

Klübersynth UH1 6

Synthetic gear oils for the food-processing and pharmaceutical industries based on KlüberComp Lube Technology



Benefits for your application

- The oils meet the requirements according to DIN 51517-3, CLP. Corresponding gears can be switched to Klübersynth UH1 6 oils without prior consultation with the gear manufacturer provided the general application notes are observed.
- KlüberComp Lube Technology involves the selection of high-quality raw materials and individual consultation and services by Klüber Lubrication, ensuring high-performance lubrication of different gearbox components.
- Registered by NSF as H1 lubricants for use in food-processing and pharmaceutical industries, comply with FDA 21 CFR Sec. 178.3570.
- ISO 21469 certified – supports the compliance with the hygienic requirements in your production. You will find further information about ISO Standard 21469 on our website www.klueber.com.
- The oils' high micropitting resistance according to FVA 54 GFT > 10 offers sufficient protection to gears that are subject to high loads and would normally be susceptible to this type of damage.
- The good wear protection of the rolling bearings prevents premature bearing failure.
- Much longer service life than mineral oils due to the excellent ageing and oxidation resistance of the base oil; thus maintenance intervals can be extended and in certain cases even lifetime lubrication is possible.
- Owing to the wide service temperature range it is possible in many cases to use just one viscosity grade for both low and high temperatures.
- The optimum friction behaviour of the polyglycol base oil reduces power losses and improves efficiency.
- The excellent viscosity-temperature behaviour supports the formation of a sufficient lubricating film even at elevated and high temperatures.
- Seals made of 72 NBR 902, 75 FKM 585 and 75 FKM 170055 are resistant to Klübersynth UH1 6 oils.
- Approved by Siemens (Flender), Siemens Geared Motors, SEW Eurodrive, Getriebbau Nord, Stöber Antriebstechnik, Lenze, ZAE Antriebssysteme, Baldor, Boston Gear, Bonfiglioli, Watt Drive etc.

Description

Klübersynth UH1 6 oils are gear oils on a polyglycol basis. They have a high scuffing load capacity and micro-pitting resistance. These oils have also proved their good wear protection in rolling bearings on the FAG FE8 test rig for gear oils.

Klübersynth UH1 6 oils stand out for their excellent ageing and oxidation resistance, good viscosity-temperature behaviour and very good thermal stability.

Klübersynth UH1 6 oils are NSF H1 registered and therefore comply with FDA 21 CFR § 178.3570. The lubricants were developed for incidental contact with products and packaging materials in the food-processing, cosmetics, pharmaceutical or animal feed industries. The use of Klübersynth UH1 6 oils can contribute to increase reliability of your production processes. We nevertheless recommend conducting an additional risk analysis, e.g. HACCP.

Application

Klübersynth UH1 6 oils are used for the lubrication of bevel and spur gears, rolling and plain bearings as well as all types of denture clutches, especially when exposed to high temperatures.

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

The polyglycol base oils and special additives reduce the friction coefficient and provide low wear values, which is a clear advantage in these applications.

Klübersynth UH1 6 oils achieve a particularly low wear intensity according to DIN 3996 (calculation of load capacity). Klübersynth UH1 6 oils can also be used for the lubrication of lifting, drive and transport chains.

Application notes

Klübersynth UH1 6 oils can be applied by immersion, immersion/circulation and injection.

Klübersynth UH1 6 oils are not miscible with mineral oils and synthetic hydrocarbons like polyalphaolefins.

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We recommend cleaning the lubrication points or rinsing gears with the Klübersynth UH1 6 oil which will be used after conversion.

Klübersynth UH1 6 oils are neutral towards ferrous metals and almost all nonferrous 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 tests should be carried out.

For permanent temperatures up to 80°C seals made of 72 NBR 902 may be used. For higher temperatures, we recommend to use seals made of 75 FKM 585.

It should be noted that elastomers from one or several manufacturers can behave differently and therefore compatibility tests have to be carried out.

When applying Klübersynth UH1 6 oils 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 UH1 6 oils should be tested, especially prior to series application.

Viscosity selection

When determining the oil viscosity for gears, the manufacturer's instructions take priority. Only in cases where there are no gear manufacturer's instructions, the viscosity can be selected in accordance with the enclosed worksheet "Klübersynth UH1 6 oils – selection of oil viscosity for gears".

To determine the correct oil viscosity for bearings, please observe the bearing manufacturer's instructions.

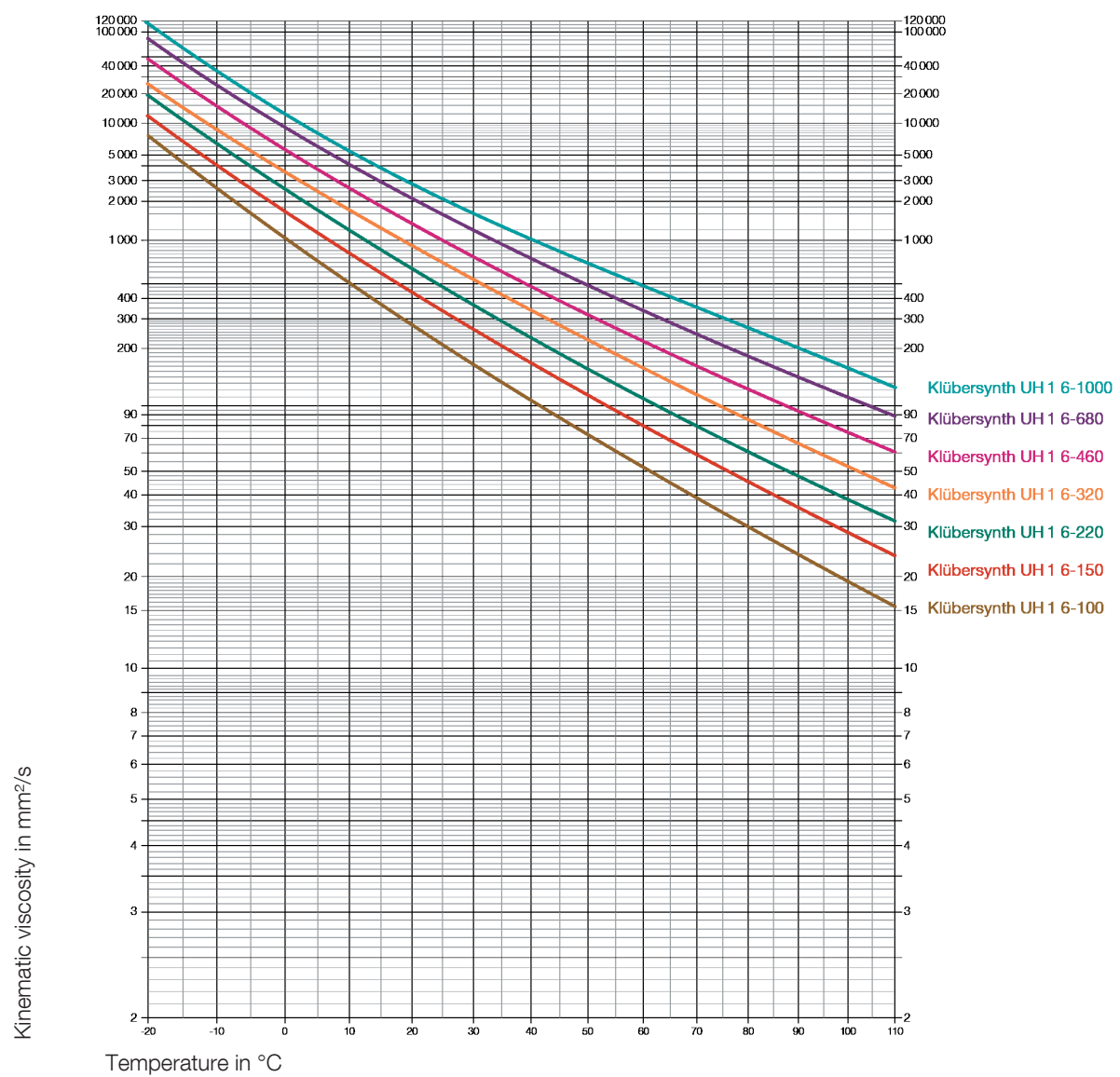
For determining the existing viscosity, please refer to the enclosed viscosity-temperature diagram indicating the differing viscosity-temperature behaviour of Klübersynth UH1 6 oils as compared to mineral oils.

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



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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.

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