

The right lubricant for a longer service life

# perma Lubricants

perma-tec offers a wide range of high quality, high performance lubricants to meet the lubrication requirements of different industries, applications, and operating environments. Our lubricants are developed especially for the use in perma automatic lubrication systems. They are tested under laboratory conditions and in real applications to ensure optimal performance.



Food and  
pharma industry



Bio-degradable for  
all applications

## Oil

perma Code Name Identification according to DIN 51 517-3 →Lubricant properties	Lubricant	Base oil	Operating temperature (°C)	Viscosity at +40 °C [mm <sup>2</sup> /s]	Applications			
					Sliding bearings / guides	Open gears / gear racks	Spindles	Chains
<b>S014 High performance oil</b> → Effective lubrication even at high temperatures → Good adhesion and penetration properties → Little residue	Oil	PAO + Ester	-20 to +250	320	-	-	-	✓
<b>S032 Multipurpose oil</b> CLP 100 → FZG scuffing load stage >12 / high micro pitting resistance → Aging and oxidation resistance → Good wear protection for gear teeth and rolling bearings	Oil	Mineral-oil	-5 to +100	100	✓	✓	✓	✓
<b>S064 Bio oil, low viscosity</b> CLP E 100 → Rapidly biodegradable → Good wear protection → Good viscosity / temperature behavior	Oil	Ester	-30 to +110	100	✓	✓	✓	✓
<b>S069 Bio oil, high viscosity</b> CLP E 460 → Rapidly biodegradable → Very adhesive → Good viscosity / temperature behavior	Oil	Ester	-20 to +110	460	✓	✓	✓	✓
<b>S070 Food grade oil NSF H1</b> CLP H 220 → Excellent aging and oxidation stability → Neutral towards sealing materials → Good wear protection	Oil	PAO + Ester	-30 to +120	220	✓	✓	✓	✓

### Additives

Additives are organic or inorganic compounds mixed into the base oil to enhance the existing oil properties or to impart new properties. Examples: AW (anti-wear) and EP (extreme pressure) additives. Additives are selected based on the requirements of the application.

### Operating temperature

The safe function of components can be guaranteed within this temperature range. Using the lubricant outside of this range can lead to damages.

### Speed index

The speed factor indicates the permissible bearing speed range for lubricants. The perma lubricant overview indicates the max. speed for grease lubrication of deep groove ball bearings. The  $n \times dm$  factor is a criterion for the selection of the grease taking into consideration bearing size and operating speed.

Calculation:  $n \times dm = \text{speed factor}$   $dm = (D + d) \div 2$   
 $n$  = Operating speed (1/min)  
 $D$  = Outside bearing diameter  
 $d$  = Inside (bore) bearing diameter  
 $dm$  = Bearing size

→ Special lubricants are available upon request  
 → The perma SELECT software helps you choose the right lubricant

(1) Please check compatibility of lubricant and sealing material.

## Grease

perma Code Name Identification according to DIN 51 502 → Lubricant properties	NLGI-grade	Thickener	Base oil	Operating temperature range (°C)	Viscosity at +40 °C [mm <sup>2</sup> /s]	Speed index	Applications					
							Roller bearings	Sliding bearings / guides	Linear guides	Open gears / gear racks	Spindles	Shaft seals (1)
<b>SF01 Multipurpose grease</b> KP2K-30 → Resistant to salt water → Free of heavy metal and silicone → Wear-reducing EP additives	2	Li / Ca	Mineral-oil	-30 to +130	220	350,000	✓	✓	✓	-	✓	✓
<b>SF02 Extreme pressure grease</b> KPF2K-30 → Good load carrying capacity → Resistant to ageing and oxidation → Good emergency lubrication properties	2	Li + MoS <sub>2</sub>	Mineral-oil	-30 to +120	105	350,000	-	✓	-	✓	-	-
<b>SF03 High temp. grease</b> KE1T-20 → High thermal stability → Good oil retention → High water resistance	2	PHS + solids	Ester + PFPE	-20 to +220	420	300,000	✓	✓	-	-	-	-
<b>SF04 High performance grease</b> K1S-20 → High performance for vibrations and shock loads → Resistant to aggressive media → Multipurpose grease for extreme requirements	0/1	PHS	Mineral-oil + PAO	-20 to +160	500	200,000	✓	✓	✓	✓	✓	-
<b>SF05 High temp. / Extreme pressure grease</b> KPF1S-20 → High performance for vibrations and shock loads → Good emergency lubrication properties → Excellent aging and oxidation resistance	0/1	PHS + MoS <sub>2</sub>	Mineral-oil + PAO	-20 to +160	500	200,000	✓	✓	-	✓	-	-
<b>SF06 Liquid grease</b> K0K-20 → Good water resistance → High wear protection → Easy feedability	0	Al-Com.	Mineral-oil	-20 to +130	220	300,000	✓	✓	✓	-	✓	-
<b>SF08 High speed grease</b> KHC2N-50 → Resistant to aging and oxidation → Good wear protection → High speed factor	2	Ca-Com.	PAO	-40 to +140	100	600,000	✓	✓	-	-	-	-
<b>SF09 Multipurpose bio grease</b> KPE2K-40 → Rapidly biodegradable → Good low-temperature properties → High aging resistance	2	PHS	Ester	-40 to +140	100	300,000	✓	✓	-	✓	-	-
<b>SF10 Food grade grease NSF H1</b> K1K-40 → Synthetic → Especially for the food / pharma industry → Good feedability	1	Al-Com.	PAO	-45 to +120	150	300,000	✓	✓	✓	✓	-	-

### Base oil

Base oil is the main component of a grease and influences its behavior. Base oils may be mineral oil, hydrocracked oil, polyalphaolefin (PAO) oil, or synthetic ester oil.

### Base oil viscosity

Base oil viscosity indicates the flow capability of the base oil. Low viscosity base oils are used for very high speeds. High viscosity base oils are used for high load applications. The viscosity of a typical roller bearing grease at +40 °C is between 15 and 500 mm<sup>2</sup>/s.

### NLGI grade

Greases are divided into various consistency grades (NLGI grade). High consistency = stiff grease = high NLGI grade  
 Low consistency = soft grease = low NLGI grade  
 NLGI starts at 000 (liquid) to 6 (very stiff).  
 Greases up to NLGI grade 2 are suitable for use in perma lubrication systems.

### Thickeners

The thickener acts like a sponge. It holds the individual components of the grease together and ensures that the oil stays at the contact point.