

Klübersynth GH 6

Synthetic gear and high temperature oils 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 GH 6 oils without prior consultation 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.**
- **As of ISO VG 220 the scuffing load stage API GL-5 is achieved. Gears are sufficiently protected against scuffing even under high peak loads.**
- **The oils' high micropitting resistance acc. 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.**
- **Good wear protection prevents premature rolling 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 a single viscosity grade can cover both low and high temperatures in many applications.**
- **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 (except ISO VG 22), 75 FKM 585 and 75 FKM 170055 are resistant to Klübersynth GH 6 oils. Leakage and contamination are prevented.**
- **Approved by Siemens (Flender), Siemens Geared Motoros, SEW Eurodrive, Getriebbau Nord, Stöber Antriebstechnik, Lenze, ZAE Antriebssysteme, Bonfiglioli, Rossi Motoriduttori, Motovario, Moventas, Boston Gear, Baldor and many more.**

Description

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

Application

Klübersynth GH 6 oils were especially developed for the lubrication of worm gears with steel/bronze or steel/grey cast iron 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 GH 6 oils achieve a particularly low wear intensity according to DIN 3996 (calculation of load capacity of worm gears). Klübersynth GH 6 oils are also used for the lubrication of bevel and spur gears, rolling and plain

bearings as well as all types of denture couplings, especially when exposed to high temperatures. Klübersynth GH 6 oils can also be used for the lubrication of lifting, drive and transport chains.

Application notes

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

Klübersynth GH 6 oils are not miscible with mineral oils and synthetic hydrocarbons. Prior to switchover, lubrication points should be cleaned, or gears or enclosed systems be flushed with the Klübersynth GH 6 oil to be used.

Klübersynth GH 6 oils are neutral towards virtually 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.

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With high-viscosity Klübersynth GH 6 oils and permanent temperatures up to max. 80 °C, seals made of 72 NBR 902 may be used. For higher temperatures, we recommend to use seals made of 75 FKM 585 or 75 FKM 170055. It should be noted that elastomers from one or several manufacturers can behave differently; therefore tests should be performed.

When applying Klübersynth GH 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 GH 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. In cases where there are no gear manufacturer's instructions, the viscosity can be selected in accordance with the enclosed worksheet "Klübersynth GH 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 actual viscosity, please refer to the enclosed viscosity-temperature diagram indicating the differing viscosity-temperature behaviour of Klübersynth GH 6 oils as compared to mineral oils.

Minimum shelf life

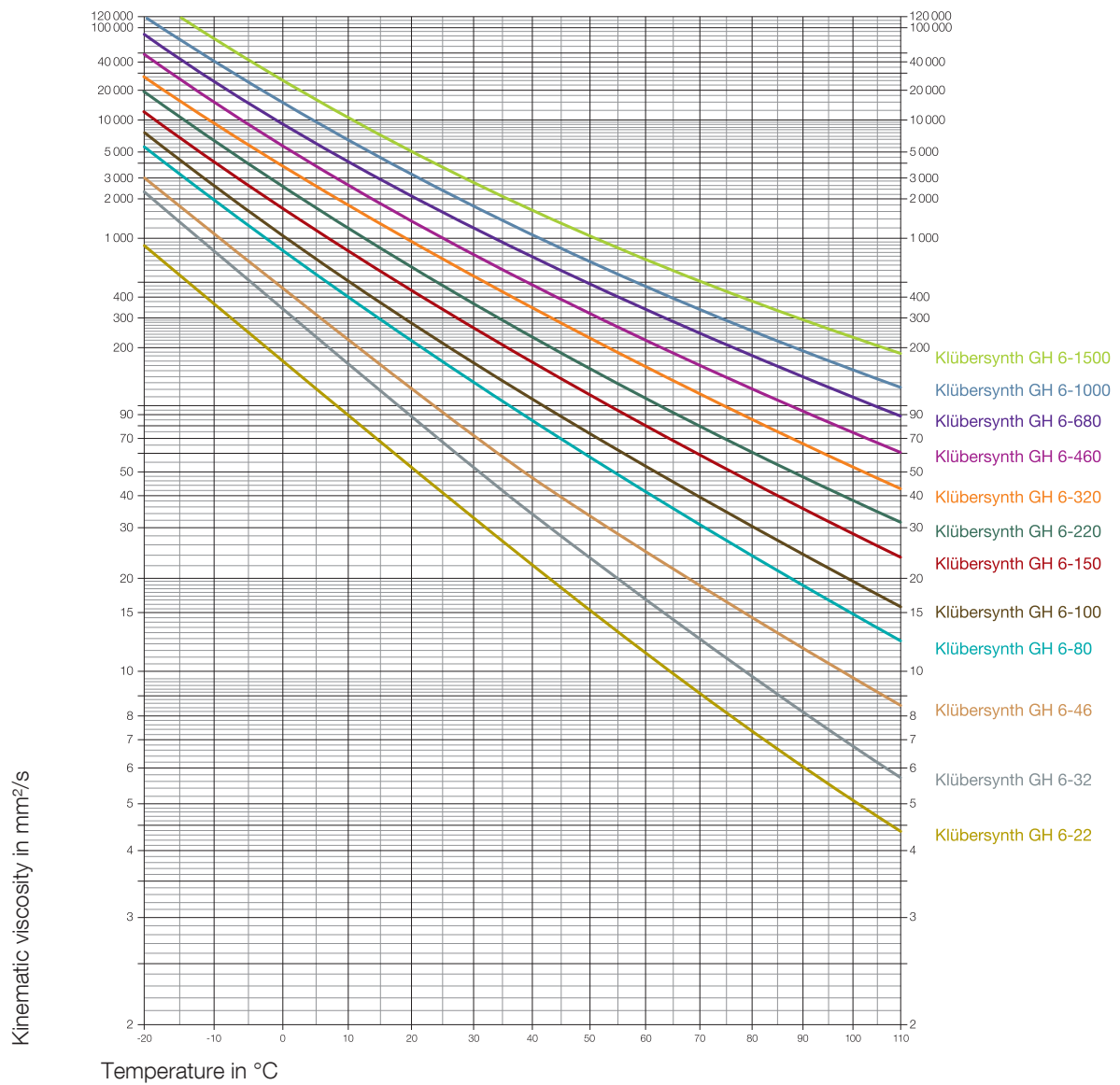
The minimum shelf life is approx. 36 months if the product is stored in its unopened original container in a dry, frost-free place.

Material safety data sheets

Material safety data sheets can be downloaded or 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 GH 6- 22	Klübersynth GH 6- 32	Klübersynth GH 6- 46	Klübersynth GH 6- 80
Canister 20 l	+	+	+	+
Drum 200 l	+	+	+	+

Product data	Klübersynth GH 6- 22	Klübersynth GH 6- 32	Klübersynth GH 6- 46	Klübersynth GH 6- 80
Article number	012287	012157	012009	012158
CLP classification acc. to DIN 51502 and DIN 51517-3		CLP PG 32	CLP PG 46	CLP PG 68
Classification acc. to ISO 12925-1		CKC 32	CKC 46	CKC 68
ISO viscosity grade, DIN ISO 3448	22	32	46	68
Density, based on DIN 51757) at 15 °C	1 025 kg/m ³	984 kg/m ³	1 035 kg/m ³	approx. 1 040 kg/m ³
Kinematic viscosity, DIN 51562 pt. 01/ASTM D-445/ASTM D 7042, 20 °C	approx. 54 mm ² /s	approx. 88 mm ² /s	approx. 113 mm ² /s	approx. 205 mm ² /s
Kinematic viscosity, DIN 51562 pt. 01/ASTM D-445/ASTM D 7042, 40 °C	approx. 22 mm ² /s	approx. 32 mm ² /s	approx. 46 mm ² /s	approx. 68 mm ² /s
Kinematic viscosity, DIN 51562 pt. 01/ASTM D-445/ASTM D 7042, 100 °C	approx. 5.3 mm ² /s	approx. 6.5 mm ² /s	approx. 9 mm ² /s	approx. 14.5 mm ² /s
Viscosity index, DIN ISO 2909	>= 150	>= 150	>= 190	>= 190
Flash point, DIN EN ISO 2592, Cleveland, open-cup apparatus	>= 170 °C	>= 220 °C	>= 250 °C	>= 250 °C
Pour point, DIN ISO 3016	<= -55 °C	<= -45 °C	<= -40 °C	<= -40 °C
Foam test, ASTM-D 892, ISO 6247, sequence I/24 °C	<= 100/10 ml	<= 100/10 ml	<= 100/10 ml	<= 100/10 ml
Foam test, ASTM-D 892, ISO 6247, sequence II/ 93.5 °C	<= 100/10 ml	<= 100/10 ml	<= 100/10 ml	<= 100/10 ml
Foam test, ASTM D 892, ISO 6247, sequence III/24°C	<= 100/10 ml	<= 100/10 ml	<= 100/10 ml	<= 100/10 ml
Copper corrosion, DIN EN ISO 2160, 24 h/100°C	1 - 100 corrosion degree	1 - 100 corrosion degree	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	no rust	no rust
Ageing properties, ASTM D 2893, increase in viscosity	< 6 %	< 6 %	< 6 %	< 6 %
FZG scuffing test, based on DIN ISO 14635-1, A/16.6/90, scuffing load stage	>= 12	>= 12	>= 12	>= 12
FZG scuffing test, DIN ISO 14635-1, A/8.3/90, scuffing load stage	>= 14	>= 14	>= 14	>= 14
API scuffing load capacity				
FAG FE8 rolling bearing test, DIN 51819-3, D 7,5/80-80, wear of rolling element	< 30 mg	< 30 mg	< 30 mg	<= 30 mg
FAG FE8 rolling bearing test, DIN 51819-3, D 7,5/80-80, wear of cage	< 200 mg	< 200 mg	< 200 mg	<= 200 mg
Lower service temperature	-55 °C / -67 °F	-45 °C / -49 °F	-40 °C / -40 °F	-40 °C / -40 °F



Klübersynth GH 6- 100	Klübersynth GH 6- 150	Klübersynth GH 6- 220	Klübersynth GH 6- 320	Klübersynth GH 6- 460	Klübersynth GH 6- 680	Klübersynth GH 6-1000	Klübersynth GH 6-1500
+	+	+	+	+	+	+	+
+	+	+	+	+	+	+	+

Klübersynth GH 6- 100	Klübersynth GH 6- 150	Klübersynth GH 6- 220	Klübersynth GH 6- 320	Klübersynth GH 6- 460	Klübersynth GH 6- 680	Klübersynth GH 6-1000	Klübersynth GH 6-1500
012159	012160	012161	012162	012163	012164	012165	012281
CLP PG 100	CLP PG 150	CLP PG 220	CLP PG 320	CLP PG 460	CLP PG 680	CLP PG 1000	CLP PG 1500
CKC 100	CKC 150	CKC 220	CKC 320	CKC 460	CKC 680	CKC 1000	CKC 1500
100	150	220	320	460	680	1 000	1 500
approx. 1 043 kg/m ³	approx. 1 050 kg/m ³	approx. 1 060 kg/m ³	approx. 1 067 kg/m ³	approx. 1 074 kg/m ³	approx. 1 075 kg/m ³	approx. 1 075 kg/m ³	approx. 1 080 kg/m ³
approx. 270 mm ² /s	approx. 400 mm ² /s	approx. 630 mm ² /s	approx. 880 mm ² /s	approx. 1 240 mm ² /s	approx. 1 900 mm ² /s	approx. 3 000 mm ² /s	approx. 4 300 mm ² /s
approx. 100 mm ² /s	approx. 150 mm ² /s	approx. 220 mm ² /s	approx. 320 mm ² /s	approx. 460 mm ² /s	approx. 680 mm ² /s	approx. 1 000 mm ² /s	approx. 1 500 mm ² /s
approx. 20 mm ² /s	approx. 29 mm ² /s	approx. 40 mm ² /s	approx. 54 mm ² /s	approx. 71 mm ² /s	approx. 110 mm ² /s	approx. 167 mm ² /s	approx. 232 mm ² /s
>= 190	>= 210	>= 220	>= 220	>= 220	>= 220	>= 250	>= 250
>= 250 °C	>= 250 °C	>= 250 °C	>= 250 °C	>= 250 °C	>= 250 °C	>= 250 °C	>= 250 °C
<= -35 °C	<= -35 °C	<= -35 °C	<= -30 °C	<= -25 °C	<= -25 °C	<= -25 °C	<= -10 °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	<= 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	1 - 100 corrosion degree	1 - 100 corrosion degree	1 - 100 corrosion degree
no rust	no rust	no rust	no rust	no rust	no rust	no rust	no rust
< 6 %	< 6 %	< 6 %	< 6 %	< 6 %	< 6 %	< 6 %	< 6 %
>= 12	>= 12	>= 12	>= 12	>= 12	>= 12	>= 12	>= 12
>= 14	>= 14	>= 14	>= 14	>= 14	>= 14	>= 14	>= 14
		API GL 5	API GL 5	API GL 5	API GL 5	API GL 5	API GL 5
< 30 mg	< 30 mg	< 30 mg	< 30 mg	< 30 mg	< 30 mg	< 30 mg	< 30 mg
< 200 mg	< 200 mg	< 200 mg	< 200 mg	< 200 mg	< 200 mg	< 200 mg	< 200 mg
-35 °C / -31 °F	-35 °C / -31 °F	-35 °C / -31 °F	-30 °C / -22 °F	-25 °C / -13 °F	-25 °C / -13 °F	-25 °C / -13 °F	-10 °C / 14 °F

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Product data	Klübersynth GH 6- 22	Klübersynth GH 6- 32	Klübersynth GH 6- 46	Klübersynth GH 6- 80
Upper service temperature	160 °C / 320 °F	160 °C / 320 °F	160 °C / 320 °F	160 °C / 320 °F



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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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