	>170 °C *(>340 °F)*	>300 °C *(>570 °F)*	>180 °C *(>355 °F)*	>180 °C *(>355 °F)*	>220 °C *(>430 °F)*	>240 °C *(>465 °F)*	>300 °C *(>570 °F)*
68	18 4,5	200 16	80 8,6	500 32	1 020 58	400–450 26,5	96 10,5	400 38
265–295 +50 max.	265–295 +50 max.	310–340 +50 max.	280–310 +30 max	265–295 325 max.	265–295 325 max.	265–295 –20 to +50 (325 max.)	245–275 365 max.	265–295 –
+50 max.	380 max.		+50 max.	345 max. 'M'	+50 max. 'M'	–20 to +50 change 'M'	365 max.	±30 max. 130 °C *(265 °F)*
0–0 0–1*	0–1	0–0 0–0	0–0 0–0 0–0	0–0 0–0	0–0 0–0* 0–0*	0–0 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.
4 max, 2.5*	<4	8–13	3 max.	1–5	1–5	1–3, 60 °C *(140 °F)*	1–5	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, 120 °C *(250 °F)*	
1 max. 120 °C *(250 °F)*	1 max. 100 °C *(210 °F)*	2 max. 90 °C *(>195 °F)*	1 max.	2 max. 100 °C *(210 °F)*	1 max. 100 °C *(210 °F)*	2 max. 150 °C *(300 °F)*	1 max. 150 °C *(300 °F)*	1
	>1 000, 20 000 r/min. 100 °C *(210 °F)*		1 824*, 110 °C *(230 °F)*			>1 000, 130 °C *(265 °F)*	1 000 min. 150 °C *(300 °F)*	>700, 5 600 r/min.* 220 °C *(430 °F)*
0,4* 5 500*	2 000 min.	1,8 max. 3 200 min.*	1,5 max. 4 000 min.	1,4 max. 3 000 min.	1,2 max. 3 000 min.	0,86* 4 000 min.		8 000 min.
0–1*		5,5*	1,1*, 5,2*			0*	7*	
313, –40 °C (–40 °F) 75, –40 °C (–40 °F)	32, –50 °C (–60 °F) 21, –50 °C (–60 °F)	178, 0 °C (32 °F) 103, 0 °C (32 °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)	1 000, –40 °C (–40 °F) 280, –40 °C (–40 °F)	
420 ml cartridge 5, 18, 180 kg	180 g tube 0.9, 25, 170 kg	420 ml cartridge 5, 50, 180 kg TLMR	420 ml cartridge 5, 18, 50, 180 kg LAGD, TLSD, TLMR	420 ml cartridge 5, 18, 180 kg LAGD, TLSD	35 g tube 420 ml cartridge 5, 18, 50, 180 kg TLMR	420 ml cartridge 5, 18, 50, 180 kg LAGD, TLSD, TLMR	420 ml cartridge 1, 5, 18, 50, 180 kg LAGD, TLSD, TLMR	50 g (25 ml) syringe 1 kg

High loads

Low temperatures

High temperatures

Bearing greases

LGMT 2

SKF 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

Technical data

Designation	LGMT 2/(pack size)
DIN 51825 code	K2K-30
NLGI consistency class	2
Soap type	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	+50 max.
V2F test	'M'
Corrosion protection	
Emcor:	
– standard ISO 11007	0–0
– water washout test	0–0
– salt water test (100% seawater)	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, %	1–6
Lubrication ability	
R2F, running test B at 120 °C	Pass
Copper corrosion	
DIN 51 811, 110 °C	2 max. at 110 °C *(265 °F)*
Available pack sizes	35, 200 g tube 420 ml cartridge 1, 5, 18, 50, 180 kg

* Typical value

LGMT 3

SKF 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

Technical data

Designation	LGMT 3/(pack size)
DIN 51825 code	K3K-30
NLGI consistency class	3
Soap type	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	120–130
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	2 max.
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, 110 °C	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)*
Available pack sizes	420 ml cartridge 0,5, 1, 5, 18, 50, 180 kg TLMR

LGEP 2

SKF 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
- Traction motors for rail vehicles
- Dam gates
- Work roll bearings in steel industry
- Heavy machinery, vibrating screens
- Crane wheels, sheaves
- Slewing bearings

Technical data

Designation	LGEP 2/(pack size)
DIN 51825 code	KP2G-20
NLGI consistency class	2
Soap type	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 100 °C, mm^2/s	 200 16
Penetration DIN ISO 2137 60 strokes, 10^{-1} mm 100 000 strokes, 10^{-1} mm	 265–295 +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 – water washout test – salt water test (100% seawater)	 0–0 0–0 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, %	 2–5
Lubrication ability R2F, running test B at 120 °C	 Pass
Copper corrosion DIN 51 811, 110 °C	 2 max.
EP performance Wear scar DIN 51350/5, 1 400 N, mm 4–ball test, welding load DIN 51350/4, N	 1,4 max 2 800 min.
Fretting corrosion ASTM D4170 (mg)	 5,7*
Available pack sizes	420 ml cartridge 1, 5, 18, 50, 180 kg TLMR

* Typical value

LGWA 2

SKF 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

Technical data

Designation	LGWA 2/(pack size)
DIN 51825 code	KP2N-30
NLGI consistency class	2
Soap type	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*
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, 110 °C	2 max.
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.
Available pack sizes	35, 200 g tube 420 ml cartridge 1, 5, 18, 50, 180 kg SKF SYSTEM 24 (LAGD/TLSD), TLMR

* Typical value

LGGB 2

SKF 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.

- Compliance with current regulations on toxicity and biodegradability
- 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

Technical data

Designation	LGGB 2/(pack size)
DIN 51825 code	KPE 2K-40
NLGI consistency class	2
Soap type	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, %	0,3–3
Lubrication ability	
R2F, running test B at 120 °C	Pass at 100 °C *(210 °F)**
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.
Available pack sizes	420 ml cartridge 5, 18, 180 kg SKF SYSTEM 24 (LAGD)

* Typical value

LGBB 2

SKF Wind Turbine Blade and Yaw Bearing Grease

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 proper lubrication whether the turbine is operating or in stand-still mode, installed onshore, offshore, or in cold climate areas.

- 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

Technical data

Designation	LGBB 2/(pack size)
DIN 51825 code	KP2G-40
NLGI consistency class	2
Soap type	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 100 000 strokes, 10^{-1} mm	 265–295 +50 max.
Mechanical stability Roll stability, 50h at 80 °C, 10^{-1} mm	 +50 max.
Corrosion protection Emcor: – Standard ISO 11007 – Salt water test (100% sea water)	 0–0 0–1*
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*
Copper corrosion DIN 51 811, 120 °C	 1 max.
EP performances Wear scar DIN 51350/5, 1400 N, mm 4-ball test, welding load DIN 51350/4, N	 0.4 * 5 500 *
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*
Avalaible packsizes	420 ml cartridge 5, 18, 180 kg

* Typical value

LGLT 2

SKF 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 d_m values of $1,6 \times 10^6$ 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

Technical data

Designation	LGLT 2/(pack size)
DIN 51825 code	K2G-50
NLGI consistency class	2
Soap type	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 100 °C, mm^2/s	 18 4,5
Penetration DIN ISO 2137 60 strokes, 10^{-1} mm 100 000 strokes, 10^{-1} mm	 265–295 +50 max.
Mechanical stability Roll stability, 50 hrs at 80 °C, 10^{-1} mm	 380 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, 110 °C	 1 max. at 100 °C *(210 °F)*
Rolling bearing grease life ROF test L_{50} life at 10 000 r/min., hrs	 >1 000, 20 000 r/min. at 100 °C *(210 °F)*
EP performance 4–ball test, welding load DIN 51350/4, N	 2 000 min.
Available pack sizes	180 g tube 0.9, 25, 170 kg

LGWM 1

SKF 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

Technical data

Designation	LGWM 1/(pack size)
DIN 51825 code	KP1G-30
NLGI consistency class	1
Soap type	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 100 °C, mm^2/s	 200 16
Penetration DIN ISO 2137 60 strokes, 10^{-1} mm 100 000 strokes, 10^{-1} mm	 310–340 +50 max.
Corrosion protection: Emcor: – standard ISO 11007 – water washout test	 0–0 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, 110 °C	 2 max. at 90 °C *(>195 °F)*
EP performance Wear scar DIN 51350/5, 1 400 N, mm 4–ball test, welding load DIN 51350/4, N	 1,8 max. 3 200 min.*
Fretting corrosion ASTM D4170 (mg)	 5,5*
Available pack sizes	420 ml cartridge 5, 50, 180 kg TLMR

* Typical value

LGWM 2

SKF 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

Technical data

Designation	LGWM 2/(pack size)
DIN 51825 code	KP2G-40
NLGI consistency class	1–2
Soap type	Complex calcium sulphonate
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
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, 110 °C	1 max.
Rolling bearing grease life	
R0F test	
L_{50} life at 10 000 r/min., hrs	1 824* at 110 °C *(230 °F)*
EP performance	
Wear scar DIN 51350/5, 1 400 N, mm	1,5 max.
4–ball test, welding load DIN 51350/4, N	4 000 min.
Fretting corrosion	
ASTM D4170 FAFNIR test at +25 °C, mg	5,2*
ASTM D4170 FAFNIR test at –20 °C, mg	1,1*
Available pack sizes	420 ml cartridge 5, 18, 50, 180 kg SKF SYSTEM 24 (LAGD/TLSD), TLMR

* Typical value

LGEM 2

SKF High Viscosity Bearing Grease with Solid Lubricants

SKF LGEM 2 is a high viscosity, mineral oil based grease using a lithium 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

Technical data

Designation	LGEM 2/(pack size)
DIN 51825 code	KPF2K-20
NLGI consistency class	2
Soap type	Lithium
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 100 °C, mm^2/s	 500 32
Penetration DIN ISO 2137 60 strokes, 10^{-1} mm 100 000 strokes, 10^{-1} mm	 265–295 325 max.
Mechanical stability Roll stability, 50 hrs at 80 °C, 10^{-1} mm V2F test	 345 max. 'M'
Corrosion protection Emcor: – standard ISO 11007 – water washout test	 0–0 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
Lubrication ability R2F, running test B at 120 °C	 Pass at 100 °C *(210 °F)*
Copper corrosion DIN 51 811, 110 °C	 2 max. at 100 °C *(210 °F)*
EP performance Wear scar DIN 51350/5, 1 400 N, mm 4–ball test, welding load DIN 51350/4, N	 1,4 max. 3 000 min.
Available pack sizes	420 ml cartridge 5, 18, 180 kg SKF SYSTEM 24 (LAGD/TLSD)

LGEV 2

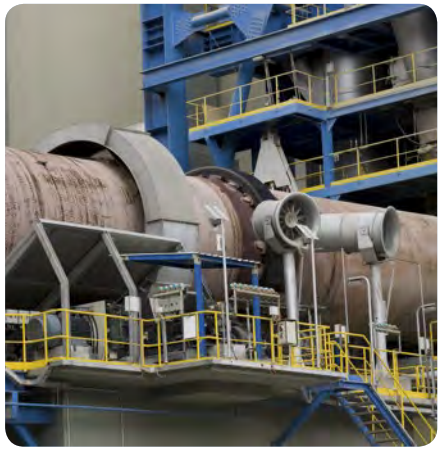
SKF Extremely High Viscosity Bearing Grease with Solid Lubricants

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



Technical data

Designation	LGEV 2/(pack size)
DIN 51825 code	KPF2K-10
NLGI consistency class	2
Soap type	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*
– 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
Copper corrosion	
DIN 51 811, 110 °C	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.
Available pack sizes	35 g tube 420 ml cartridge 5, 18, 50, 180 kg TLMR

* Typical value

LGHB 2

SKF 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 anti-oxidation and anti-corrosion properties
- Excellent performance in applications running at high loads
- 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

Technical data

Designation	LGHB 2/(pack size)
DIN 51825 code	KP2N-20
NLGI consistency class	2
Soap type	Complex calcium sulphonate
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*

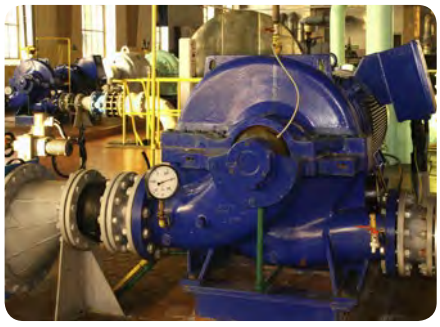
Water resistance	
DIN 51 807/1, 3 hrs at 90 °C	1 max.
Oil separation	
DIN 51 817, 7 days at 40 °C, static, %	1–3 at 60 °C *(140 °F)*
Lubrication ability	
R2F, running test B at 120 °C	Pass at 140 °C *(285 °F)*
Copper corrosion	
DIN 51 811, 110 °C	2 max. at 150 °C *(300 °F)*
Rolling bearing grease life	
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*
4–ball test, welding load DIN 51350/4, N	4 000 min.
Fretting corrosion	
ASTM D4170 (mg)	0*
Available pack sizes	420 ml cartridge 5, 18, 50, 180 kg SKF SYSTEM 24 (LAGD/TLSD), TLMR

* Typical value

LGHP 2

SKF 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

Technical data

Designation	LGHP 2/(pack size)
DIN 51825 code	K2N-40
NLGI consistency class	2–3
Soap type	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
Lubrication ability	
R2F, running test B at 120 °C	Pass
Copper corrosion	
DIN 51 811, 110 °C	1 max. at 150 °C *(300 °F)*
Rolling bearing grease life	
R0F test	1 000 min.
L_{50} life at 10 000 r/min., hrs	at 150 °C *(300 °F)*
Fretting corrosion	
ASTM D4170 (mg)	7*
Available pack sizes	420 ml cartridge, 1, 5, 18, 50, 180 kg SKF SYSTEM 24 (LAGD/TLSD), TLMR

* Typical value

LGET 2

SKF 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:

- Bakery equipment (ovens)
- Kiln truck wheels
- Load rollers in copying machines
- Wafer baking machines
- Textile dryers
- Film stretching tenders
- Electric motors running at extreme temperatures
- Emergency / hot fans
- Vacuum pumps

Important note:

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

Technical data

Designation	LGET 2/(pack size)
DIN 51825 code	KFK2U-40
NLGI consistency class	2
Soap type	PTFE
Colour	Off white
Base oil type	Synthetic (fluorinated polyether)
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
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, 110 °C	1
Rolling bearing grease life	
ROF test	>700, 5 600 r/min.*
L_{50} life at 10 000 r/min., hrs	at 220 °C *(430 °F)*
EP performance	
4–ball test, welding load DIN 51350/4, N	8 000 min.
Available pack sizes	50 g *(25 ml)* syringe 1 kg

* Typical value

SKF Food Grade Lubricants

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

Applications

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

Ordering details

Pack sizes	LGFP 2	Pack sizes	LGFP 2
420 ml cartridge	LGFP 2/0.4	SKF SYSTEM 24 / LAGD 125 ml	LAGD 125/FP2
1 kg can	LGFP 2/1	SKF SYSTEM 24 / TLSD 125 ml	TLSD 125/FP2
18 kg can	LGFP 2/18	SKF SYSTEM 24 / TLSD 250 ml	TLSD 250/FP2
180 kg can	LGFP 2/180	TLMR 120 ml	LGFP 2/MR120
SKF SYSTEM 24 / LAGD 60 ml	LAGD 60/FP2	TLMR 380 ml	LGFP 2/MR380

Technical data

Designation	LGFP 2/(pack size)
NLGI consistency class	2
DIN 51825 code	K2G-20
Appearance	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	130
100 °C, mm^2/s	7,3
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
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)*
EP performance	
4–ball test,	
welding load DIN 51350/4, N	1 100 min.
Shelf life	2 years
NSF Reg. No.	128004

LGFS 00

General purpose food grade grease

SKF LGFS 00 is a premium synthetic base oil and Aluminium complex thickened grease suitable for applications where vegetarian and nut-free food is produced.

- LGFS 00 does not contain any natural products derived from animals, GMO's and nuts
- It does not promote the growth of bacteria and fungal organisms
- NSF H1 registered and Halal and Kosher certified

Applications

Enclosed industrial gearboxes and automatic, centralized lubrication systems such as those used for:

- Packaging
- Cutting/forming knives
- Conveyers

Ordering details

Pack sizes	LGFS 00
19 kg can	LGFS 00/19

Technical data

Designation	LGFS 00/(pack size)
NLGI number, DIN 51818	00
Classification, DIN 51502	GP HC 00 G-40
Classification, ISO 6743-9	L-XEBEB 00
Appearance	White semi-fluid
Type of thickener	Aluminium complex
Base oil type	Synthetic (PAO)
Operating temperatures range	–45 to +100 °C *(–49 to +212 °F)* peak up to 120 °C *(248 °F)*

Dropping Point ISO 2176	>200 °C *(>392 °F)*
Penetration ISO 2137 25 °C, 10^{-1} mm	 400-430
Base oil viscosity ISO 3104 40 °C, mm^2/s 100 °C, mm^2/s	 220 25
Shelf life	2 years
NSF Reg. No.	149602

LGFD 2

High load food grade grease

SKF LGFD 2 is a premium synthetic base oil and Aluminium complex thickened grease suitable for applications experiencing high loads.

- Excellent oxidation and mechanical stability
- Excellent water and corrosion resistance
- Excellent adhesive properties
- NSF H1 registered and Halal and Kosher certified

Applications

Lubrication of bearings, joints, linkages and slides in F&B industry, for the machines used in:

- Packaging
- Bottling
- Wrapping
- Conveyers

Ordering details

Pack sizes	LGFD 2
400 ml cartridge	LGFD 2/0.4
19 kg can	LGFD 2/19

Technical data

Designation	LGFD 2/(pack size)
NLGI number, DIN 51818	2
Classification, DIN 51502	KP HC 2 K-30
Classification, ISO 6743-9	L-XCCEB 2
Appearance	White smooth paste
Type of thickener	Aluminium complex
Base oil type	Synthetic (PAO)
Operating temperatures range	–35 to +120 °C *(–31 to +248 °F)* peak up to 140 °C *(284 °F)*

Dropping Point ISO 2176	>240 °C *(>464 °F)*
Penetration ISO 2137 25 °C, 10^{-1} mm	 265-295
Base oil viscosity ISO 3104 40 °C, mm^2/s 100 °C, mm^2/s	 220 25
Shelf life	2 years
NSF Reg. No.	149601

LGFC 1

Low temperature food grade grease

SKF LGFC 1 is a premium synthetic base oil and Aluminium complex thickened grease suitable for applications experiencing low temperatures.

- Excellent low temperature performance
- Excellent water and corrosion resistance
- Excellent adhesive properties
- NSF H1 registered and Halal and Kosher certified

Applications

Lubrication of bearings, joints, linkages and slides in F&B industry, for machines used in:

- Freezers
- Cooling processes

Ordering details

Pack sizes	LGFC 1
400 ml cartridge	LGFC 1/0.4
19 kg can	LGFC 1/19

Technical data

Designation	LGFC 1/(pack size)
NLGI number, DIN 51818	1
Classification, DIN 51502	K HC 1 E-50
Classification, ISO 6743-9	L-XEBEA 1
Appearance	Pale yellow, smooth paste
Type of thickener	Aluminium complex
Base oil type	Synthetic (PAO)
Operating temperatures range	–50 to +100 °C *(–58 to +212 °F)* peak up to 110 °C *(230 °F)*
Dropping Point ISO 2176	>200 °C *(>392 °F)*

Penetration ISO 2137	
25 °C, 10^{-1} mm	310-340
Base oil viscosity ISO 3104	
–30 °C, mm^2/s	960
+40 °C, mm^2/s	20
+100 °C, mm^2/s (calulated)	4.8
Flow pressure	
–25 °C, mbar	300
–35 °C, mbar	475
Shelf life	2 years
NSF Reg. No.	149603

LGFT 2

High temperature food grade grease

SKF LGFT 2 is a premium synthetic base oil and inorganically thickened[1] grease suitable for applications experiencing high temperatures.

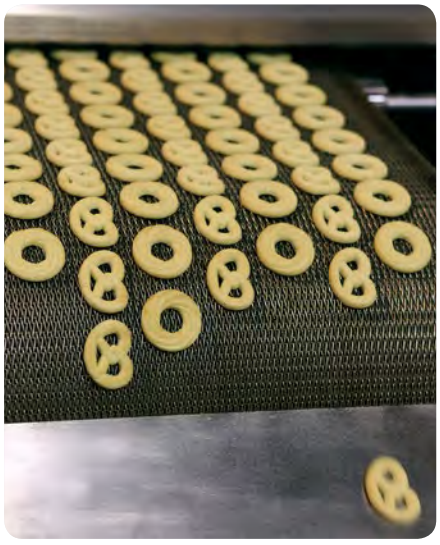
- Excellent high temperature performance
- Excellent water and corrosion resistance
- Excellent adhesive properties
- NSF H1 registered and Halal and Kosher certified

Applications

Lubrication of bearings, joints, linkages and slides in F&B industry, for the machines used in:

- Ovens
- Other bakery equipment

[1] LGFT 2 is based on an inorganic thickener and should therefore not be mixed with most greases based on other type of thickeners.



Ordering details

Pack sizes	LGFT 2
400 ml cartridge	LGFT 2/0.4
19 kg can	LGFT 2/19

Technical data

Designation	LGFT 2/(pack size)
NLGI number, DIN 51818	2
Classification, DIN 51502	KP HC 2 S-30
Classification, ISO 6743-9	L-XCGEA 2
Appearance	Beige, smooth paste
Type of thickener	Inorganic
Base oil type	Synthetic (PAO)
Operating temperatures range	–30 to +200 °C *(–22 to +392 °F)* peak up to 220 °C *(428 °F)*

Dropping Point ISO 2176	None
Penetration ISO 2137 25 °C, 10^{-1} mm	 265-295
Base oil viscosity ISO 3104 40 °C, mm^2/s 100 °C, mm^2/s 200 °C, mm^2/s (calculated)	 400 40 6
Shelf life	2 years
NSF Reg. No.	149604

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

Applications

- Hydraulic systems
- Hydrostatic gears
- Circulating oil systems

Ordering details

Pack sizes	LFFH 46	LFFH 68
22 l can	LFFH 46/22	LFFH 68/22
205 l can	LFFH 46/205	LFFH 68/205

Technical data

Designation	LFFH 46/(pack size)	LFFH 68/(pack size)
Appearance	Yellowish	Yellowish
Base oil type	Synthetic	Synthetic
Base oil viscosity ISO 3104		
40 °C, mm^2/s	46	68
100 °C, mm^2/s	7.9	10.9
Density ISO 12185		
15 °C, kg/m^3	836	843
Flash point DIN/EN/ISO 2592 COC	248 °C	258 °C
Pourpoint ISO 3016	<–60 °C	<–60 °C
FZG-Test A/8.3/90 Failure Load Stage DIN 51354-2	12	>12
Viscosity Index DIN ISO 2909	142	143
Shelf life	2 years	2 years
NSF Reg. No.	149599	149600

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

Applications

- Enclosed gear boxes
- Packaging
- Conveyers

Ordering details

Pack sizes	LFFG 220	LFFG 320
22 l can	LFFG 220/22	LFFG 320/22
205 l can	LFFG 220/205	LFFG 320/205

Technical data

Designation	LFFG 220/(pack size)	LFFG 320/(pack size)
Appearance	Pale yellow	Pale yellow
Base oil type	Synthetic	Synthetic
Base oil viscosity ISO 3104		
40 °C, mm^2/s	220	320
100 °C, mm^2/s	25	33.4
Density ISO 12185		
15 °C, kg/m^3	847	852
Flash point DIN/EN/ISO 2592 COC	276 °C	278 °C
Pourpoint ISO 3016	–48 °C	–45 °C
FZG-Test A/8.3/90 Failure Load Stage DIN 51354-2	>12	>12
Viscosity Index DIN ISO 2909	143	147
Shelf life	2 years	2 years
NSF Reg. No.	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.

Ordering details

Pack sizes	LFFM 80	LHFP 150	LFFT 220
5 l can	LFFM 80/5	LHFP 150/5	LFFT 220/5
SKF SYSTEM 24 / LAGD 125 ml	LAGD 125/FFM80	LAGD 125/HFP15	LAGD 125/FFT22

Technical data

Designation	LFFM 80	LHFP 150	LFFT 220
Appearance	White	Colourless	Yellow
Base oil type	Semi synthetic (mineral/ester)	Synthetic ester	Synthetic ester
Specific gravity	0.89	0.85	0.95
Operating temperature range	–30 to +120 °C (*–22 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 100 °C, mm^2/s	 approx. 80 approx. 10	 ISO VG 150 approx. 19	 ISO VG 220 approx. 17
Flash point	>200 °C (*>392 °F*)	>200 °C (*>392 °F*)	>250 °C (*>482 °F*)
NSF Reg. No.	146767	136858	146768

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. It adheres very well to all treated surfaces and has outstanding properties. The lubricant consists of synthetic oil and is doped with PTFE solid lubricant.

- 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.

Applications

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

Ordering details

Pack sizes	LDTS 1
5 l can	LDTS 1/5

Technical data

Designation	LDTS 1
Composition	Mineral oils, hydrocarbons, additives, PTFE
Appearance	White
Operating temperature range	–5 to +60 °C *(25 to 140 °F)*
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)*
Flash point after evaporation of the solvent	>170 °C *(340 °F)*
NSF Reg. No.	139739

Special lubricants

LESA 2

LEGE 2

SKF Energy Efficient (E2) bearing greases

Spherical roller bearings – SKF LESA 2 grease combines a fully synthetic polyalphaolefine (PAO) base oil with a unique lithium soap thickener. This premium quality, low friction grease has been specially developed for SKF Energy Efficient spherical roller bearings.

All ball bearings – 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 SKF Energy efficient ball bearings.

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

Technical data

Designation	LESA 2/(pack size)	LEGE 2/(pack size)
DIN 51825 code	KP2G-50	K2N-50
NLGI consistency class	2	2–3
Soap type	Lithium	Lithium
Colour	Beige	Light brown
Base oil type	PAO	Ester
Operating temperature range	–50 to +110 °C *(–60 to +230 °F)*	–50 to +150 °C *(–58 to +302 °F)*
Dropping point DIN ISO 2176	180 min. (356 min.)	> 185 °C *(365 °F)*
Base oil viscosity		
40 °C, mm^2/s	18	25
100 °C, mm^2/s	4,5	4,9
Penetration DIN ISO 2137		
60 strokes, 10^{-1} mm	265–295	240–270
100 000 strokes, 10^{-1} mm	+50 max. (325 max.)	330 max.
Mechanical stability		
Roll stability, 50 hrs at 80 °C, 10^{-1} mm	380 max.	310
Corrosion protection		
SKF Emcor standard ISO 11007	0–1	0-0
SKF Emcor 0,5% salt water	–	0-0
Water resistance		
DIN 51 807/1, 3 hrs at 90 °C	1 max.	0
Oil separation		
DIN 51 817, 7 days at 40 °C, static, %	<4	–
Copper corrosion		
DIN 51 811 at 110 °C	1 max. 100 °C *(210 °F)*	–
ISO 2160 at 140°C	–	1b
Rolling bearing grease life		
ROF test, L_{50} life at 10 000 r/min, hrs	–	>1 000 at 150°C *(302 °F)*
ROF test, L_{50} life at 20 000 r/min, hrs	>1 000 at 110 °C *(230 °F)*	–
EP performance		
4-ball test, welding load DIN 51350/4, N	2 000 min.	–
Available packsizes	420 ml cartridge, 1, 5, 18 kg can	420 ml cartridge, 1 kg can

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.

- 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

Applications

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

LGLS 0

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. Its anhydrous calcium thickener, combined with a high base oil viscosity, offers excellent water resistance and stickiness to surfaces as well as very good anti-wear properties.

- Excellent pumpability at low to medium temperatures.
- Excellent water resistance and corrosion protection.
- Excellent anti-wear properties.
- Excellent adhesion to surfaces.

Technical data

Designation	LMCG 1/(pack size)	LGLS 0/(pack size)
DIN 51825 code	GOG1G-0	KP0G-40
NLGI consistency class	1	0
Soap type	Polyethylene	Anhydrous calcium
Colour	Brown	Red
Base oil type	Mineral	Mineral oil & polymers
Operating temperature range	0 to 120 °C *(32 to 248 °F)*	–40 to +100 °C *(–40 to +212 °F)*
Dropping point DIN ISO 2176	210 °C *(410 °F)*	>120 °C *(>248 °F)*
Base oil viscosity		
40 °C, mm^2/s	670	1 370
100 °C, mm^2/s	34	96
Penetration DIN ISO 2137		
60 strokes, 10^{-1} mm	310–340	355–385
Corrosion protection		
SKF Emcor standard ISO 11007	0–0	0-0
Salt water test (100% seawater)	2–2	–
Water wash-out test, ISO 11009	–	<10%
Flow pressure at –40 °C	–	<1 400 mbar
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*	3 200 N
Available pack sizes	35 g tube, 420 ml cartridge, 2, 18, 50 kg can	18 kg can

* Typical value

LHMT 68

LHHT 265

SKF 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

Applications

- Conveyor chains
- Drive chains
- Lift chains

Ordering details

Chain oil		LHMT 68	LHHT 265
Description		Medium temperature oil	High temperature oil
Can 5 liter		LHMT 68/5	LHHT 265/5
SKF SYSTEM 24			
LAGD series	Unit 60 ml Unit 125 ml	LAGD 60/HMT68* LAGD 125/HMT68*	– LAGD 125/HHT26*
TLSD series	Complete unit 122 ml Complete unit 250 ml Refill set 122 ml Refill set 250 ml	TLSD 125/HMT68 TLSD 250/HMT68 LHMT 68/EML125 LHMT 68/EML250	TLSD 125/HHT26 TLSD 250/HHT26 LHHT 265/EML12 LHHT 265/EML25

* Includes non-return valve

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 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 100 °C, mm^2/s	 ISO VG 68 approx. 9	 approx. 265 approx. 30
Flash point	>200 °C *(392 °F)*	approx. 260 °C *(500 °F)*
Pour point	<-15 °C *(5 °F)*	n/a

Technical data

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.

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:

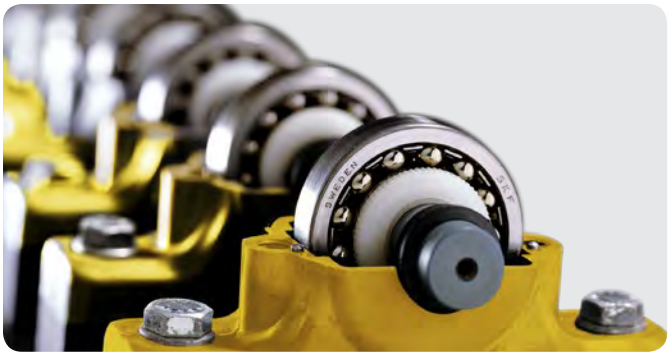
- Prolonged penetration
  The grease sample is subjected to 100 000 strokes in a device called a grease worker. Then, the penetration is measured. The difference against penetration at 60 strokes is reported as the change in 10^{-1} mm.

- 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.

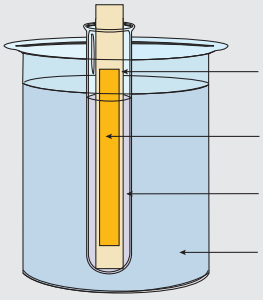
- V2F test
  A railway axlebox is subjected to vibration shocks of 1 Hz from a bouncing hammer producing an acceleration level between 12–15 g. After 72 hours at 500 r/min., the grease leaked from the housing through the labyrinth seal is collected in a tray. If it weighs less than 50 g, a rating of '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.

Roll stability test rig

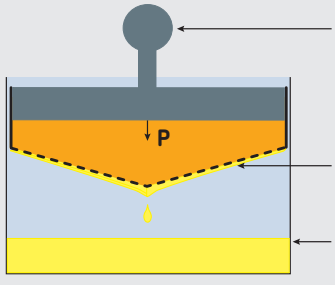
V2F grease test rig



Emcor grease test rig



Water resistance test



Oil separation test

Corrosion protection

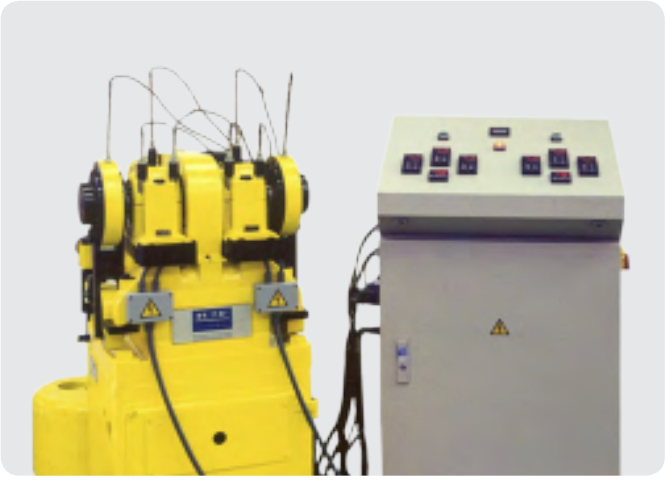
Corrosive environments demand special properties for rolling bearing greases. During the Emcor test, bearings are lubricated with a mixture of grease and distilled water. At the end of the test, a value between 0 (no corrosion) and 5 (very severe corrosion) is given. Salt water, instead of distilled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



R2F grease test rig

ROF+ 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.

Thickener compatibility chart

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

+ = Compatible
● = Test required
– = Incompatible

* 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.

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

Storage tools

Modernise your oil storage and handling practices

Oil storage station

Oil storage station is an integrated solution designed to minimize the chances for lubricating oils to get cross contaminated or contaminated during storage and transfer. It is a customized solution helping to help ensure clean, organized, safe and reliable lubricant identification, storage and transfer. It consists of the tailor-made set of colour-coded tanks, pumps, hose reels, filters and additional lubricant handling equipment and tools.

Features

- Choice of four aluminized steel tank 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
- Choice of 10 tank colours
- Spill control – all systems come standard with integrated spill pans for SPCC 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
- Accommodates lubricants up to ISO VG 680
- 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 come standard with 110 V single phase TEFC motors and can be configured for other power supplies as required

Standard model

- Best practice contamination control
- Very space efficient
- Easy relocation around the plant
- One pump and filter per tank
- Pressurized dispensing

Superior model

- Excellent contamination control
- Instant lube room
- Premium ergonomic dispensing and working surfaces
- Integrated parts and tool storage
- Electrical and mechanical protection systems
- One pump and filter per tank
- Pressurized dispensing
- Numerous upgrade options

Optimum cleanliness when filling your grease guns

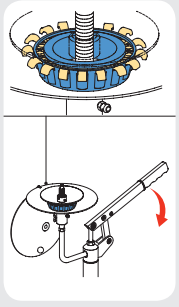
SKF Grease Filler Pumps LAGF series

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 maximum inside height	 265–285 mm *(10.4–11.2 in.)* 420 mm *(16.5 in.)*	 350–385 mm *(13.8–15.2 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.)*