

Klübersynth MEG 4

Advanced synthetic high-performance gear and multipurpose oil with KlüberComp Lube Technology



Your benefits at a glance

- High scuffing protection
- Excellent wear protection for gears and rolling bearings
- High micropitting protection
- Excellent ageing and oxidation resistance
- Excellent viscosity-temperature behavior for expanded service temperature range
- Good shear stability for reliable lubricant film formation
- Energy savings due to optimized friction behavior
- Increased reliability due to low foaming tendency and good elastomer compatibility
- Approvals by several gear OEMs

Your requirements - our solution

Klübersynth MEG 4 is an advanced synthetic high-performance gear and multipurpose oil based on mPAO satisfying the growing requirements and increasing power density of modern gears. Klübersynth MEG 4 includes KlüberComp Lube Technology*, i.e. it is based on especially high-grade raw materials and advanced additives, enabling maximum performance in the lubrication of all gear components.

Klübersynth MEG 4 clearly exceeds CLP requirements according to DIN 51517-3. Corresponding gears can be switched to Klübersynth MEG 4 without prior consultation with the gear manufacturer provided the general application notes are observed.

Klübersynth MEG 4 offers high scuffing load capacity. Gears are sufficiently protected against scuffing even at extremely high peak loads, vibrations or oscillations. The excellent wear protection of both gears and rolling bearings ensures that the service life calculated for the lubricated components is achieved, leading to lower maintenance and repair costs. The oil's high micropitting resistance of GFT ≥ 10 according to FVA 54/7 offers sufficient protection to gears that are subject to high loads and would normally be susceptible to this type of damage.

Klübersynth MEG 4 offers a much longer service life than mineral oils due to the excellent ageing and oxidation resistance of the selected raw materials; thus service intervals can be extended and maintenance costs reduced. The product's low foaming tendency and anti-corrosive properties enable problem-free gear operation.

Freudenberg seals made of 72 NBR 902, 75 FKM 585 and 75 FKM 170055 are statically and dynamically resistant to Klübersynth MEG 4, preventing leakage and oil contamination.

The excellent viscosity-temperature behavior supports the formation of a sufficient lubricant film across a wide service temperature range, even at elevated and high temperatures. Therefore, a single viscosity grade can cover both very low and high temperatures in many applications.

In the efficiency test according to FVA 345, Klübersynth MEG 4 shows lower coefficients of friction compared to gear oils based on mineral oil or conventional polyalphaolefin (PAO). The optimized friction behavior enabled by the carefully selected base oils and additives reduces power losses and improves application efficiency. This leads to lower oil temperatures and reduced energy consumption.

Klübersynth MEG 4 has been developed to fulfill the latest gear OEM requirements. It is approved by Flender, Getriebebau Nord, FLSmidth MAAG Gear, and Renk. Further approvals are in progress.

By using Klübersynth MEG 4 you can benefit from several advantages that will help you save costs easily and efficiently.

* For further information, please see our flyer: KlüberComp Lube Technology – Gear oils meeting the highest requirements.

Application

Klübersynth MEG 4 was specially developed for the lubrication of spur, bevel and planetary gears that are subject to high loads. Such gears are frequently used in all industrial segments, e.g. steel, mining and sugar industries. It is also used for the lubrication of standard worm gears as defined in DIN 3996.

Klübersynth MEG 4 can also be used for the lubrication of plain and rolling bearings, all kinds of toothed couplings, chains, guideways,

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joints, spindles and pumps, especially in applications where the equipment is exposed to very low or high temperatures or pronounced temperature fluctuations.

Application notes

Klübersynth MEG 4 can be applied by means of 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 note the manufacturer's instructions regarding the maximum permissible viscosity.

Klübersynth MEG 4 is miscible with mineral oils. However, for the Klübersynth MEG 4 to deliver its full performance, any residues of a previously used mineral oil should not exceed 5 % in quantity.

For use at permanent temperatures of 80 °C max., seals made of NBR may be used. For higher temperatures, seals made of FKM should be chosen. It should be noted that elastomers from one or several manufacturers can behave differently; therefore tests should be performed.

For checking the contact pattern during running-in, the inspection paint Klübertop P 39-462 Spray (Art. No. 081295) can be used.

When changing over to Klübersynth MEG 4, residues of a previously used gear oil can be more easily removed if Klüber Summit Varnasolv HV (Article No. 050135) is added.

Material safety data sheets

Material safety data sheets can be requested via our website www.klueber.com. You may also obtain them through your contact person at Klüber Lubrication.

Pack sizes	Klübersynth MEG 4-100	Klübersynth MEG 4-150	Klübersynth MEG 4-220	Klübersynth MEG 4-320
Canister 20 l	+	+	+	+
Drum 200 l	+	+	+	+

Pack sizes	Klübersynth MEG 4-460	Klübersynth MEG 4-680	Klübersynth MEG 4-1000	Klübersynth MEG 4-1500
Canister 20 l	+	+	+	+
Drum 200 l	+	+	+	+

Characteristics	Klübersynth MEG 4-100	Klübersynth MEG 4-150	Klübersynth MEG 4-220	Klübersynth MEG 4-320
Article number	012412	012403	012404	012405
Service temperature, lower limit	-50 °C	-50 °C	-50 °C	-45 °C
Service temperature, upper limit	140 °C	140 °C	140 °C	140 °C
Designation, DIN 51502	CLP HC 100	CLP HC 150	CLP HC 220	CLP HC 320
Designation, ISO 12925-1	CKC 100	CKC 150	CKC 220	CKC 320
Density, DIN 51757, 15°C	approx. 839 kg/m ³	approx. 841 kg/m ³	approx. 843 kg/m ³	approx. 845 kg/m ³
Flash point, DIN EN ISO 2592, Cleveland open cup	≥ 200 °C	≥ 200 °C	≥ 200 °C	≥ 200 °C
Foam test, ISO 6247 / ASTM D892, 24°C, sequence I	≤ 100/10 ml	≤ 100/10 ml	≤ 100/10 ml	≤ 100/10 ml
Foam test, ISO 6247 / ASTM D892, 24°C, sequence III	≤ 100/10 ml	≤ 100/10 ml	≤ 100/10 ml	≤ 100/10 ml

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Characteristics	Klübersynth MEG 4-100	Klübersynth MEG 4-150	Klübersynth MEG 4-220	Klübersynth MEG 4-320
Foam test, ISO 6247 / ASTM D892, 93.5°C, sequence II	≤ 100/10 ml	≤ 100/10 ml	≤ 100/10 ml	≤ 100/10 ml
ISO viscosity grade, DIN ISO 3448, ISO VG	100	150	220	320
Kinematic viscosity, DIN EN ISO 3104 / DIN 53000-1, based on standard / ASTM D445 / ASTM D7042, 100°C	approx. 15.4 mm ² /s	approx. 22 mm ² /s	approx. 28.5 mm ² /s	approx. 42 mm ² /s
Kinematic viscosity, DIN EN ISO 3104 / DIN 53000-1, based on standard / ASTM D445 / ASTM D7042, 40°C	approx. 100 mm ² /s	approx. 150 mm ² /s	approx. 220 mm ² /s	approx. 320 mm ² /s
Viscosity index, DIN ISO 2909	≥ 150	≥ 160	≥ 165	≥ 170
Copper corrosion, DIN EN ISO 2160, 3 h, 100°C	1 - 100 - 3 corrosion degree	1 - 100 - 3 corrosion degree	1 - 100 - 3 corrosion degree	1 - 100 - 3 corrosion degree
Steel corrosion, DIN ISO 7120 / ASTM D665, method A, 24 h, 60°C	rust-free	rust-free	rust-free	rust-free
Pour point, DIN ISO 3016, ASTM D97, ASTM D5950, ASTM D7346	≤ -50 °C	≤ -50 °C	≤ -50 °C	≤ -45 °C
Ageing resistance, DIN EN ISO 4263-4, TOST test, 312 h, 95°C, increase in viscosity at 100°C	≤ 6 %	≤ 6 %	≤ 6 %	≤ 6 %
FAG FE8 rolling bearing test, DIN 51819-3, D-7.5 / 80-80, wear of cage	≤ 200 mg	≤ 200 mg	≤ 200 mg	≤ 200 mg
FAG FE8 rolling bearing test, DIN 51819-3, D-7.5 / 80-80, wear of rolling elements	< 5 mg	< 5 mg	< 5 mg	< 5 mg
FZG scuffing test, DIN ISO 14635-1, based on standard, A / 16.6 / 90, failure load stage	≥ 12	≥ 14	≥ 14	≥ 14
FZG scuffing test, DIN ISO 14635-1, A / 8.3 / 90, failure load stage	≥ 12	≥ 14	≥ 14	≥ 14
Minimum shelf life from the date of manufacture - in a dry, frost-free place and in the unopened original container, approx.	36 months	36 months	36 months	36 months

Characteristics	Klübersynth MEG 4-460	Klübersynth MEG 4-680	Klübersynth MEG 4-1000	Klübersynth MEG 4-1500
Article number	012406	012407	012415	012416
Service temperature, lower limit	-40 °C	-40 °C	-35 °C	-35 °C
Service temperature, upper limit	140 °C	140 °C	140 °C	140 °C
Designation, DIN 51502	CLP HC 460	CLP HC 680	CLP HC 1000	CLP HC 1500
Designation, ISO 12925-1	CKC 460	CKC 680	CKC 1000	CKC 1500
Density, DIN 51757, 15°C	approx. 847 kg/m ³	approx. 848 kg/m ³	approx. 849 kg/m ³	approx. 851 kg/m ³
Flash point, DIN EN ISO 2592, Cleveland open cup	≥ 200 °C	≥ 200 °C	≥ 200 °C	≥ 200 °C

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Characteristics	Klübersynth MEG 4-460	Klübersynth MEG 4-680	Klübersynth MEG 4-1000	Klübersynth MEG 4-1500
Foam test, ISO 6247 / ASTM D892, 24°C, sequence I	≤ 100/10 ml	≤ 100/10 ml	≤ 100/10 ml	≤ 100/10 ml
Foam test, ISO 6247 / ASTM D892, 24°C, sequence III	≤ 100/10 ml	≤ 100/10 ml	≤ 100/10 ml	≤ 100/10 ml
Foam test, ISO 6247 / ASTM D892, 93.5°C, sequence II	≤ 100/10 ml	≤ 100/10 ml	≤ 100/10 ml	≤ 100/10 ml
ISO viscosity grade, DIN ISO 3448, ISO VG	460	680	1000	1500
Kinematic viscosity, DIN EN ISO 3104 / DIN 53000-1, based on standard / ASTM D445 / ASTM D7042, 100°C	approx. 52.5 mm ² /s	approx. 73 mm ² /s	approx. 102.7 mm ² /s	approx. 138.4 mm ² /s
Kinematic viscosity, DIN EN ISO 3104 / DIN 53000-1, based on standard / ASTM D445 / ASTM D7042, 40°C	approx. 460 mm ² /s	approx. 680 mm ² /s	approx. 1000 mm ² /s	approx. 1500 mm ² /s
Viscosity index, DIN ISO 2909	≥ 175	≥ 180	≥ 200	≥ 200
Copper corrosion, DIN EN ISO 2160, 3 h, 100°C	1 - 100 - 3 corrosion degree	1 - 100 - 3 corrosion degree	1 - 100 - 3 corrosion degree	1 - 100 - 3 corrosion degree
Steel corrosion, DIN ISO 7120 / ASTM D665, method A, 24 h, 60°C	rust-free	rust-free	rust-free	rust-free
Pour point, DIN ISO 3016, ASTM D97, ASTM D5950, ASTM D7346	≤ -40 °C	≤ -40 °C	≤ -35 °C	≤ -35 °C
Ageing resistance, DIN EN ISO 4263-4, TOST test, 312 h, 95°C, increase in viscosity at 100°C	≤ 6 %	≤ 6 %	≤ 6 %	≤ 6 %
FAG FE8 rolling bearing test, DIN 51819-3, D-7.5 / 80-80, wear of cage	≤ 200 mg	≤ 200 mg	≤ 200 mg	≤ 200 mg
FAG FE8 rolling bearing test, DIN 51819-3, D-7.5 / 80-80, wear of rolling elements	< 5 mg	< 5 mg	< 5 mg	< 5 mg
FZG scuffing test, DIN ISO 14635-1, based on standard, A / 16.6 / 90, failure load stage	≥ 14	≥ 14	≥ 14	≥ 14
FZG scuffing test, DIN ISO 14635-1, A / 8.3 / 90, failure load stage	≥ 14	≥ 14	≥ 14	≥ 14
Minimum shelf life from the date of manufacture - in a dry, frost-free place and in the unopened original container, approx.	36 months	36 months	36 months	36 months

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Klüber Lubrication – your global specialist

Innovative tribological solutions are our passion. Through personal contact and consultation, we help our customers to be successful worldwide, in all industries and markets. With our ambitious technical concepts and experienced, competent staff we have been fulfilling increasingly demanding requirements by manufacturing efficient high-performance lubricants for more than 95 years.

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