# Klübersynth EG 4

Synthetic high-performance gear oil

## Your benefits at a glance

- High scuffing protection
- Good wear protection
- Excellent ageing and oxidation resistance
- Wide service temperature range due to good viscosity-temperature behaviour
- Low foaming tendency
- Energy savings due to optimised friction behaviour
- Very good corrosion protection

## Your requirements - our solution

Klübersynth EG 4 is a fully synthetic high-performance gear oil based on polyalphaolefin satisfying the requirements of many gears.

Klübersynth EG 4 offers a high scuffing strength of API GL-4. Gears are sufficiently protected against scuffing even at extremely high peak loads, vibrations or oscillations. The good wear protection of the gear components ensures that their calculated service life is achieved, leading to lower maintenance and repair costs.

Klübersynth EG 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. Klübersynth EG 4 is neutral towards most sealing materials such as NBR or FKM. Oil leakage leading to contamination is prevented. It also shows good demulsifying behaviour.

The good viscosity-temperature behaviour supports the formation of a sufficient lubricant film across a wide service temperature range. Therefore, a single viscosity grade can cover both low and high temperatures in many applications. The optimised friction behaviour enabled by the carefully selected base oils reduces power loss and improves gear efficiency.

By using Klübersynth EG 4 you can benefit from a number of advantages that will help you save costs easily and efficiently. We look forward to hearing from you.

## Application

Klübersynth EG 4 was especially developed for the lubrication of heavily loaded spur, bevel and planetary gears. It can also be used for the lubrication of worm gears.

Klüberoil EG 4 can also be selected for the lubrication of plain and rolling bearings, all kinds of toothed couplings, chains, guideways, joints, spindles and pumps.

## Application notes

Klübersynth EG 4 can be used for immersion, immersion circulation and injection lubrication.

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. The low-viscosity varieties are also used for oil mist lubrication.

Klübersynth EG 4 is miscible with mineral oils. However, for the Klübersynth EG 4 oil 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.

## Viscosity selection

When determining the oil viscosity for gear lubrication, the gear manufacturer's instructions take priority. To determine the correct oil viscosity for bearings, please observe the bearing manufacturer's instructions.

# Klübersynth EG 4

Synthetic high-performance gear oil

Due to the better viscosity-temperature behaviour of Klübersynth EG 4, its actual viscosity during operation differs from that of mineral oils.

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.

## Material safety data sheets

| Pack sizes | Klübersynth EG 4-150 | Klübersynth EG 4-220 | Klübersynth EG 4-320 | Klübersynth EG 4-460 |
|---|---|---|---|---|
| Bucket 19 l | + | + | + | + |
| Drum 208 l | + | + | + | + |

| Pack sizes | Klübersynth EG 4-680 | Klübersynth EG 4-1000 |
|---|---|---|
| Bucket 19 l | + | + |
| Drum 208 l | + | + |

| Characteristics | Klübersynth EG 4-150 | Klübersynth EG 4-220 | Klübersynth EG 4-320 | Klübersynth EG 4-460 |
|---|---|---|---|---|
| Article number | 012220 | 012221 | 012222 | 012223 |
| Service temperature, lower limit | -35 °C | -35 °C | -30 °C | -30 °C |
| Service temperature, upper limit | 140 °C | 140 °C | 140 °C | 140 °C |
| Density, DIN 51757, 20°C | approx. 0.87 g/cm³ | approx. 0.87 g/cm³ | approx. 0.87 g/cm³ | approx. 0.88 g/cm³ |
| 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 |
| 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 | 150 | 220 | 320 | 460 |
| Kinematic viscosity, DIN EN ISO 3104 / DIN 53000-1, based on standard / ASTM D445 / ASTM D7042, 100°C | approx. 18 mm²/s | approx. 25.8 mm²/s | approx. 33.9 mm²/s | approx. 43.3 mm²/s |
| Kinematic viscosity, DIN EN ISO 3104 / DIN 53000-1, based on standard / ASTM D445 / ASTM D7042, 40°C | approx. 150 mm²/s | approx. 220 mm²/s | approx. 320 mm²/s | approx. 460 mm²/s |
| Viscosity index, DIN ISO 2909 | ≥ 130 | ≥ 130 | ≥ 130 | ≥ 130 |
| Pour point, DIN ISO 3016, ASTM D97, ASTM D5950, ASTM D7346 | ≤ -39 °C | ≤ -36 °C | ≤ -36 °C | ≤ -36 °C |
| API scuffing load capacity | API GL 4 | API GL 4 | API GL 4 | API GL 4 |

# Klübersynth EG 4

Synthetic high-performance gear oil

| Characteristics | Klübersynth EG 4-150 | Klübersynth EG 4-220 | Klübersynth EG 4-320 | Klübersynth EG 4-460 |
|---|---|---|---|---|
| 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 | ≤ 30 mg | ≤ 30 mg | ≤ 30 mg | ≤ 30 mg |
| FZG scuffing test, DIN ISO 14635-1, based on standard, A / 16.6 / 90, failure load stage | ≥ 12 | ≥ 12 | ≥ 12 | ≥ 12 |
| 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. | 60 months | 60 months | 60 months | 60 months |

| Characteristics | Klübersynth EG 4-680 | Klübersynth EG 4-1000 |
|---|---|---|
| Article number | 012224 | 012225 |
| Service temperature, lower limit | -25 °C | -15 °C |
| Service temperature, upper limit | 140 °C | 120 °C |
| Density, DIN 51757, 20°C | approx. 0.89 g/cm³ | approx. 0.89 g/cm³ |
| Flash point, DIN EN ISO 2592, Cleveland open cup | ≥ 200 °C | ≥ 200 °C |
| Foam test, ISO 6247 / ASTM D892, 24°C, sequence I | ≤ 100/10 ml | ≤ 100/10 ml |
| Foam test, ISO 6247 / ASTM D892, 24°C, sequence III | ≤ 100/10 ml | ≤ 100/10 ml |
| Foam test, ISO 6247 / ASTM D892, 93.5°C, sequence II | ≤ 100/10 ml | ≤ 100/10 ml |
| ISO viscosity grade, DIN ISO 3448, ISO VG | 680 | 1000 |
| Kinematic viscosity, DIN EN ISO 3104 / DIN 53000-1, based on standard / ASTM D445 / ASTM D7042, 100°C | approx. 53.4 mm²/s | approx. 71.3 mm²/s |
| Kinematic viscosity, DIN EN ISO 3104 / DIN 53000-1, based on standard / ASTM D445 / ASTM D7042, 40°C | approx. 680 mm²/s | approx. 1000 mm²/s |
| Viscosity index, DIN ISO 2909 | ≥ 130 | ≥ 130 |
| Pour point, DIN ISO 3016, ASTM D97, ASTM D5950, ASTM D7346 | ≤ -30 °C | ≤ -24 °C |
| API scuffing load capacity | API GL 4 | API GL 4 |
| FAG FE8 rolling bearing test, DIN 51819-3, D-7.5 / 80-80, wear of cage | ≤ 200 mg | ≤ 200 mg |
| FAG FE8 rolling bearing test, DIN 51819-3, D-7.5 / 80-80, wear of rolling elements | ≤ 30 mg | ≤ 30 mg |

# Klübersynth EG 4

Synthetic high-performance gear oil

| Characteristics | Klübersynth EG 4-680 | Klübersynth EG 4-1000 |
|---|---|---|
| FZG scuffing test, DIN ISO 14635-1, based on standard, A / 16.6 / 90, failure load stage | ≥ 12 | ≥ 12 |
| FZG scuffing test, DIN ISO 14635-1, A / 8.3 / 90, failure load stage | ≥ 14 | ≥ 14 |
| Minimum shelf life from the date of manufacture - in a dry, frost-free place and in the unopened original container, approx. | 60 months | 60 months |

## 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.

Klüber Lubrication München GmbH & Co. KG /
Geisenhausenerstraße 7 / 81379 München / Germany /
phone +49 89 7876-0 / fax +49 89 7876-333.