






Greases

Name → Lubricant properties → Labelling as per DIN 51502	NLGI grade	Thickener	Base oil	Operating temperature (°C)	Base oil viscosity at +40 °C (mm ² /s)	Speed index	 Roller bearings	 Sliding bearings Sliding guides	 Linear guides	 Open gears Gear racks	 Spindles
perma Multipurpose grease SF01 (KP2K-30) → Powerful multipurpose grease → Reduced wear by use of EP additives → Free of heavy metals & silicone	2	Li / Ca	Mineral oil	-30 to +130	220	300,000	✓	✓	✓	-	✓
perma Extreme pressure grease SF02 (OGF2K-30) → High-pressure grease with MoS ₂ → Ageing- & oxidation-resistant → Good dry-running properties	2	Li + MoS ₂	Mineral oil	-30 to +120	100	350,000	-	✓	-	✓	-
perma High temp. grease SF03 (KE2T-20) → Good oil retention → High thermal stability → Good corrosion protection	2	PHS + PTFE	Ester + PFPE	-20 to +220	420	300,000	✓	✓	-	-	-
perma High performance grease SF04 (K1P-20) → Multipurpose lubricant for extreme requirements → Powerful at high temperatures & vibrations → Resistant to aggressive media	0/1	PHS	Mineral oil + PAO	-20 to +160	500	200,000	✓	✓	✓	✓	✓
perma High temp. / Extreme pressure grease SF05 (KPF1P-20) → Multipurpose grease for extreme requirements → High load-carrying capacity → Good emergency lubrication properties (solid lubricant particles)	0/1	PHS + MoS ₂	Mineral oil + PAO	-20 to +160	500	200,000	✓	✓	-	✓	-
perma Liquid grease SF06 (K0K-20) → Good water resistance → High wear protection → Easily pumped	0	Al com.	Mineral oil	-20 to +130	220	300,000	✓	✓	✓	-	✓
perma High speed grease SF08 (KHC2N-40) → High speed index → Low friction coefficient due to synthetic base oil → Broad operating temperature range	2	Ca com.	PAO	-40 to +140	100	600,000	✓	✓	-	-	-
perma Multipurpose bio grease SF09 (KPE2N-40) → Rapidly biodegradable → Water hazard class WGK 1 → Fully synthetic	2	PHS	Ester	-40 to +140	120	300,000	✓	✓	-	✓	-
perma Food grade grease H1 SF10 (KHC1K-40) → Low-temperature resistance → Good wear protection → Good water resistance	1	Al com.	PAO	-45 to +120	150	500,000	✓	✓	✓	✓	✓

Base oil

The base oil determines the properties and performance of the lubricant. Base oils are mineral oils, hydrocracked oils, polyalphaolefin (PAO) oils or synthetic ester oils.

Basic viscosity

The viscosity indicates the flowability 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

The NLGI grade (consistency number) denotes the consistency of a lubrication grease. Grades range from 000 (very fluid) to 6 (very hard). Greases up to NLGI grade 2 can be used in perma lubrication systems.

Thickener

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.



ISO 21469 Certified
Nonfood Compounds
Program Listed (H1)
Registration No. 153375



Oils

Name → Lubricant properties → Labelling as per DIN 51 517-3	Base oil	Operating temperature [°C]	Viscosity at +40 °C [mm ² /s]	Sliding bearings Sliding guides	Open gears Gear racks	Spindles	Chains
perma High performance oil S014 (CLPE 320) → Lubricates effectively even at high operating temperatures → Good viscosity / temperature behaviour → Special creep properties ensure rapid film formation	Ester oil + synthetic hydrocarbon oil	-20 to +250	320	-	-	-	✓
perma Multipurpose oil S032 (CLP 100) → High performance transmission & multipurpose oil → Ageing- & oxidation-resistant → Good wear protection for gear teeth & roller bearings	Mineral oil	-5 to +100	100	✓	✓	✓	✓
perma Bio oil, low viscosity S064 (CLPE 100) → Low-viscosity multipurpose oil → Rapidly biodegradable → Good viscosity / temperature behaviour	Ester oil	-30 to +110	100	✓	✓	✓	✓
perma Bio oil, high viscosity S069 (CLPE 460) → High-viscosity multipurpose oil → Rapidly biodegradable → Good wear protection	Ester oil	-20 to +110	460	✓	✓	✓	✓
perma Food grade oil H1 S070 (CLPH 220) → Broad operating temperature range → Very good ageing & oxidation resistance → Good wear protection	PAO + ester oil	-30 to +120	220	✓	✓	✓	✓

Additives

The tribological properties of the lubricant are enhanced with additives. The additives, such as anti-wear (AW) additives or EP additives, are mixed with the base oil.

Additives are selected specifically for each particular application to ensure the required properties. Depending on the application concerned, additives can be used for specific purposes, such as increasing pressure resistance and shear strength.

Speed index = dk

The speed index indicates the maximum speed for various bearing types for which a specific lubricant is suitable. perma overviews specify the speed indexes for grease lubrication of deep groove ball bearings.

Calculation:

$$n \times dm = \text{speed factor } dk \quad dm = (D + d) + 2$$

n = Operating speed (1/min); D = Outside bearing diameter (mm);
d = Inside (bore) bearing diameter (mm)

Operating temperature

The operating temperature is the temperature range within which the lubricant is guaranteed to function reliably. Using the lubricant outside this range can lead to damage.