Change information:

Chap. /page	**Description** (changes to the previous edition)	**Modification no.**
Entire document	Oil type designation of GearFluid Poly 220 E1 changed from "CLP PG" to "CLP PG rPCF" (reduced Product Carbon Footprint)	220424
Entire document	GearFluid Poly 220 E1 is "readily biodegradable" according to OECD Guideline 301 B Oil type designation and information on biodegradability added	
4 / 15-16	GearOil Synth 150-460 E1/US1 added GearOil Synth 220-460 H1 E1/US1 added	

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Table of contents

1. Introduction/area of application 3
1.1. Explanations of the structure of the tables and abbreviations 3
1.2. Explanations on the individual lubricants 5
1.3. Lubricant change intervals 5
1.4. Compatibility of lubricants with radial oil seals 6
2. Helical gear units (R..), helical-bevel gear units (K.7), parallel-shaft helical gear units (F..) 7
3. Helical-bevel gear units (K.9) 11
4. Helical-worm gear units (S.., HS..) 13
5. Helical-worm gear units (S.7p) 17
6. Spiroplan gear units (W.., HW..) 18
7. Spiroplan gear units (W.9) 19
8. PxG 20
9. PS.F gear units 21
10. PS.C gear units 22
11. BS.F gear units 23
12. MGF gear units (MGF..-B, MGF..-C, MGF..-DSM, MGF../PG) 24

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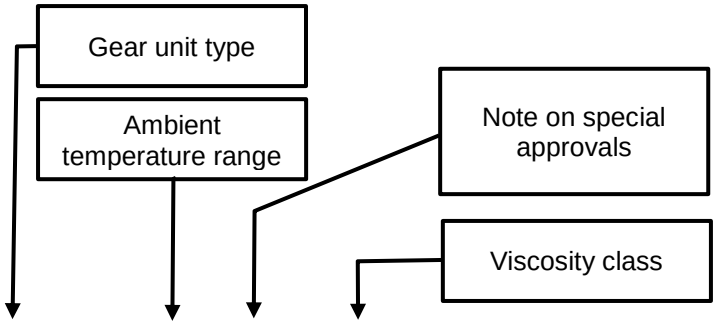
1. Introduction/area of application

This document describes the approved/recommended lubricants for SEW gear unit series. The approvals/ recommendations are worldwide valid.
If other lubricants are used in the gear units and/or lubricants are used with other temperature ranges than the ones recommended, the right to claim under warranty will become invalid.
Lubricants for standard gear units are subject to approval, the approval will be made according to the document 07004__13 "Supplier approval for qualification and approval of lubricants – gear unit oils" in its current version.

NOTE: Printed documents may not include the latest changes. For the latest version of this document, refer to https://www.sew-eurodrive.de/lubricants.

1.1. Explanations of the structure of the tables and abbreviations



Produkt / Product	Umgebungstemperatur / Environment Temperature		Öltyp / Oil Type	ISO, SAE NLGI	SEW EURODRIVE	bremer & leguil	Castrol	FUCHS	Mobil	KLÜBER LUBRICATION	Shell	SINOPEC	TOTAL
R.. RES K..7 KES HK.. F..	Standard -15 / 40		CLP	VG 220	-15 / +80 GearOil Base 220 E1/US1 SEW 070040313		-15 / +80 Optigear BM 220	-15 / +80 Renolin CLP 220 Plus SEW 070040313	-15 / +80 Mobilgear 600 XP 220 SEW 070040013	-15 / +80 Klüberoil GEM 1-220 N	-15 / +80 Shell Omala SG 220	-15 / +80 AP-SGO 220	-15 / +80 Carter EP 220
	-20 / 30			VG 150	-20 / +80 GearOil Base 150 E1 /US1* SEW 070040313		-20 / +80 Optigear BM 150	-20 / +80 Renolin CLP 150 Plus SEW 070040313	-20 / +80 Mobilgear 600 XP 150 SEW 070040013	-20 / +80 Klüberoil GEM 1-150 N	-20 / +80 Shell Omala SG 150	-20 / +80 AP-SGO 150	-20 / +80 Carter EP 150
	Standard -15 / 40		CLP - PSS	VG 220	-15 / +80 GearOil Base 220 E1/US1 SEW 070040313			-15 / +80 Renolin CLP 220 Plus SEW 070040313	-15 / +80 Mobilgear 600 XP 220 SEW 070040013				
	-20 / 30			VG 150	-20 / +80 GearOil Base 150 E1/US1* SEW 070040313			-20 / +80 Renolin CLP 150 Plus SEW 070040313	-20 / +80 Mobilgear 600 XP 150 SEW 070040013				

The specified **ambient (environment) temperatures** are **rough guide values for a preselection** of a suitable lubricant. The exact upper and lower temperature limit for the project planning must be taken from the table with the corresponding trade name! Please note during project planning that the starting behavior may change with low temperatures due to the increasing viscosity.

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Abbreviations:

	Synthetic lubricant.
	Mineral lubricant.
CLP	Mineral oil.
CLP PG	Polyglycol (PG).
rPCF	reduced Product Carbon Footprint
CLP HC	Synthetic hydrocarbons – polyalphaolefins (PAO).
E	Oil based on esters.
	Lubricant suitable for ATEX environment.
	Lubricant for the food processing industry and feed industry. Oils are NSF H1 registered and compliant according to FDA 21 CFR § 178.3570.
	Lubricants with slight bio-degradability for environmentally sensitive areas (> 60% according to OECD 301 or according to appendix A of EPA 2013 VGP).
	Lubricants with particularly reduced co_2 footprint (cradle-to-gate) made of sustainable raw materials.
1)	Helical-worm gear units with CLP-PG: contact SEW-EURODRIVE.
2)	Low-viscosity grease.
3)	Ambient temperatures up to -40 °C can be implemented with appropriate measures. Please contact SEW-EURODRIVE.
RWDR	Radial oil seal.
PSS	Radial oil seal type PSS (Premium Sine Seal). The addendum "PSS" at the lubricant type signals compatibility with the sealing system.

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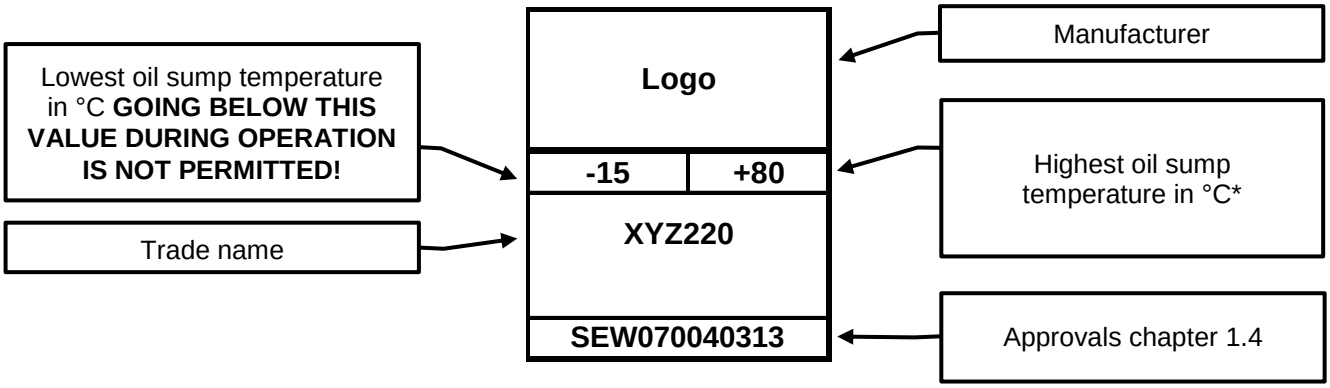
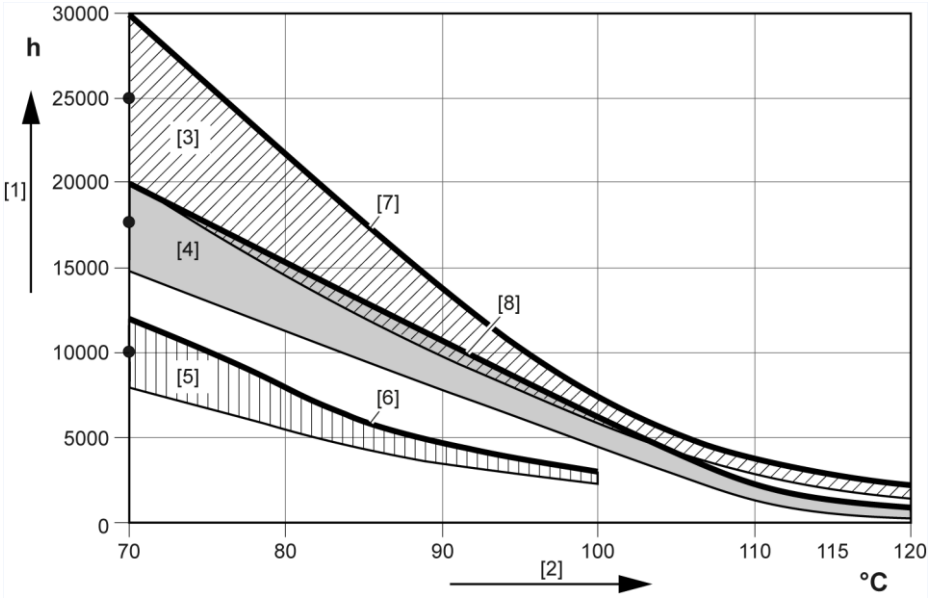
1.2. Explanations on the individual lubricants



* The service life will be considerably reduced when exceeded. Observe the lubricant change intervals according to chapter 1.3.

1.3. Lubricant change intervals

The following image depicts the change intervals for standard gear units under normal ambient conditions. In case of special designs under severe/aggressive ambient conditions, change the lubricant more frequently.
Notice: Filling of wrong lubricant may lead to a loss of the lubricant properties and thus damage the gear unit.
Do not mix synthetic lubricants and mineral lubricants. In general, the guideline FVA 606 must be adhered to.



[1] Operating hours
[2] Sustained oil bath temperature
[3] CLP PG/CLP PG NSF H1
[4] CLP HC/CLP HC NSF H1
[5] CLP / E
[6] SEW GearOil Base
[7] SEW GearOil Poly / GearOil Poly H1 / GearFluid Poly
[8] SEW GearOil Synth / GearOil Synth H1

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1.4. Compatibility of lubricants with radial oil seals

SEW07004__13: A lubricant especially recommended by SEW-EURODRIVE, also in regard of compatibility with the approved oil seals. The lubricant exceeds the state-of-the-art requirements.

Approved application temperature range of the oil seals

Oil seal material class	Approved oil sump temperature
NBR	-40 °C ... +80 °C
FKM	-25 °C ... +115 °C
FKM-PSS	-25 °C ... +115 °C

In the low temperature range, oil seals can withstand shaft deflections (e. g. through overhung load) only to a limited extent. Especially avoid or limit pulsating or changing radial displacements of the shaft. Please contact SEW-EURODRIVE if required.

Limitations of use of radial oil seals with the specific lubricant are indicated in the following table:

	Material class		Manufacturer		Material
S	1 NBR	1	Freudenberg		72 NBR 902
		2	Trelleborg		4NV11
	2 FKM	1	Freudenberg	1	75 FKM 585
				2	75 FKM 170055
		2	Trelleborg	1	VCBVR
		3	SKF	1	FKM 00934

Example 1:

S11 - Only the elastomer Freudenberg 72 NBR 902 meets the requirements of the SEW-EURODRIVE approval in regard of the specific lubricant.

Example 2:

S2 - Only the elastomer FKM meets the requirements of the SEW-EURODRIVE approval in regard of the specific lubricant.

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2. Helical gear units (R..), helical-bevel gear units (K.7), parallel-shaft helical gear units (F..)

Produkt / Product	Umgebungstemperatur / Environment Temperature		Öltyp / Oil Type	ISO, SAE NLGI	SEW EURODRIVE	bremer & leguil	Castrol	FUCHS	Mobil	KLÜBER LUBRICATION	Shell	SINOPEC	TOTAL
R.. RES K..7 KES HK.. F..	Standard -15 … 40		CLP	VG 220	-15 +80 GearOil Base 220 E1/US1/CN1/BR1 SEW 070040313		-15 +80 Optigear BM 220	-15 +80 Renolin CLP 220 Plus SEW 070040313	-15 +80 Mobilgear 600 XP 220 SEW 070040013	-15 +80 Klüberoil GEM 1-220 N	-15 +80 Shell Omala SG 220	-15 +80 AP-SGO 220 SEW 070040313	-15 +80 Carter EP 220
	-20 … 30			VG 150	-20 +80 GearOil Base 150 E1/US1/CN1/BR1 SEW 070040313		-20 +80 Optigear BM 150	-20 +80 Renolin CLP 150 Plus SEW 070040313	-20 +80 Mobilgear 600 XP 150 SEW 070040013	-20 +80 Klüberoil GEM 1-150 N	-20 +80 Shell Omala SG 150	-20 +80 AP-SGO 150 SEW 070040313	-20 +80 Carter EP 150
	Standard -15 … 40		CLP (PSS)	VG 220	-15 +80 GearOil Base 220 E1/US1/CN1/BR1 SEW 070040313			-15 +80 Renolin CLP 220 Plus SEW 070040313	-15 +80 Mobilgear 600 XP 220 SEW 070040013			-15 +80 AP-SGO 220 SEW 070040313	
	-20 … 30			VG 150	-20 +80 GearOil Base 150 E1/US1/CN1/BR1 SEW 070040313			-20 +80 Renolin CLP 150 Plus SEW 070040313	-20 +80 Mobilgear 600 XP 150 SEW 070040013			-20 +80 AP-SGO 150 SEW 070040313	

NOTICE: The thermal application limits of radial oil seal materials (chapter 1.4) have to be considered as well!

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R../ K.7/ F../ K.9/ S../ HS../ W../ HW../ W.9/ PxG/ PS.F/ PS.C/ BS.F/ MGF

Lubricant approvals – latest version: www.sew-eurodrive.de/lubricants

Produkt / Product	Umgebungstemperatur / Environment Temperature		Öltyp / Oil Type	ISO, SAE NLGI	SEW EURODRIVE	bremer & leguil	Castrol	FUCHS	Mobil	KLÜBER LUBRICATION	Shell	SINOPEC	TOTAL
R.. RES K..7 KES HK.. F..	Standard -25 / 80	Ex	CLP PG	VG 220	-25 / +115 GearOil Poly 220 E1 SEW 070040313		-25 / +115 Optigear Synthetic 800/220	-25 / +115 Renolin PG 220	-25 / +115 Mobil Glygoyle 220	-25 / +115 Klübersynth GH 6-220	-25 / +115 Shell Omala S4 WE 220		-25 / +115 Carter SY 220
	-30 / 70			VG 150	-30 / +115 GearOil Poly 150 E1 SEW 070040313					-30 / +115 Klübersynth GH 6-150			
	Standard -25 / 80	Ex	CLP PG (PSS)	VG 220	-25 / +115 GearOil Poly 220 E1 SEW 070040313					-25 / +115 Klübersynth GH 6-220			
	-30 / 70			VG 150	-30 / +115 GearOil Poly 150 E1 SEW 070040313					-30 / +115 Klübersynth GH 6-150			
	-25 / 80	Ex	CLP PG rPCF (PSS)	VG 220	-25 / +115 GearFluid Poly 220 E1 SEW 070040313								
	Standard -25 / 40		CLP PG NSF H1 (PSS)	VG 220	-25 / +95 GearOil Poly 220 H1 E1 SEW 070040313					-25 / +95 Klübersynth UH1 6-220			
	-20 / 80	Ex		VG 460	-20 / +115 GearOil Poly 460 H1 E1 SEW 070040313					-20 / +115 Klübersynth UH1 6-460			
	-30 / 30			VG 150	-30 / +80 GearOil Poly 150 H1 E1 SEW 070040313					-30 / +80 Klübersynth UH1 6-150			

NOTICE: The thermal application limits of radial oil seal materials (chapter 1.4) have to be considered as well!

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Produkt / Product	Umgebungstemperatur / Environment Temperature		Öltyp / Oil Type	ISO, SAE NLGI	SEW EURODRIVE	bremer & leguil	Castrol	FUCHS	Mobil	KLÜBER LUBRICATION	Shell	SINOPEC	TOTAL
R.. RES K..7 KES HK.. F..	Standard -25 / 60	Ex	CLP HC	VG 220[3]	-30 / +110 GearOil Synth 220 E1/US1 SEW 070040313			-25 / +110 Renolin Unisyn CLP 220	-25 / +110 Mobil SHC 630	-25 / +110 Klübersynth GEM 4-220 N	-25 / +110 Shell Omala S4 GX 220		-25 / +110 Carter SH 220
	-30 / 50	Ex	CLP HC	VG 150 [3]	-35 / +105 GearOil Synth 150 E1/US1 SEW 070040313			-30 / +95 Renolin Unisyn CLP 150	-30 / +100 Mobil SHC 629	-30 / +100 Klübersynth GEM 4-150 N	-30 / +100 Shell Omala S4 GX 150		-30 / +95 Carter SH 150
	-35 / 20	Ex	CLP HC	VG 68				-35 / +75 Renolin Unisyn CLP 68	-40 / +75 Mobil SHC 626		-40 / +75 Shell Omala S4 GX 68		
	-40 / 0	Ex	CLP HC	VG 32				-40 / +50 Renolin Unisyn OL32	-40 / +50 Mobil SHC 624				-40 / +50 Dacnis SH 32
	Standard -25 / 60	Ex	CLP HC (PSS)	VG 220[3]	-30 / +110 GearOil Synth 220 E1/US1 SEW 070040313				-25 / +110 Mobil SHC 630				
	-30 / 50	Ex	CLP HC (PSS)	VG 150 [3]	-35 / +105 GearOil Synth 150 E1/US1 SEW 070040313				-30 / +100 Mobil SHC 629				

NOTICE: The thermal application limits of radial oil seal materials (chapter 1.4) have to be considered as well!

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Produkt / Product	Umgebungstemperatur / Environment Temperature		Öltyp / Oil Type	ISO, SAE NLGI	SEW EURODRIVE	bremer & leguil	Castrol	FUCHS	Mobil	KLÜBER LUBRICATION	Shell	SINOPEC	TOTAL
R.. RES K..7 KES HK.. F..	Standard -15 40	Ex	CLP HC NSF H1	VG 460	-20 +110 GearOil Synth 460 H1 E1/US1 SEW 070040313	-15 +100 Cassida Fluid GL 460	-15 +100 Optileb GT 460 SEW 070040313	-15 +100 Cassida Fluid GL 460		-15 +105 Klüberoil 4UH1-460 N			
	-25 30	Ex		VG 220	-30 +90 GearOil Synth 220 H1 E1/US1 SEW 070040313	-25 +80 Cassida Fluid GL 220	-25 +80 Optileb GT 220 SEW 070040313	-25 +80 Cassida Fluid GL 220		-25 +80 Klüberoil 4UH1-220 N			
	-35 0			VG 68		-35 +50 Cassida Fluid HF 68	-40 +50 Optileb HY 68	-35 +50 Cassida Fluid HF 68		-35 +50 Klüberoil 4UH1-68 N			
	-40 -10			VG 32		-40 +30 Cassida Fluid HF 32	-40 +30 Optileb HY 32	-40 +30 Cassida Fluid HF 32		-40 +30 KlüberSummit HySyn FG 32			
	Standard -15 40	Ex	CLP HC NSF H1 (PSS)	VG 460	-20 +110 GearOil Synth 460 H1 E1/US1 SEW 070040313	-15 +100 Cassida Fluid GL 460	-15 +100 Optileb GT 460 SEW 070040313	-15 +100 Cassida Fluid GL 460					
	-25 30	Ex		VG 220	-30 +90 GearOil Synth 220 H1 E1/US1 SEW 070040313	-25 +80 Cassida Fluid GL 220	-25 +80 Optileb GT 220 SEW 070040313	-25 +80 Cassida Fluid GL 220					
	Standard -15 50	Ex	E	VG 460				-15 +95 Plantogear 460 S S2					
	-20 40			VG 320				-20 +85 Plantogear 320 S S2		-20 +85 Klüberbio EG 2-320 S2			

NOTICE: The thermal application limits of radial oil seal materials (chapter 1.4) have to be considered as well!

3. Helical-bevel gear units (K.9)

Produkt / Product	Umgebungstemperatur / Environment Temperature		Öltyp / Oil Type	ISO, SAE NLGI	SEW EURODRIVE	bremer & leguil	Castrol	FUCHS	Mobil	KLÜBER LUBRICATION	Shell	SINOPEC	TOTAL
K.9	Standard -20 … 60		CLP PG (PSS)	VG 460	-20 … +95 GearOil Poly 460 E1 SEW 070040313					-20 … +95 Klübersynth GH 6-460			
	-15 … 80			VG 680						-15 … +115 Klübersynth GH 6-680			
	-25 … 40	Ex		VG 220	-25 … +70 GearOil Poly 220 E1 SEW 070040313					-25 … +70 Klübersynth GH 6-220			
	-30 … 30			VG 150	-30 … +60 GearOil Poly 150 E1 SEW 070040313					-30 … +60 Klübersynth GH 6-150			
	-25 … 40	Ex	CLP PG rPCF (PSS)	VG 220	-25 … +70 GearFluid Poly 220 E1 SEW 070040313								

NOTICE: The thermal application limits of radial oil seal materials (chapter 1.4) have to be considered as well!

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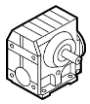
Produkt / Product	Umgebungstemperatur / Environment Temperature		Öltyp / Oil Type	ISO, SAE NLGI	SEW EURODRIVE	bremer & leguil	Castrol	FUCHS	Mobil	KLÜBER LUBRICATION	Shell	SINOPEC	TOTAL
K.9	Standard -20 / 60	Ex	CLP PG NSF H1 (PSS)	VG 460	-20 / +95 GearOil Poly 460 H1 E1 SEW 070040313					-20 / +95 Klübersynth UH1 6-460			
	-15 / 80			VG 680						-15 / +115 Klübersynth UH1 6-680			
	-25 / 40			VG 220	-25 / +70 GearOil Poly 220 H1 E1 SEW 070040313					-25 / +70 Klübersynth UH1 6-220			
	-30 / 30			VG 150	-30 / +60 GearOil Poly 150 H1 E1 SEW 070040313					-30 / +60 Klübersynth UH1 6-150			

NOTICE: The thermal application limits of radial oil seal materials (chapter 1.4) have to be considered as well!

4. Helical-worm gear units (S.., HS..)

Produkt / Product	Umgebungstemperatur / Environment Temperature		Öltyp / Oil Type	ISO, SAE NLGI	SEW EURODRIVE	bremer & leguil	Castrol	FUCHS	Mobil	KLÜBER LUBRICATION	Shell	SINOPEC	TOTAL
S.. HS.. 	Standard 0 – 40		CLP	VG 680	0 / +80 GearOil Base 680 S E1 SEW 070040313		0 / +80 Optigear BM 680	0 / +80 Renolin CLP 680 Plus SEW 070040313	0 / +80 Mobilgear 600 XP 680 SEW 070040313	0 / +80 Klüberoil GEM 1-680 N	0 / +80 Shell Omala SG 680	0 / +80 AP-SGO 680 SEW 070040313	0 / +80 Carter EP 680
	-20 – 25			VG 150	-20 / +65 GearOil Base 150 E1/US1/CN1/BR1 SEW 070040313		-20 / +65 Optigear BM 150	-20 / +65 Renolin CLP 150 Plus SEW 070040313	-20 / +65 Mobilgear 600 XP 150 SEW 070040313	-20 / +65 Klüberoil GEM 1-150 N	-20 / +65 Shell Omala SG 150	-20 / +65 AP-SGO 150 SEW 070040313	-20 / +65 Carter EP 150
	Standard 0 – 40		CLP (PSS)	VG 680	0 / +80 GearOil Base 680 S E1 SEW 070040313			0 / +80 Renolin CLP 680 Plus SEW 070040313	0 / +80 Mobilgear 600 XP 680 SEW 070040313			0 / +80 AP-SGO 680 SEW 070040313	
	-20 – 25			VG 150	-20 / +65 GearOil Base 150 E1/US1/CN1/BR1 SEW 070040313			-20 / +65 Renolin CLP 150 Plus SEW 070040313	-20 / +65 Mobilgear 600 XP 150 SEW 070040313			-20 / +65 AP-SGO 150 SEW 070040313	

NOTICE: The thermal application limits of radial oil seal materials (chapter 1.4) have to be considered as well!

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Produkt / Product	Umgebungstemperatur / Environment Temperature		Öltyp / Oil Type	ISO, SAE NLGI	SEW EURODRIVE	bremer & leguil	Castrol	FUCHS	Mobil	KLÜBER LUBRICATION	Shell	SINOPEC	TOTAL
S.. HS..	Standard -20 80	Ex	CLP PG	VG 460 1)						-20 +115 Klübersynth GH 6-460			
	-25 60	Ex	CLP PG	VG 220 1)			-25 +90 Optigear Synthetic 800/220	-25 +95 Renolin PG 220	-25 +100 Mobil Glygoyle 220	-25 +100 Klübersynth GH 6-220	-25 +90 Shell Omala S4 WE 220		-25 +90 Carter SY 220
	-30 40		CLP PG	VG 150 1)						-30 +85 Klübersynth GH 6-150			
	Standard -20 80	Ex	CLP PG (PSS)	VG 460 1)						-20 +115 Klübersynth GH 6-460			
	-25 60	Ex	CLP PG (PSS)	VG 220 1)						-25 +100 Klübersynth GH 6-220			
	-30 40		CLP PG (PSS)	VG 150 1)						-30 +85 Klübersynth GH 6-150			
	Standard -20 70	Ex	CLP PG NSF H1 (PSS)	VG 460	-20 +110 GearOil Poly 460 H1 E1 SEW 070040313					-20 +110 Klübersynth UH1 6-460			
	-25 40	Ex	CLP PG NSF H1 (PSS)	VG 220	-25 +80 GearOil Poly 220 H1 E1 SEW 070040313					-25 +80 Klübersynth UH1 6-220			
	-30 20		CLP PG NSF H1 (PSS)	VG 150	-30 +65 GearOil Poly 150 H1 E1 SEW 070040313					-30 +65 Klübersynth UH1 6-150			

NOTICE: The thermal application limits of radial oil seal materials (chapter 1.4) have to be considered as well!

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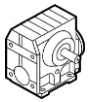
Produkt / Product	Umgebungstemperatur / Environment Temperature		Öltyp / Oil Type	ISO, SAE NLGI	SEW EURODRIVE	bremer & leguil	Castrol	FUCHS	Mobil	KLÜBER LUBRICATION	Shell	SINOPEC	TOTAL
S.. HS.. 	Standard -15 … 60	Ex	CLP HC	VG 460	-20 … +110 GearOil Synth 460 E1/US1 SEW 070040313			-15 … +100 Renolin Unisyn CLP 460	-20 … +105 Mobil SHC 634	-15 … +105 Klübersynth GEM 4-460 N	-15 … +105 Shell Omala S4 GX 460		-15 … +105 Carter SH 460
	-30 … 30	Ex	CLP HC	VG 150 [3]	-35 … +75 GearOil Synth 150 E1/US1 SEW 070040313			-30 … +70 Renolin Unisyn CLP 150	-30 … +75 Mobil SHC 629	-30 … +70 Klübersynth GEM 4-150 N	-30 … +75 Shell Omala S4 GX 150		-30 … +70 Carter SH 150
	-35 … 20	Ex	CLP HC	VG 68				-35 … +50 Renolin Unisyn CLP 68	-40 … +55 Mobil SHC 626		-40 … +50 Shell Omala S4 GX 68		
	-40 … 0	Ex	CLP HC	VG 32				-40 … +30 Renolin Unisyn OL32	-40 … +30 Mobil SHC 624				-40 … +30 Dacnis SH 32
	Standard -15 … 60	Ex	CLP HC (PSS)	VG 460	-20 … +110 GearOil Synth 460 E1/US1 SEW 070040313				-20 … +105 Mobil SHC 634				
	-30 … 30	Ex	CLP HC (PSS)	VG 150 [3]	-35 … +75 GearOil Synth 150 E1/US1 SEW 070040313				-30 … +75 Mobil SHC 629				

NOTICE: The thermal application limits of radial oil seal materials (chapter 1.4) have to be considered as well!

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Produkt / Product	Umgebungstemperatur / Environment Temperature		Öltyp / Oil Type	ISO, SAE NLGI	SEW EURODRIVE	bremer & leguil	Castrol	FUCHS	Mobil	KLÜBER LUBRICATION	Shell	SINOPEC	TOTAL
S.. HS..	Standard -15 / 40	Ex	CLP HC NSF H1	VG 460	-20 / +95 GearOil Synth 460 H1 E1/US1 SEW 070040313	-15 / +85 Cassida Fluid GL 460	-15 / +90 Optileb GT 460 SEW 070040313	-15 / +85 Cassida Fluid GL 460		-15 / +90 Klüberoil 4UH1-460 N			
	-25 / 30	Ex	CLP HC NSF H1	VG 220	-30 / +75 GearOil Synth 220 H1 E1/US1 SEW 070040313	-25 / +70 Cassida Fluid GL 220	-25 / +70 Optileb GT 220 SEW 070040313	-25 / +70 Cassida Fluid GL 220		-25 / +70 Klüberoil 4UH1-220 N			
	-35 / 0		CLP HC NSF H1	VG 68		-35 / +40 Cassida Fluid HF 68	-40 / +40 Optileb HY 68	-35 / +40 Cassida Fluid HF 68		-35 / +40 Klüberoil 4UH1-68 N			
	-40 / -10		CLP HC NSF H1	VG 32		-40 / +25 Cassida Fluid HF 32	-40 / +20 Optileb HY 32	-40 / +25 Cassida Fluid HF 32		-40 / +25 KlüberSummit HySyn FG 32			
	Standard -15 / 40	Ex	CLP HC NSF H1 (PSS)	VG 460	-20 / +95 GearOil Synth 460 H1 E1/US1 SEW 070040313	-15 / +85 Cassida Fluid GL 460	-15 / +90 Optileb GT 460 SEW 070040313	-15 / +85 Cassida Fluid GL 460					
	-25 / 30	Ex	CLP HC NSF H1 (PSS)	VG 220	-30 / +75 GearOil Synth 220 H1 E1/US1 SEW 070040313	-25 / +75 Cassida Fluid GL 220	-25 / +70 Optileb GT 220 SEW 070040313	-25 / +75 Cassida Fluid GL 220					
	Standard -15 / 50	Ex	E	VG 460				-15 / +95 Plantogear 460 S S2					
	-20 / 40		E	VG 320				-20 / +85 Plantogear 320 S S2		-20 / +85 Klüberbio EG 2-320 S2			

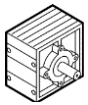
NOTICE: The thermal application limits of radial oil seal materials (chapter 1.4) have to be considered as well!

5. Helical-worm gear units (S.7p)

Produkt / Product	Umgebungstemperatur / Environment Temperature		Öltyp / Oil Type	ISO, SAE NLGI	SEW EURODRIVE	bremer & leguil	Castrol	FUCHS	Mobil	KLÜBER LUBRICATION	Shell	SINOPEC	TOTAL
S.7p	Standard -20 … 80		CLP PG (PSS)	VG 460 [1]	-20 … +115 GearOil Poly 460 E1 SEW 070040313								
	-25 … 60	Ex		VG 220 [1]	-25 … +100 GearOil Poly 220 E1 SEW 070040313								
	-30 … 40			VG 150 [1]	-30 … +85 GearOil Poly 150 E1 SEW 070040313								
	-25 … 60	Ex, Food, Food	CLP PG rPCF (PSS)	VG 220	-25 … +100 GearFluid Poly 220 E1 SEW 070040313								

NOTICE: The thermal application limits of radial oil seal materials (chapter 1.4) have to be considered as well!

6. Spiroplan gear units (W.., HW..)

Produkt / Product	Umgebungstemperatur / Environment Temperature		Öltyp / Oil Type	ISO, SAE NLGI	SEW EURODRIVE	bremer & leguil	Castrol	FUCHS	Mobil	KLÜBER LUBRICATION	Shell	SINOPEC	TOTAL
W.. HW.. 	Standard -20 … 60	Ex	CLP PG (PSS)	VG 460	-20 … +115 GearOil Poly 460 W E1 SEW 070040313								
	-20 … 60	Ex	CLP PG NSF H1 (PSS)	VG 460	-20 … +115 GearOil Poly 460 H1 E1 SEW 070040313					-20 … +115 Klübersynth UH1 6-460			
	-30 … 20			VG 150 [1)]	-30 … 65 GearOil Poly 150 H1 E1 SEW 070040313					-30 … +65 Klübersynth UH1 6-150			
	-40 … 10	Ex	API GL5	SAE 75W90 (~VG 100)					-40 … +65 Mobil Synthetic Gear Oil 75 W90				

NOTICE: The thermal application limits of radial oil seal materials (chapter 1.4) have to be considered as well!

7. Spiroplan gear units (W.9)

Produkt / Product	Umgebungstemperatur / Environment Temperature		Öltyp / Oil Type	ISO, SAE NLGI	SEW EURODRIVE	bremer & leguil	Castrol	FUCHS	Mobil	KLÜBER LUBRICATION	Shell	SINOPEC	TOTAL
W.9	Standard -25 … 60		CLP PG (PSS)	VG 220	-25 +100 GearOil Poly 220 E1 SEW 070040313					-25 +100 Klübersynth GH 6-220			
	-20 … 80			VG 460	-20 +115 GearOil Poly 460 E1 SEW 070040313					-20 +115 Klübersynth GH 6-460			
	-30 … 40			VG 150	-30 +85 GearOil Poly 150 E1 SEW 070040313					-30 +85 Klübersynth GH 6-150			
	-25 … 60		CLP PG rPCF (PSS)	VG 220	-25 +100 GearFluid Poly 220 E1 SEW 070040313								
	Standard -25 … 40		CLP PG NSF H1 (PSS)	VG 220	-25 +80 GearOil Poly 220 H1 E1 SEW 070040313					-25 +80 Klübersynth UH1 6-220			
	-20 … 70			VG 460	-20 +110 GearOil Poly 460 H1 E1 SEW 070040313					-20 +110 Klübersynth UH1 6-460			
	-30 … 20			VG 150	-30 +65 GearOil Poly 150 H1 E1 SEW 070040313					-30 +65 Klübersynth UH1 6-150			

NOTICE: The thermal application limits of radial oil seal materials (chapter 1.4) have to be considered as well!

8. PxG

Produkt / Product		Öltyp / Oil Type	ISO, SAE NLGI	SEW EURODRIVE	bremer & leguil	Castrol	FUCHS	Mobil	KLÜBER LUBRICATION	Shell	SINOPEC	TOTAL
PxG		CLP PG (PSS)	VG 220	-15 / +90 GearOil Poly 220 E1 SEW 070040313								
			VG 150	-20 / +90 GearOil Poly 150 E1 SEW 070040313								
		CLP PG rPCF (PSS)	VG 220	-15 / +90 GearFluid Poly 220 E1 SEW 070040313								
		CLP PG NSF H1 (PSS)	VG 220	-15 / +90 GearOil Poly 220 H1 E1 SEW 070040313								
			VG 150	-20 / +90 GearOil Poly 150 H1 E1 SEW 070040313								
		Fett / Grease	NLGI 2	-15 / +90 Grease HL2 E1								
			NLGI 2	-15 / +90 Grease HL2 H1 E1								

NOTICE: The thermal application limits of radial oil seal materials (chapter 1.4) have to be considered as well!

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9. PS.F gear units

Produkt / Product	Umgebungstemperatur / Environment Temperature		Öltyp / Oil Type	ISO, SAE NLGI	SEW EURODRIVE	bremer & leguil	Castrol	FUCHS	Mobil	KLÜBER LUBRICATION	Shell	SINOPEC	TOTAL
PS.F	Standard -25 / 80	Ex	CLP PG (PSS)	VG 220	-25 / +100 GearOil Poly 220 E1 SEW 070040313					-25 / +100 Klübersynth GH 6-220			
	-25 / 80	Ex, food, water	CLP PG rPCF (PSS)	VG 220	-25 / +100 GearFluid Poly 220 E1 SEW 070040313								
	-20 / 80	Ex, food	CLP PG NSF H1 (PSS)	VG 460	-20 / +100 GearOil Poly 460 H1 E1 SEW 070040313					-20 / +100 Klübersynth UH1 6-460			
	-40 / 0	Ex	CLP HC	VG 32					-40 / +50 Mobil SHC 624				

NOTICE: The thermal application limits of radial oil seal materials (chapter 1.4) have to be considered as well!

10. PS.C gear units

Produkt / Product	Umgebungstemperatur / Environment Temperature		Öltyp / Oil Type	ISO, SAE NLGI	SEW EURODRIVE	bremer & leguil	Castrol	FUCHS	Mobil	KLÜBER LUBRICATION	Shell	SINOPEC	TOTAL
PS.C	Standard -15 … 40		CLP	VG 220	-15 / +80 GearOil Base 220 E1/US1/CN1/BR1 SEW 070040313				-15 / +80 Mobilgear 600 XP 220 SEW 070040013				
	-40 … 0		CLP HC	VG 32					-40 / +50 Mobil SHC 624				
	-20 … 40		Fett / Grease	NLGI 00 [2]					-20 / +80 Mobilux EP 004				
	-20 … 40			NLGI 1						-20 / +80 Klübersynth UH1 14-151			

NOTICE: The thermal application limits of radial oil seal materials (chapter 1.4) have to be considered as well!

11. BS.F gear units

Produkt / Product	Umgebungstemperatur / Environment Temperature		Öltyp / Oil Type	ISO, SAE NLGI	SEW EURODRIVE	bremer & leguil	Castrol	FUCHS	Mobil	KLÜBER LUBRICATION	Shell	SINOPEC	TOTAL
BS.F	Standard -25 60	Ex	CLP PG (PSS)	VG 220	-25 +100 GearOil Poly 220 E1 SEW 070040313					-25 +100 Klübersynth GH 6-220			
	-25 60	Ex	CLP PG rPCF (PSS)	VG 220	-25 +100 GearFluid Poly 220 E1 SEW 070040313								
	-20 60	Ex	CLP PG NSF H1 (PSS)	VG 460	-20 +100 GearOil Poly 460 H1 E1 SEW 070040313					-20 +100 Klübersynth UH1 6-460			

NOTICE: The thermal application limits of radial oil seal materials (chapter 1.4) have to be considered as well!

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12. MGF gear units (MGF..-B, MGF..-C, MGF..-DSM, MGF../PG)

Produkt / Product	Umgebungstemperatur / Environment Temperature		Öltyp / Oil Type	ISO, SAE NLGI	SEW EURODRIVE	bremer & leguil	Castrol	FUCHS	Mobil	KLÜBER LUBRICATION	Shell	SINOPEC	TOTAL
MGF..-C	Standard -25 / 60		CLP HC (PSS)	VG 220	-30 / +110 GearOil Synth 220 E1/US1 SEW 070040313				-25 / +110 Mobil SHC 630				
	-30 / 50			VG 150	-35 / +105 GearOil Synth 150 E1/US1 SEW 070040313				-30 / +100 Mobil SHC 629				
	-40 / 20		CLP HC	VG 68					-40 / +75 Mobil SHC 626				
	Standard -15 / 40		CLP HC NSF H1 (PSS)	VG 460	-20 / +110 GearOil Synth 460 H1 E1/US1 SEW 070040313	-15 / +100 Cassida Fluid GL 460	-15 / +100 Optileb GT 460 SEW 070040313	-15 / +100 Cassida Fluid GL 460					
	-25 / 30			VG 220	-30 / +85 GearOil Synth 220 H1 E1/US1 SEW 070040313	-25 / +80 Cassida Fluid GL 220	-25 / +80 Optileb GT 220 SEW 070040313	-25 / +80 Cassida Fluid GL 220					
	-35 / 10		CLP HC NSF H1	VG 68		-35 / +50 Cassida Fluid HF 68	-40 / +50 Optileb HY 68	-35 / +50 Cassida Fluid HF 68					

NOTICE: The thermal application limits of radial oil seal materials (chapter 1.4) have to be considered as well!

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Produkt / Product	Umgebungstemperatur / Environment Temperature		Öltyp / Oil Type	ISO, SAE NLGI	SEW EURODRIVE	bremer & leguil	Castrol	FUCHS	Mobil	KLÜBER LUBRICATION	Shell	SINOPEC	TOTAL
MGF..-B MGF..-DSM	Standard -25 / 60		CLP HC	VG 220	-30 / +110 GearOil Synth 220 E1/US1 SEW 070040313			-25 / +110 Renolin Unisyn CLP 220	-25 / +110 Mobil SHC 630	-25 / +110 Klübersynth GEM 4-220 N	-25 / +110 Shell Omala S4 GX 220		-25 / +110 Carter SH 220
	-30 / 50			VG 150	-35 / +105 GearOil Synth 150 E1/US1 SEW 070040313			-30 / +95 Renolin Unisyn CLP 150	-30 / +100 Mobil SHC 629	-30 / +100 Klübersynth GEM 4-150 N	-30 / +100 Shell Omala S4 GX 150		-30 / +95 Carter SH 150
	Standard -25 / 60		CLP HC (PSS)	VG 220	-30 / +110 GearOil Synth 220 E1/US1 SEW 070040313				-25 / +110 Mobil SHC 630				
	-30 / 50			VG 150	-35 / +105 GearOil Synth 150 E1/US1 SEW 070040313				-30 / +100 Mobil SHC 629				
	Standard -15 / 40		CLP HC NSF H1	VG 460	-20 / +110 GearOil Synth 460 H1 E1/US1 SEW 070040313	-15 / +100 Cassida Fluid GL 460	-15 / +100 Optileb GT 460 SEW 070040313	-15 / +100 Cassida Fluid GL 460		-15 / +105 Klüberoil 4UH1-460 N			
	-25 / 30			VG 220	-30 / +90 GearOil Synth 220 H1 E1/US1 SEW 070040313	-25 / +80 Cassida Fluid GL 220	-25 / +80 Optileb GT 220 SEW 070040313	-25 / +80 Cassida Fluid GL 220		-25 / +80 Klüberoil 4UH1-220 N			
	Standard -15 / 40		CLP HC NSF H1 (PSS)	VG 460	-20 / +110 GearOil Synth 460 H1 E1/US1 SEW 070040313	-15 / +100 Cassida Fluid GL 460	-15 / +100 Optileb GT 460 SEW 070040313	-15 / +100 Cassida Fluid GL 460					
	-25 / 30			VG 220	-30 / +90 GearOil Synth 220 H1 E1/US1 SEW 070040313	-25 / +80 Cassida Fluid GL 220	-25 / +80 Optileb GT 220 SEW 070040313	-25 / +80 Cassida Fluid GL 220					

NOTICE: The thermal application limits of radial oil seal materials (chapter 1.4) have to be considered as well!

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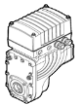
Produkt / Product	Umgebungstemperatur / Environment Temperature		Öltyp / Oil Type	ISO, SAE NLGI	SEW EURODRIVE	bremer & leguil	Castrol	FUCHS	Mobil	KLÜBER LUBRICATION	Shell	SINOPEC	TOTAL
 MGF..-B /PG MGF..-DSM /PG MGF..-C /PG	Standard -25 60		CLP HC (PSS)	VG 220	-30 +110 GearOil Synth 220 E1/US1 SEW 070040313				-25 +110 Mobil SHC 630				
	-30 50			VG 150	-35 +105 GearOil Synth 150 E1/US1 SEW 070040313				-30 +100 Mobil SHC 629				
	Standard -15 40		CLP HC NSF H1 (PSS)	VG 460	-20 +110 GearOil Synth 460 H1 E1/US1 SEW 070040313	-15 +100 Cassida Fluid GL 460	-15 +100 Optileb GT 460 SEW 070040313	-15 +100 Cassida Fluid GL 460					
	-25 30			VG 220	-30 +90 GearOil Synth 220 H1 E1/US1 SEW 070040313	-25 +80 Cassida Fluid GL 220	-25 +80 Optileb GT 220 SEW 070040313	-25 +80 Cassida Fluid GL 220					

NOTICE: The thermal application limits of radial oil seal materials (chapter 1.4) have to be considered as well.