



SKF LUBRICATION CAPABILITIES

Lubrication as essential part of the SKF Portfolio

SKF Lubrication portfolio and activities

- SKF Lubrication Management Model
- Lubricant selection
 - Lubricant range
 - WebTools on selection
- Application Methods
 - Lubrication tools and equipment
 - Lubrication systems
- Lubrication Management
- Services – Maintenance Assessment, Lubrication CNA & audits
- Lubrication trends

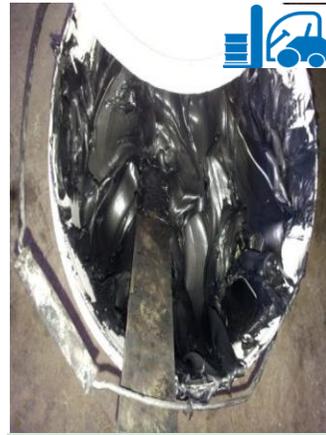
What we see in the field, worldwide



Wrong grease ?



Storage ?



Clean transfer?



Which oil ?



Application ?



Too much ?



Monitoring?



Environment?



Take risks ?



Education ?



Procedures ?

Lubricate every bearing,

every week, with 5 strokes

of grease gun

Planning & scheduling ?

What we see in the field, worldwide



Wrong grease ?



Storage ?



Application ?



Too much ?



Environment?



Take risks ?



Education ?



Procedures ?

THIS HAS TO STOP !

Lubricate every bearing, 

every week, with 5 strokes

of grease gun

Planning & scheduling ?

Our customer's pains - Aftermarket

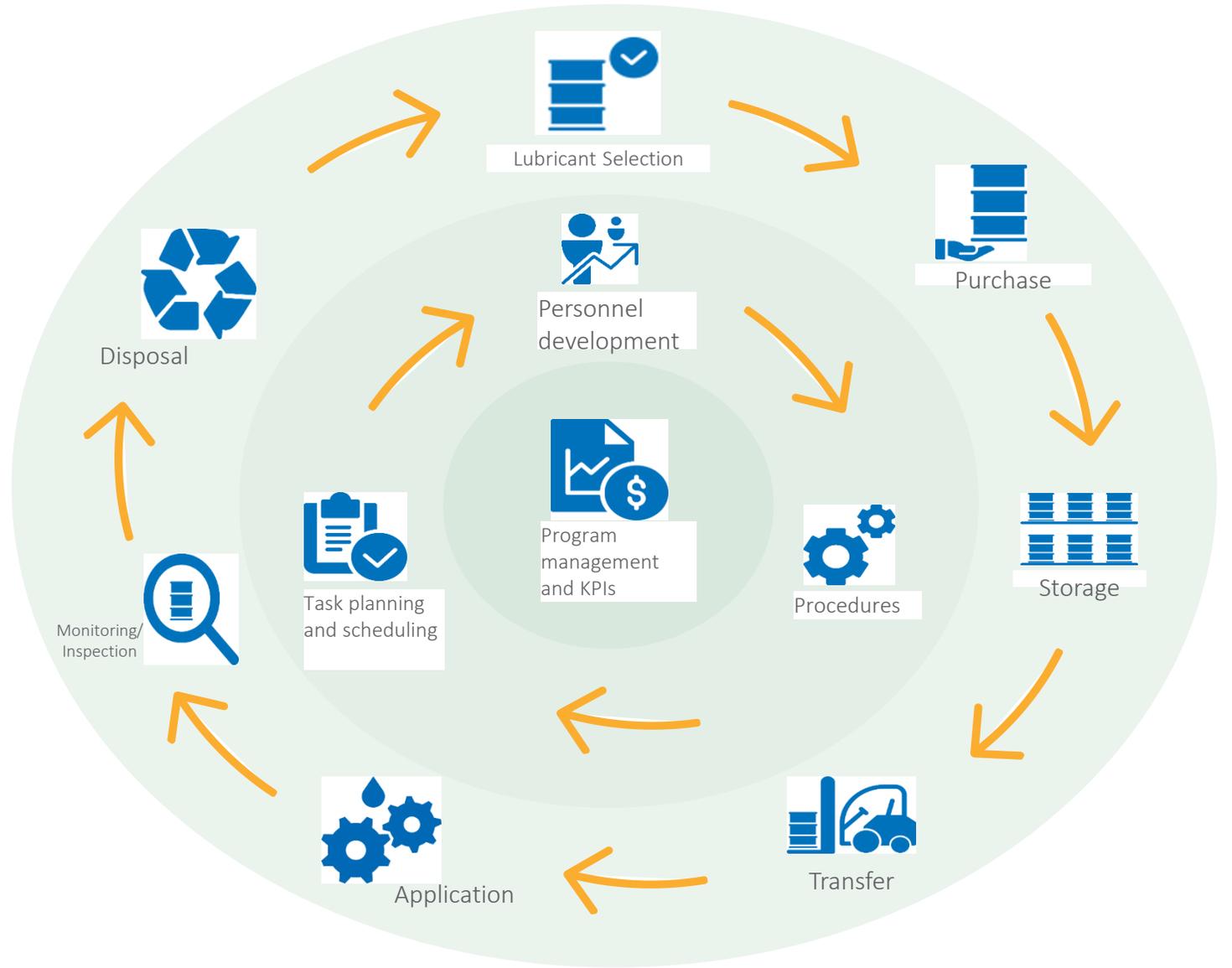
- Reliability issues
- EHS & environmental concerns
- Poor definition & tracking of lubrication tasks
- No resources to define/perform lubrication activities
- Lubrication cumbersome
- Lack of skills
- Poor understanding on lubrication effectiveness
- Need to enter industry 4.0 – Do or die
- Etc... (Non exhaustive list...)



Proper lubrication is just a headache !

Just look at CNA-LM and Audit results...

THE COMPLETE LUBRICATION MANAGEMENT MODEL



Importance Lubrication for rolling bearings

Poor fitting

16%



Poor lubrication

36%



Contamination

14%



Unexpected operating conditions (early Fatigue)

34%



Lubricant selection

Lubricant range



Lubricant range

LGMT 2	• General purpose. Low loads.
LGMT 3	• General purpose. Vertical Shafts. Vibration.
LGEP 2	• Loads, shocks. Start/stop
LGWA 2	• Lix. Extended Relubrication intervals
LGGB 2	• Biodegradable. Agriculture, forestry
LGBB 2	• Oscillating movements. Slewing rings, WT.
LGLT 2	• Low temperatures, high speeds. Spindles.
LGWM 1	• Low temperatures, high loads. Main shaft bearing WT.
LGWM 2	• Low temperatures, high loads, CaSx. Wind mills, low temp mining
LGEM 2	• High loads. MoS2. 500 cStk. Horizontal kilns
LGEV 2	• Extreme loads. MoS2 graphite. Laddle turret, vertical mills
LGHB 2	• High loads, water, temperature. CaSx. Ball mills, rolling mills
LGHC 2	• High loads, water, temperature. CaSx. Ball mills, rolling mills
LGHP 2	• High speeds, High temperatures. Electrical motors.
LEGE 2	• Extreme speeds, Wide temperatures. Electrical motors.
LGET 2	• PTFE, PFPE. Extreme temperatures. Oxygen. Extrusion machines

Food grade portfolio

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)

Greases for non bearing application

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)

Webtools - SKF Lube select

LubeSelect
for SKF Greases

Application Conditions	Application Profiles	Links	Help
About			

Select on application conditions

Fields marked with * are mandatory

Click here for [help on conditions](#)
Click here for [other languages](#)

<p>Dimensions:</p> <p>Bearing designation <input type="text" value="22222 E"/> <input type="button" value="Search"/></p> <p>or</p> <p>Bearing type <input type="text" value="Spherical roller bearings"/> *</p> <p>Inner diameter d <input type="text" value="110"/> mm*</p> <p>Outer diameter D <input type="text" value="200"/> mm*</p> <p>Bearing width/height <input type="text" value="53"/> mm</p> <p>Bearing Serie (Only spherical roller bearings) <input type="text" value="222"/></p> <p>Load ratio $F_a / F_{rl} > e$ (Only spherical roller bearings) <input checked="" type="radio"/> No <input type="radio"/> Yes</p> <p>Bearing Arrangement (Only cylindrical roller bearings) <input type="text" value="Non-locating bearing"/></p> <p>Outer ring temperature: Typical temperature <input type="text" value="80"/> °C*</p> <p>Minimum temperature (start-up) <input type="text" value="20"/> °C</p> <p>Maximum temperature (peak) <input type="text" value="120"/> °C</p> <p>Rotational speed <input type="text" value="200"/> RPM*</p>	<p>Filling Type LubeSelect for SKF greases concerns SKF greases only.</p> <p>Load (C/P)* <input type="radio"/> Low (>15) <input type="radio"/> Medium (8-15) <input checked="" type="radio"/> High (4-8) <input type="radio"/> Very high(<4)</p> <p>Shock load* <input checked="" type="radio"/> No <input type="radio"/> Yes</p> <p>Ambient Temperature* <input type="radio"/> Less than -10°C <input checked="" type="radio"/> Between -10 and 35°C <input type="radio"/> More than 35°C</p>
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Click here for [help on conditions](#)
Click here for [other languages](#)

Optional conditions: Fields marked with + are used for grease/oil advice (others for grease only)

	not relevant	relevant	important	very important
Vertical shaft	<input checked="" type="radio"/> No	<input type="radio"/> Yes		
Oscillating movements	<input checked="" type="radio"/> No	<input type="radio"/> Yes		
Outer ring rotation	<input checked="" type="radio"/> No	<input type="radio"/> Yes		
Central lubrication system	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>
High rust protection	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Water resistance	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Low noise	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Frequent startup/shutdown+	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Heavily vibrating installation	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>
Very low friction	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Very long grease life	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Food compatibility	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Biodegradability	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Radiation resistance	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Webtools - SKF Lube select



Application Conditions	Application Profiles	Links	Help
About			

Advise

The following SKF greases have been found to be appropriate for the specified application conditions. A **green** color indicates a suitable lubricant for this application. A **red** color indicates that one or more application conditions are not fulfilled.

Click on a lubricant to view calculated results and additional information.

Rating	Grease	Supplier	Kappa	Relubrication interval	Poor performance on
***	LGHB2	SKF	1.4	7900	-
***	LGWA2	SKF	0.8	7000	-
**	LGEP2	SKF	0.8	4700	-

[Grease Rating](#) A detailed explanation of the rating for all greases.

[Report](#) Create a final report including application conditions and selection results.

Feedback

Your comments are very welcome, and will be used to continuously improve the system. You can send your comments to mapro.technical.service@skf.com. Of course, you can always approach SKF experts directly with questions as well.

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Details of LGHB2

Calculated results:	
Rating	82%
Poor performance on	-
Viscosity ratio k (at 80°C)	1.4
Viscosity ratio k (at 120°C)	0.4
Grease L1 life (SKF relubrication interval), hrs	7900
Grease quantity replenish from the side, grams	53
Grease quantity replenish through lubrication holes, grams	21

Calculated results for automated lubricator systems	
Operating hours per day	<input type="text" value="24"/> Recalculate
Contamination	<input type="text" value="Low"/>
Dial Set for SYSTEM 24 , months	
replenish from side	12 for LAGD 60
replenish through lubrication holes (when applicable)	NA
Feed rate for SYSTEM MultiPoint , grams/day	
replenish from side	0.2
replenish through lubrication holes (when applicable)	0.1



Application Conditions	Application Profiles	Links	Help
About			

Property scores

Click on a grease to view calculated results and additional information.

Grease	Supplier	Total Rating	Temp.	Speed	Load	Severe Vibrations	Pumpability
LGHB2	SKF	82%	100%	100%	75%	75%	50%
LGHT2	SKF	78%	100%	100%	75%	50%	50%
LGWA2	SKF	78%	100%	100%	75%	50%	50%
LGWM1	SKF	74%	80%	100%	75%	25%	100%
LGEP2	SKF	74%	80%	100%	50%	75%	75%
LGHP2	SKF	66%	100%	100%	25%	75%	75%
LGMT2	SKF	63%	83%	100%	25%	75%	75%
LGMT3	SKF	56%	90%	100%	25%	75%	25%
LGLT2	SKF	55%	88%	100%	25%	25%	75%
LGEV2	SKF	40%	90%	5%	100%	75%	50%
LGEM2	SKF	40%	90%	5%	100%	75%	50%
LGGB2	SKF	0%	0%	100%	25%	50%	50%
LGFP2	SKF	0%	70%	100%	0%	25%	50%

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Application Methods

Lubrication tools and equipment

Manual Lubrication

- Avoid mistakes with tools that are designed to support the “right” lubrication
- A wide product portfolio for storage, handling, dosing, labelling, analyzing and applying lubricants



Automatic Lubrication



Lubrication management

Safe oil storage and transfer

Extend the life of oil lubricated machinery with SKF Oil storage station

Typical current practices

- Dirty
- Disorganized
- Unsafe
- Excessive
- Costly



SKF proposal

- Clean
- Organized
- Safe
- Optimal
- Financially rewarding



Dialset

SKF DialSet is designed to help you accurately set up SKF automatic lubricators. Providing the correct setting after selecting criteria and grease.

SKF DialSet

Options Print Language About

Dial setting | Dispense rate | Operating conditions | Calculations | Selection chart | Accessories

Bearing Basics

Dimensions: d 340, D 420, B 38

Type: Deep groove ball bearings

Lubricator

LAGD 60, LAGD 125, TLSD 125, TLSD 250, TLMR 120ml, TLMR 380ml, TLMP

Grease

Unspecified, LGHB2, LGHP2, LGFP2, LGEV2, LGWM1, LGMT2, LGWM2, LGEM2, LGEP2, LGLT2, LGWA2, LGMT3, LGGB2

Operating conditions

n - Speed: 500 rpm, Op hrs/day: 24

Contamination/Moisture: Moderate

Load: Moderate

Bearing Operating Temperature: Normal: 63 to 78 °C

Results

t-relub: 10300 hrs, t-relub: Corrected Interval: 3600 hrs

Gp: Grease Quantity: 80.0 g, Qf: Feed rate: 0.53 g/day

Dial Setting LAGD 125

7 Months

Note: 1/1 In case of ingress of contamination, more frequent relubrication than indicated by the relubrication interval will reduce the negative effects of foreign particles. Fluid contaminants (water, process fluids) also call for a reduced interval. In case of severe contamination, continuous relubrication should be considered.

Results

t-relub: 10300 hrs, t-relub: Corrected Interval: 3600 hrs

Gp: Grease Quantity: 80.0 g, Qf: Feed rate: 0.53 g/day

Dial Setting LAGD 125

7 Months

Quit

SKF DialSet

Options Print Language About

Dial setting | Dispense rate | Operating conditions | Calculations | Selection chart | Accessories

Bearing Basics

Dimensions: d 340, D 420, B 38

Type: Deep groove ball bearings

Lubricator

LAGD 60, LAGD 125, TLSD 125, TLSD 250, TLMR 120ml, TLMR 380ml, TLMP

Grease

Unspecified, LGHB2, LGHP2, LGFP2, LGEV2, LGWM1, LGMT2, LGWM2, LGEM2, LGEP2, LGLT2, LGWA2, LGMT3, LGGB2

Operating conditions

n - Speed: 500 rpm, Op hrs/day: 24

Contamination/Moisture: Moderate

Load: Moderate

Bearing Operating Temperature: Normal: 63 to 78 °C

Results

t-relub: 10300 hrs, t-relub: Corrected Interval: 5400 hrs

Gp: Grease Quantity: 80.0 g, Qf: Feed rate: 0.35 g/day

Dial Setting LAGD 125

10 Months

Note: 1/1 In case of ingress of contamination, more frequent relubrication than indicated by the relubrication interval will reduce the negative effects of foreign particles on the grease while reducing the damaging effects caused by overfilling the particles. Fluid contaminants (water, process fluids) also call for a reduced interval. In case of severe contamination, continuous relubrication should be considered.

Results

t-relub: 10300 hrs, t-relub: Corrected Interval: 5400 hrs

Gp: Grease Quantity: 80.0 g, Qf: Feed rate: 0.35 g/day

Dial Setting LAGD 125

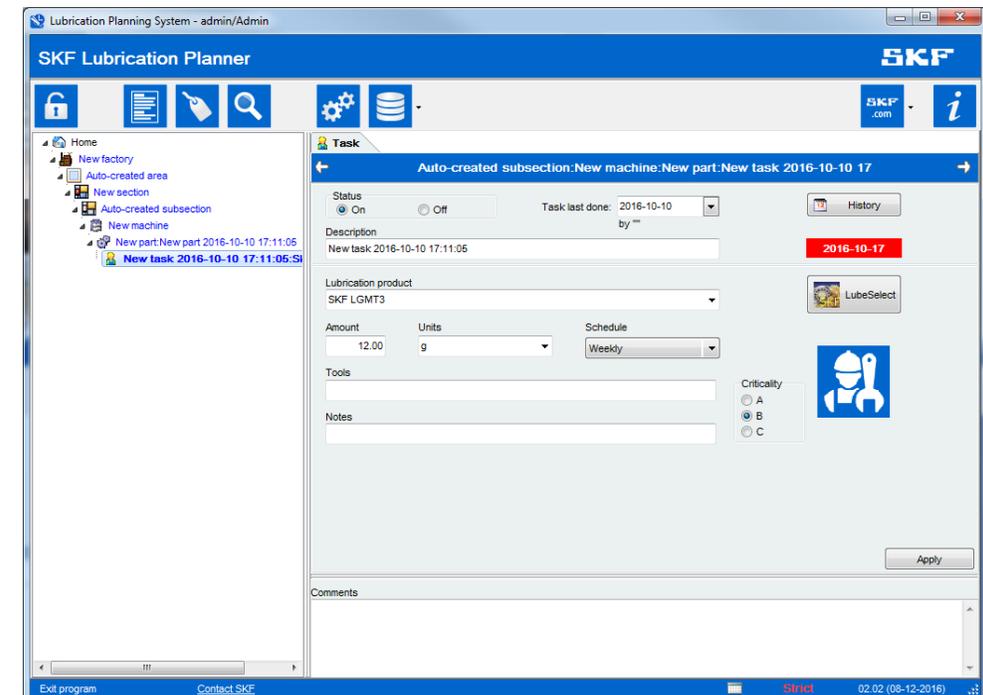
10 Months

Quit

SKF Lubrication planner

A proper lubrication plan can help you to avoid unplanned machine downtime

- Mapping of lubrication points
- Create a color coded identification system
- Generate flexible lubrication task lists
- Keep the history of performed lubrication tasks per point
- Get expert advise on grease selection
- Calculate relubrication quantities and intervals
- Get expert advise on best lubrication procedures
- SKF Lubrication Planner is available in several languages
- Free download

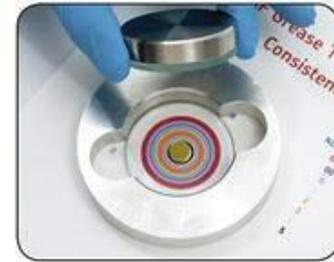
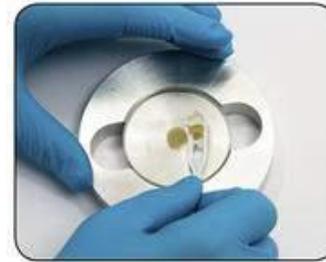


Lubrication test kits

Lubrication tools and equipment



Consistency



Oil Bleeding



Contamination



Services – Maintenance Assessment, Lubrication CNA & audits

Services – Maintenance Assessment, Lubrication CNA



- **Maintenance Assessment**

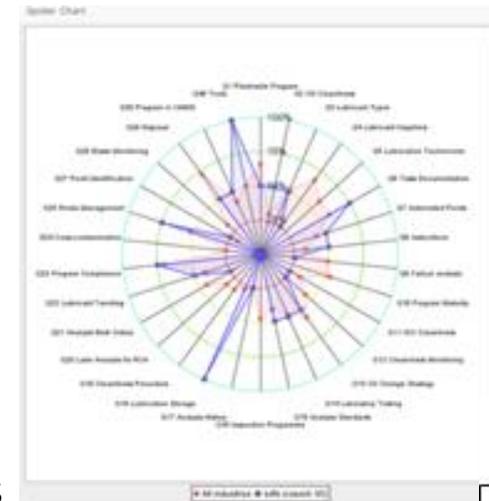
- Assesses the maintenance practices and knowledge at any given company in an objective way
- Areas: Mounting-dismounting of rolling bearings, Lubrication, Condition Monitoring, Machine Alignment
- Provide the customer a better insight in own opportunities for improvement

- **CNA-LM**

- Provides a benchmark
- Raises customer awareness
- Broad identification of potential main issues
- Helps us to select our customers

- **SKF Lubrication Audit**

- Provides detailed information on main problems & inefficiencies
- In a structured way while keeping a long term vision
- Basis for improvement recommendations, lubrication goals & KPI's
- Allows more detailed financial analysis (Potential savings, NPV, PP,...)
- Focus on critical assets first, then the rest.

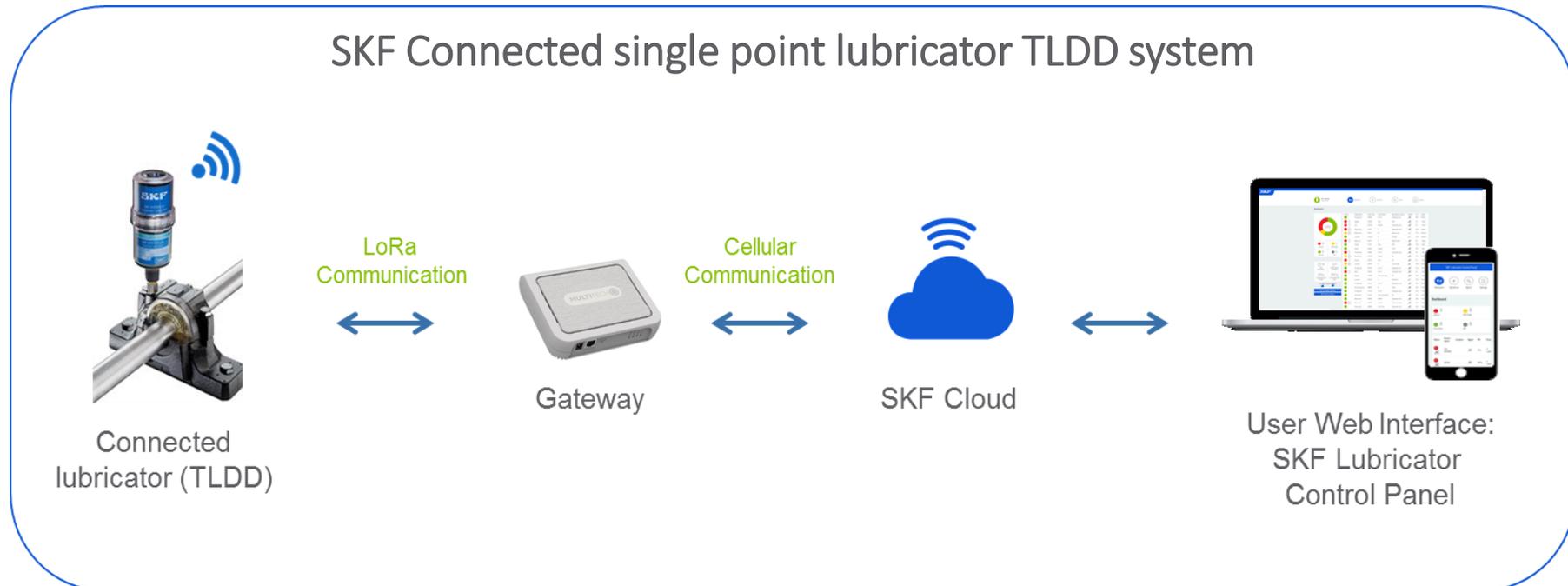


Lubrication trends

Connected products

Manual lubrication is labour intensive and multi-point lubrication systems not always economic.

- Improved safety
- Reduced downtime
- Easy to use
- Reliable lubrication
- Less work intensive
- Cost optimal lubrication
- Improved safety



Connected S24



- Connected drive-unit with colored status LEDs
- Different versions for different regions: US & EU
- Controlled and monitored via Lubricator Control Panel

- Pre-filled cartridges available with 10x SKF lubricants
- Custom filled cartridges conditionally possible
- Two cartridge sizes available 125 ml and 250 ml
- Protection against contamination ingress (IP 65)
- Batteries included in re-fill set (0 to +50° C)
- Support flange required for enhanced sturdiness available for grease (TLSD 1-SP) and oil (TLSD 1-SPV)
- Adjustable dispense rate (1 to 12 months)

Connected S24



- Web application for use on PC, tablet or phone
- Dashboard for quick overview of all lubricators with alarm, location, lubricant level and signal strength
- Detailed view of each lubricator to modify the settings or upload a photo
- Search functionality by asset tag, asset name, lubricator ID or application
- Email notifications (daily, weekly, yearly) with lubricators in alarm/warning
- Multi-user functionality

SKF®