

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 ² /s] | Applications | | | |
|---|-----------|-----------------|-------------------------------|---|------------------------------|----------------------------|----------|--------|
| | | | | | Sliding bearings / guides | Open gears / gear racks | Spindles | Chains |
| S014 High performance oil → Effective lubrication even at high temperatures → Good adhesion and penetration properties → Little residue | Oil | PAO + Ester | -20 to +250 | 320 | - | - | - | ✓ |
| S032 Multipurpose oil 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 | ✓ | ✓ | ✓ | ✓ |
| S064 Bio oil, low viscosity CLP E 100 → Rapidly biodegradable → Good wear protection → Good viscosity / temperature behavior | Oil | Ester | -30 to +110 | 100 | ✓ | ✓ | ✓ | ✓ |
| S069 Bio oil, high viscosity CLP E 460 → Rapidly biodegradable → Very adhesive → Good viscosity / temperature behavior | Oil | Ester | -20 to +110 | 460 | ✓ | ✓ | ✓ | ✓ |
| S070 Food grade oil NSF H1 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 ² /s] | Speed index | Applications | | | | | |
|---|------------|------------------------|-------------------|----------------------------------|--|-------------|-----------------|---------------------------|---------------|-------------------------|----------|-----------------|
| | | | | | | | Roller bearings | Sliding bearings / guides | Linear guides | Open gears / gear racks | Spindles | Shaft seals (1) |
| SF01 Multipurpose grease 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 | ✓ | ✓ | ✓ | - | ✓ | ✓ |
| SF02 Extreme pressure grease KPF2K-30 → Good load carrying capacity → Resistant to ageing and oxidation → Good emergency lubrication properties | 2 | Li + MoS ₂ | Mineral-oil | -30 to +120 | 105 | 350,000 | - | ✓ | - | ✓ | - | - |
| SF03 High temp. grease KE1T-20 → High thermal stability → Good oil retention → High water resistance | 2 | PHS + solids | Ester + PFPE | -20 to +220 | 420 | 300,000 | ✓ | ✓ | - | - | - | - |
| SF04 High performance grease 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 | ✓ | ✓ | ✓ | ✓ | ✓ | - |
| SF05 High temp. / Extreme pressure grease KPF1S-20 → High performance for vibrations and shock loads → Good emergency lubrication properties → Excellent aging and oxidation resistance | 0/1 | PHS + MoS ₂ | Mineral-oil + PAO | -20 to +160 | 500 | 200,000 | ✓ | ✓ | - | ✓ | - | - |
| SF06 Liquid grease K0K-20 → Good water resistance → High wear protection → Easy feedability | 0 | Al-Com. | Mineral-oil | -20 to +130 | 220 | 300,000 | ✓ | ✓ | ✓ | - | ✓ | - |
| SF08 High speed grease KHC2N-50 → Resistant to aging and oxidation → Good wear protection → High speed factor | 2 | Ca-Com. | PAO | -40 to +140 | 100 | 600,000 | ✓ | ✓ | - | - | - | - |
| SF09 Multipurpose bio grease KPE2K-40 → Rapidly biodegradable → Good low-temperature properties → High aging resistance | 2 | PHS | Ester | -40 to +140 | 100 | 300,000 | ✓ | ✓ | - | ✓ | - | - |
| SF10 Food grade grease NSF H1 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 mm²/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.