Klübersynth UH1 6

Synthetic high-performance gear oil for the food-processing and pharmaceutical industries
with KlüberComp Lube Technology

Your benefits at a glance

- **Registered as NSF H1 and certified according to ISO 21469**
- **High scuffing protection**
- **Good wear protection for gears and rolling bearings**
- **High micropitting resistance**
- **Good shear stability for reliable lubricant film formation**
- **Optimised for the lubrication of worm gears**
- **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**
- **Good elastomer compatibility**
- **Approvals by numerous gear OEMs**

Your requirements - our solution

Klübersynth UH1 6 is a synthetic high-performance gear oil based on polyglycol satisfying the growing requirements and increasing power density of modern gears. Klübersynth UH1 6 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 UH1 6 is registered as NSF H1 for use in the food-processing and pharmaceutical industries and complies with FDA 21 CFR Sec 178.3570. It was especially developed for incidental contact with products and packaging materials in the food-processing, cosmetics, pharmaceutical or animal feed industries, thus contributing to the reliability of your production processes. Nevertheless it is recommended to conduct an additional risk analysis, e.g. HACCP.

Klübersynth UH1 6 is certified according to ISO 21469, thus supporting compliance with hygienic requirements of your production. You will find further information about ISO Standard 21469 on our website www.klueber.com.

Klübersynth UH1 6 clearly exceeds CLP requirements according to DIN 51517-3. Corresponding gears can be switched to Klübersynth UH1 6 without prior consultation with the gear manufacturer provided the general application notes are observed.

Klübersynth UH1 6 offers high scuffing load capacity. Gears are sufficiently protected against scuffing even at extremely high peak loads, vibrations or oscillations, or if no running-in was performed. 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 UH1 6 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. In certain applications, even lifetime lubrication is possible. 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, 75 FKM 260466 and 75 FKM 170055 are resistant to Klübersynth UH1 6. Leakage and oil contamination are prevented.

The excellent viscosity-temperature behaviour 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 low and high temperatures in many applications.

The optimised friction behaviour enabled by the carefully selected base oils based on polyglycol reduces power loss and improves gear efficiency, especially in worm gears. Due to the optimised additives, wear values are reduced and a very low wear intensity according to DIN 3996 (calculation of load capacity of worm gears) is achieved.

Klübersynth UH1 6 is approved by Siemens-Flender, Siemens Geared Motors, SEW Eurodrive, Getriebebau Nord, Stöber

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Antriebstechnik, Lenze, ZAE Antriebssysteme, Baldor, Boston Gear, Bonfiglioli, Watt Drive, etc.

By using Klübersynth UH1 6 you can benefit from a number of advantages that will help you save costs easily and efficiently. We look forward to hearing from you.

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

Application

Klübersynth UH1 6 oil is used for the lubrication of highly loaded spur, bevel and planetary gears, rolling and plain bearings as well as all types of toothed couplings, especially when exposed to high temperatures.

Klübersynth UH1 6 oil was especially developed for the lubrication of worm gears with steel/bronze pairings.

It can also be used for the lubrication of lifting, drive and transport chains.

Application notes

Klübersynth UH1 6 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. The low-viscosity varieties are also used for oil mist lubrication.

Klübersynth UH1 6 is not miscible with mineral oil or synthetic hydrocarbons. Prior to switchover, lubrication points should be cleaned, or gears or enclosed systems be flushed with the Klübersynth UH 1 6 oil to be used.

Klübersynth UH1 6 is neutral towards ferrous and nearly all non-ferrous metals.

There may be increased wear when the contact surfaces of design elements made of aluminium or aluminium alloys are exposed to dynamic loads. If necessary, preliminary wear tests should be carried out.

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.

When applying Klübersynth UH1 6 oil we recommend the use of two-component paints (reaction paints) for interior coating. Oil gauge glasses should preferably be made of natural glass or polyamide materials. Other transparent plastics, e.g. Plexiglas, have a tendency to crack under stress. The suitability of materials used in contact with Klübersynth UH 1 6 oil should be tested, especially prior to series application.

For checking the contact pattern during running-in, the inspection paint Klübertop P 39-362 Spray (Art. No. 081295) can be used.

Klübersynth UH1 6 is miscible with the special running-in and anti-corrosion oil Klübersynth GEZ 6-220.

Viscosity selection

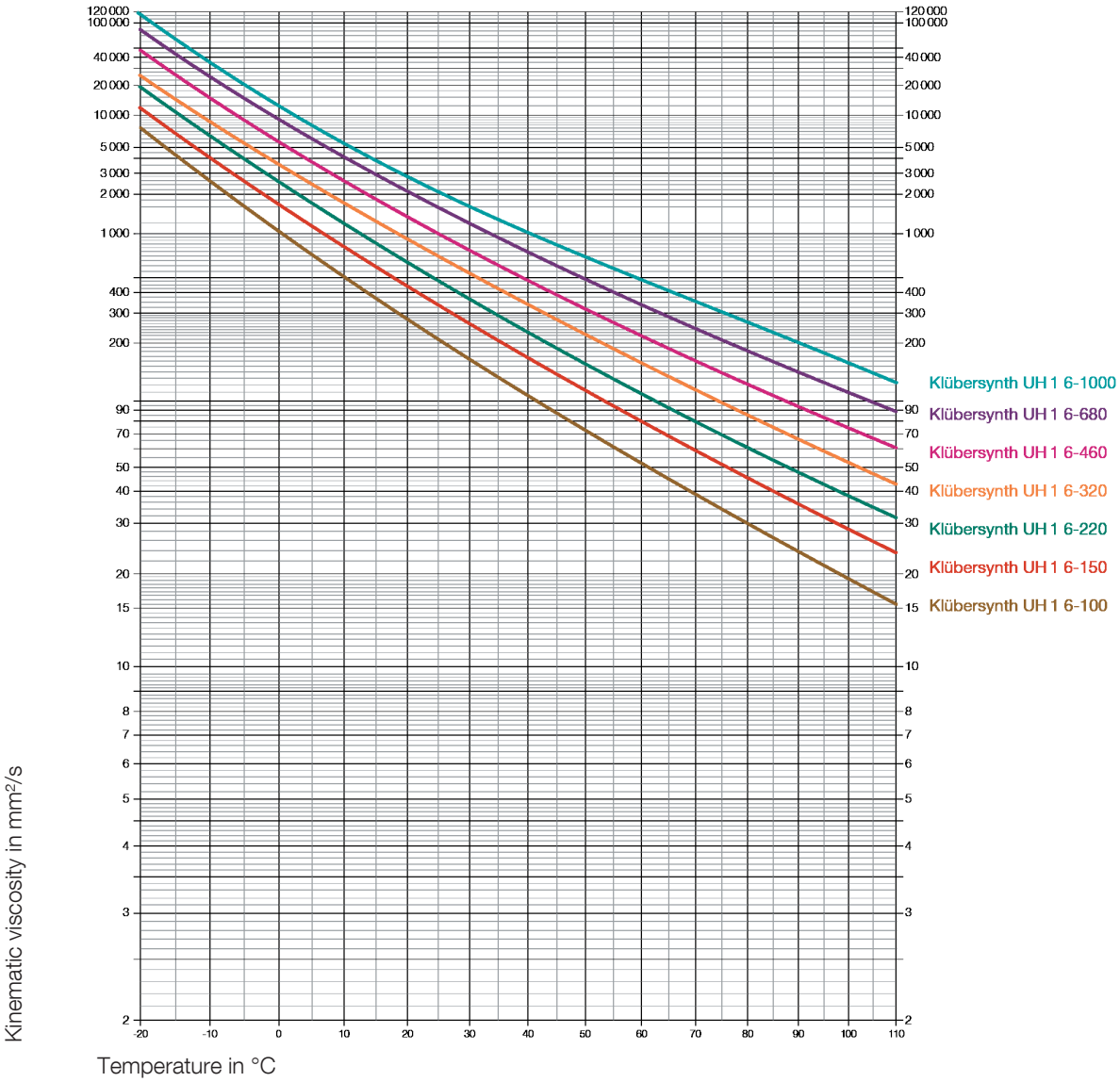
When determining the oil viscosity for gear lubrication, the gear manufacturer's instructions take priority. Only for applications where manufacturer's instructions are not available, the suitable viscosity can be determined as laid down in the worksheet "Hints for Practice - selection of oil viscosity for gears". To determine the correct oil viscosity for bearings, please observe the bearing manufacturer's instructions.

Due to the better viscosity-temperature behaviour of Klübersynth UH1 6 compared to mineral oils, the actual viscosity of Klübersynth UH1 6 during operation differs and can be determined by means of the enclosed diagram.

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.

Viscosity-temperature diagram



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Pack sizes	Klübersynth UH1 6-100	Klübersynth UH1 6-150
Canister 20 l	+	+
Drum 200 l	+	+

Product data	Klübersynth UH1 6-100	Klübersynth UH1 6-150
Article number	096094	096058
Marking acc. to DIN 51502	CLP PG 100	CLP PG 150
Classification acc. to ISO 12925-1	CKC 100	CKC 150
NSF-H1 registration	137 872	124 437
ISO viscosity grade, DIN ISO 3448	100	150
Density, based on DIN 51757) at 15 °C	1 040 kg/m³	1 050 kg/m³
Kinematic viscosity, DIN 51562 pt. 01/ASTM D-445/ASTM D 7042, 20 °C	approx. 250 mm²/s	approx. 390 mm²/s
Kinematic viscosity, DIN 51562 pt. 01/ASTM D-445/ASTM D 7042, 40 °C	approx. 100 mm²/s	approx. 150 mm²/s
Kinematic viscosity, DIN 51562 pt. 01/ASTM D-445/ASTM D 7042, 100 °C	approx. 19.5 mm²/s	approx. 28.5 mm²/s
Viscosity index, DIN ISO 2909	>= 190	>= 210
Flash point, DIN EN ISO 2592, Cleveland, open-cup apparatus	>= 220 °C	>= 220 °C
Pour point, DIN ISO 3016	<= -40 °C	<= -35 °C
Foam test, ASTM-D 892, ISO 6247, sequence I/24 °C	<= 100/10 ml	<= 100/10 ml
Foam test, ASTM-D 892, ISO 6247, sequence II/ 93.5 °C	<= 100/10 ml	<= 100/10 ml
Foam test, ASTM D 892, ISO 6247, sequence III/24°C	<= 100/10 ml	<= 100/10 ml
Copper corrosion, DIN EN ISO 2160, 24 h/100°C	1 - 100 corrosion degree	1 - 100 corrosion degree
Anticorrosive properties on steel, DIN ISO 7120, method A, steel, 24 h/60 °C	no rust	no rust
Ageing properties, ASTM D 2893, increase in viscosity	<= 6 %	<= 6 %
FZG scuffing test, DIN ISO 14635-1, A/8.3/90, scuffing load stage	>= 12	>= 12
FZG scuffing test, based on DIN ISO 14635-1, A/16.6/90, scuffing load stage	>= 11	>= 12
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 element	<= 30 mg	<= 30 mg
Lower service temperature	-35 °C / -31 °F	-35 °C / -31 °F
Upper service temperature	160 °C / 320 °F	160 °C / 320 °F
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

Klübersynth UH1 6-220	Klübersynth UH1 6-320	Klübersynth UH1 6-460	Klübersynth UH1 6-680	Klübersynth UH1 6-1000
+	+	+	+	+
+	+	+	+	+

Klübersynth UH1 6-220	Klübersynth UH1 6-320	Klübersynth UH1 6-460	Klübersynth UH1 6-680	Klübersynth UH1 6-1000
096059	096063	096060	096064	096124
CLP PG 220	CLP PG 320	CLP PG 460	CLP PG 680	CLP PG 1000
CKC 220	CKC 320	CKC 460	CKC 680	CKC 1000
124 438	124 439	124 440	124 441	147 019
220	320	460	680	1 000
1 060 kg/m³	approx. 1 065 kg/m³	approx. 1 075 kg/m³	approx. 1 075 kg/m³	approx. 1 075 kg/m³
approx. 610 mm²/s	approx. 840 mm²/s	approx. 1 270 mm²/s	approx. 1 900 mm²/s	approx. 2 940 mm²/s
approx. 220 mm²/s	approx. 320 mm²/s	approx. 460 mm²/s	approx. 680 mm²/s	approx. 1 000 mm²/s
approx. 41 mm²/s	approx. 56 mm²/s	approx. 78 mm²/s	approx. 115 mm²/s	approx. 178 mm²/s
>= 220	>= 220	>= 240	>= 250	>= 250
>= 220 °C	>= 220 °C	>= 220 °C	>= 220 °C	>= 220 °C
<= -35 °C	<= -30 °C	<= -30 °C	<= -25 °C	<= -25 °C
<= 100/10 ml	<= 100/10 ml	<= 100/10 ml	<= 100/10 ml	<= 100/10 ml
<= 100/10 ml	<= 100/10 ml	<= 100/10 ml	<= 100/10 ml	<= 100/10 ml
<= 100/10 ml	<= 100/10 ml	<= 100/10 ml	<= 100/10 ml	<= 100/10 ml
1 - 100 corrosion degree	1 - 100 corrosion degree	1 - 100 corrosion degree	1 - 100 corrosion degree	1 - 100 corrosion degree
no rust	no rust	no rust	no rust	no rust
<= 6 %	<= 6 %	<= 6 %	<= 6 %	<= 6 %
>= 12	>= 12	>= 12	>= 12	>= 12
>= 12	>= 12	>= 12	>= 12	>= 12
<= 200 mg	<= 200 mg	<= 200 mg	<= 200 mg	<= 200 mg
<= 30 mg	<= 30 mg	<= 30 mg	<= 30 mg	<= 30 mg
-30 °C / -22 °F	-30 °C / -22 °F	-30 °C / -22 °F	-25 °C / -13 °F	-25 °C / -13 °F
160 °C / 320 °F	160 °C / 320 °F	160 °C / 320 °F	160 °C / 320 °F	160 °C / 320 °F
36 months	36 months	36 months	36 months	36 months

Product information

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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 80 years.

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

The data in this document is based on our general experience and knowledge at the time of publication and is intended to give information of possible applications to a reader with technical experience. It constitutes neither an assurance of product properties nor does it release the user from the obligation of performing preliminary field tests with the product selected for a specific application. All data are guide values which depend on the lubricant's composition, the intended use and the application method. The technical values of lubricants change depending on the mechanical, dynamical, chemical and thermal loads, time and pressure. These changes may affect the function of a component. We recommend contacting us to discuss your specific application. If possible we will be pleased to provide a sample for testing on request. Klüber products are continually improved. Therefore, Klüber Lubrication reserves the right to change all the technical data in this document at any time without notice.

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