Wilhelmsen Ships Service

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KLÜBERSYNTH GEM 4-320 N LWC 200 LTR

Product group: **683** Product number: **210052**

KLÜBERSYNTH GEM 4-320 N LWC is a synthetic, high-performance oil ideal for the lubrication of various gear components. Designed with KlüberComp Lube Technology, it offers excellent scuffing, wear, ageing, oxidation and micropitting resistance — coupled with good viscosity-temperature behaviour, too.

Product information

Modern gears are facing ever-increasing challenges, requirements, and power densities. High loads, pressures, and operating temperatures are only some of the extreme and tough conditions they work under, which make them vulnerable to damage. KLÜBERSYNTH GEM 4-320 N LWC was hence developed using KlüberComp Lube Technology with select high-grade raw materials and advanced additives to tackle these demands.

Composed with polyalphaolefin, KLÜBERSYNTH GEM 4-320 N LWC offers high scuffing load capacity, helping your gears stay protected against scuffing even at extremely high peak loads, vibrations, or oscillations. It also boasts excellent wear protection for both your gears and rolling bearings, and powerful micropitting resistance of FT ≥ 10 (according to FVA 54/7, tested at 90, 60 and 40°C). This helps your gears remain well-protected even under high loads, ensuring a long service life, and lower maintenance and repair costs.

Moreover, KLÜBERSYNTH GEM 4-320 N LWC has great ageing and oxidation resistance, due to the specially selected raw materials in its formulation. As such, you can expect to enjoy a much longer service life with it than with mineral oils, and longer service intervals too. Bolstered with a low foaming tendency and anti-corrosive properties, it can provide you with smooth and problem-free gear operations.

KLÜBERSYNTH GEM 4-320 N LWC's good viscosity-temperature behaviour also empowers it to form a sufficient lubricant film across a wide service temperature range — including elevated, high ones. A single viscosity grade can cover both low and high temperatures in many applications.

With optimised friction behaviour enabled by carefully chosen base oils and additives, KLÜBERSYNTH GEM 4-320 N LWC reduces power losses. This means lower oil temperatures, minimized energy consumption, and overall better application efficiency for you. In fact, based on current testing, you can achieve a reduction of oil temperature from 85°C with conventional oil (mineral oil) to 80°C with KLÜBERSYNTH GEM 4-320 N LWC.

Other field tests carried out across various facilities using gearboxes also demonstrated specific 1% - 6% energy savings with this oil — translating to lower operating costs for you. Additionally, KLÜBERSYNTH GEM 4-320 N LWC helps protect gear components strongly against WEC, preserving their service and performance.

Having already been granted approvals by numerous gear OEMs, KLÜBERSYNTH GEM 4-320 N LWC 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 KLÜBERSYNTH GEM 4-320 N LWC without needing to consult with the gear manufacturer, provided the general application notes are observed.

KLÜBERSYNTH GEM 4-320 N LWC 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.

KLÜBERSYNTH GEM 4-320 N LWC is recommended by brands around the world like Siemens-Flender, SEW Eurodrive, Getriebebau Nord, Lenze, Moventas, Rexnord, Hansen, Brevini, Stöber Antriebstechnik, ZAE Antriebssysteme, David Brown and FLSmidth MAAG Gears.

Features

- Multi-purpose
- Scuffing, wear and corrosion protection
- Micropitting resistance
- Shear stability
- Ageing and oxidation resistance
- Good viscosity-temperature behaviour
- Low foaming tendency
- Optimised friction behaviour
- Good elastomer compatibility
- Compliant with DIN 51517-4

Benefits

- Versatile
- Protects your gears from wear, corrosion, scuffing, and micropitting, extending their service lives
- Strong and reliable lubricant film formation
- High-performance under high loads and temperatures
- Reduces power losses and energy consumption
- Protects your gear components against WEC
- Reduces leakage and contamination
- Easy to switch to without excessive consultation with gear manufacturers

Specification

General

Invent Hazard Material (IMO/EU) classification	C-3

Physical properties

Density, DIN 51757 at 15 °C [kg/m³]	~ 860
Kinematic viscosity of the base oil, DIN 51562 pt. 01/ASTM D-445/ASTM D 7042, 100 °C [mm²/s]	~ 36
Kinematic viscosity of the base oil, DIN 51562 pt. 01/ASTM D-445/ASTM D 7042, 40 °C [mm²/s]	~ 320

Dimensions/Weight

Packing Size	200 ltr

Technical data

Classification acc. to ISO 12925-1	CKC 320
ISO viscosity grade of the base oil, DIN ISO 3448	320
Marking acc. to DIN 51502	CLP HC 320
Shelf life [months]	24
Viscosity index, DIN ISO 2909	≥155

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 FEB rolling bearing test, DIN 51819-3, D 7,5/80-80, wear of cage [mg]	≤200
FAG FEB 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	-30°C / -22°F
Pour point, DIN ISO 3016 [°C]	≤-35
Upper service temperature	140°C / 284°F

Documents

SDoC and MD for IHM

Directions for use

KLÜBERSYNTH GEM 4-320 N LWC was developed for the lubrication of spur, bevel, hypoid and planetary gears that are subject to high loads. It is also suitable to lubricate standard worm gears as defined in DIN 3996.

You may also use KLÜBERSYNTH GEM 4-320 N LWC for the lubrication of plain and rolling bearings, all kinds of toothed couplings, chains, guideways, joints, spindles and pumps, especially in applications where the equipment is exposed to elevated temperatures or pronounced temperature fluctuations.

Apply KLÜBERSYNTH GEM 4-320 N LWC by immersion, immersion circulation or injection. The use of drip-feed oilers, brushes, oil cans or suitable automatic lubricating systems is also possible. When using automatic lubricating systems, please heed the manufacturer's instructions regarding the maximum permissible viscosity. For oil mist lubrication, opt for the low-viscosity selections.

KLÜBERSYNTH GEM 4-320 N LWC is miscible with mineral oils. However, for it to deliver its full performance, any residues of a previously used mineral oil should not exceed 5% in quantity.