

KLÜBEROIL GEM 1-46 N 200 LTR

Product group: **685** Product number: **210065**

KLÜBEROIL GEM 1-46 N is a gear and multipurpose oil designed for maximum protection of your gear and bearings. Infused with KlüberComp Lube Technology, it offers excellent wear, scuffing, micropitting, oxidation and ageing resistance, so your parts last longer — and more reliably.



Product information

As modern gears become increasingly powered, they demand more from your lubricants to meet their needs. Your gears likely face high power densities and long-running periods among other challenging conditions not uncommon in the offshore and maritime industry.

KLÜBEROIL GEM 1-46 N was formulated with selected mineral oils, high-grade raw materials and additives that help your gears operate reliably even under such demands. Offering a high scuffing load capacity of API GL4 if ISO VG 150 or higher is selected, it ensures that your gears remain protected against scuffing damage even at extremely high peak loads, vibrations, or oscillations, if no running-in was performed.

Moreover, with high micropitting resistance of GFT ≥ 10 (according to FVA 54/7, tested at 90, 60 and 40°C), KLÜBEROIL GEM 1-46 N protects your parts from damage even in high loads. Supported by good shear stability, it offers a strong and reliable lubricant film formation that protects your parts from harm caused by intense, sustained friction and/or extreme temperatures.

Coupled with its built-in wear and corrosion protection and low-foaming tendency, you can expect your gears and rolling bearings to enjoy longer service lives, while you deal with lesser maintenance and repair costs.

The raw materials in KLÜBEROIL GEM 1-46 N possess excellent ageing and oxidation resistance. Compared to mineral-oil-based standard gear oils, KLÜBEROIL GEM 1-46 N offers significantly longer service lives, which means longer service intervals for you.

Having already been granted approvals by numerous gear OEMs, KLÜBEROIL GEM 1-46 N makes for an easy and hassle-free switch. As it exceeds the CLP requirements according to DIN 51517-3, you may replace your corresponding gear oils with KLÜBEROIL GEM 1-46 N without needing to consult with the gear manufacturer, provided the general application notes are observed.

KLÜBEROIL GEM 1-46 N is also compatible with Freudenberg seals made of 72 NBR 902, 75 FKM 585, 75 FKM 260466 and 75 FKM 170055. They are tested statically and dynamically resistant to the lubricant, preventing leakage and oil contamination.

KLÜBEROIL GEM 1-46 N is used and recommended by brands around the world such as Siemens-Flender, Siemens Geared Motors, FLSmidth MAAG Gears, SEW Eurodrive, Getriebebau Nord, Lenze Gears, Stöber Antriebstechnik, ZAE Antriebssysteme, Moventas, and Bonfiglioli.

Features

- Scuffing and wear protection
- Micropitting resistance
- Shear stability
- Ageing and oxidation resistance
- Low foaming tendency
- Good elastomer compatibility
- Compliant with DIN 51517-5

Benefits

- Protects your gears and rolling bearing from wear, scuffing and micropitting, extending their service lives
- Strong and reliable lubricant film formation
- High-performing under high loads
- Reduces your maintenance and repair costs
- Reduces leakage and contamination
- Easy to switch to without excessive consultation with gear manufacturers

Specification

Physical properties

Density, DIN 51757 at 15 °C [kg/m ³]	~ 870
Kinematic viscosity of the base oil, DIN 51562 pt. 01/ASTM D-445/ASTM D 7042, 100 °C [mm ² /s]	~7
Kinematic viscosity of the base oil, DIN 51562 pt. 01/ASTM D-445/ASTM D 7042, 40 °C [mm ² /s]	~ 46

Technical data

Classification acc. to ISO 12925-1	CKC 46
ISO viscosity grade of the base oil, DIN ISO 3448	46
Marking acc. to DIN 51502	CLP 46
Shelf life [months]	60
Viscosity index, DIN ISO 2909	≥90

Dimensions/Weight

Packing Size	200 ltr
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Performance data

Ageing properties, ASTM D 2893, increase in viscosity [%]	≤6
Anticorrosive properties on steel, DIN ISO 7120, method A, steel, 24 h/60 °C	no rust corrosion degree
Copper corrosion, DIN EN ISO 2160, 3 h/100 °C	1 - 100 corrosion degree
FAG FE8 rolling bearing test, DIN 51819-3, D 7,5/80-80, wear of cage [mg]	≤200
FAG FE8 rolling bearing test, DIN 51819-3, D 7,5/80-80, wear of rolling element [mg]	<5
Flash point, DIN EN ISO 2592, Cleveland, open-cup apparatus [°C]	≥200
Foam test, ASTM-D 892, ISO 6247, sequence I/24 °C [ml]	≤100/10
Foam test, ASTM-D 892, ISO 6247, sequence II/ 93.5 °C [ml]	≤100/10
Foam test, ASTM-D 892, ISO 6247, sequence III/24°C [ml]	≤100/10
FZG scuffing test, based on DIN ISO 14635-1, A/16.6/90, scuffing load stage	≥12
FZG scuffing test, based on DIN ISO 14635-1, A/8.3/90, scuffing load stage	≥14
Lower service temperature	-15°C / 5°F
Pour point, DIN ISO 3016 [°C]	≤-20
Upper service temperature	100°C / 212°F

Directions for use

KLÜBEROIL GEM 1-46 N was developed for the lubrication of spur, bevel, hypoid, and planetary gears that are subject to high loads. It may also be used to lubricate standard worm gears as defined in DIN 3996.

Other applications of KLÜBEROIL GEM 1-46 N include the lubrication of plain and rolling bearings, all kinds of toothed couplings, chains, guideways, joints, spindles and pumps.

Apply KLÜBEROIL GEM 1-46 N by immersion, immersion circulation or injection. Alternatively, you may use drip-feed oilers, brushes, oil cans or suitable automatic lubricating systems.

When using automatic lubricating systems, please heed the manufacturer's instructions regarding the maximum permissible viscosity. The low-viscosity options are suitable for oil mist lubrication.

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