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SEW drives of the series

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Change information:

Chap. /page	Description (changes to the previous edition)	Modification no.
1.1/3	Explanations of the structure of the tables and abbreviations: lubricant table replaced.	210836
1.3/5	Lubricant change intervals: (7) SEW GearOil Poly to GearOil Poly / GearOil Poly H1, (8) SEW GearOil Synth to GearOil Synth / GearOil Synth H1	
1.4/6	Compatibility of lubricants with radial oil seals: SKF FKM 00934 added.	
2-11/7-24	Name changed from „SEW GearOil“ to „GearOil“ of the Base, Synth and Poly series.	
2-11/7-24	Manufacturer SINOPEC added.	
2/10-4/15	Easily biodegradable oil: new viscosity class E320 added.	
2/10-4/15	Easily biodegradable oil E420: lower oil bath temperature from -20°C to -15°C / upper oil bath temperature from 80°C to 95°C. Ambient temperature from -20°C ... 40°C to -15°C ... 50°C.	
7/18	W.9 gear units: approval of Klübersynth GH6 & UH1-6 series and Mobil Glygoyle 220.	
8/19	PxG gear units added.	

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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 <http://www.sew-eurodrive.de/lubricants>.

1.1. Explanations of the structure of the tables and abbreviations

Gear unit type

Ambient temperature range

Note on special approvals

Viscosity class

Produkt / Product	Umgebungstemperatur / Environment Temperature	Öltyp / Oil Type	ISO, SAE NLGI	SEW EURODRIVE	bremser & 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 EL/US1 SEW 070040313		-15 +80 Optigear BM 220	-15 +80 Renolin CLP 220 Plus	-15 +80 Mobilgear 600 XP 220	-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					SEW 070040313	-20 +80 Optigear BM 150	-20 +80 Renolin CLP 150 Plus	-20 +80 Mobilgear 600 XP 150	-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												
	-20 30												
 R.. RES K.7 KES HK.. F..	Standard -15 40	CLP - PSS	VG 220	-15 +80 GearOil Base 220 EL/US1 SEW 070040313			-15 +80 Renolin CLP 220 Plus	-15 +80 Mobilgear 600 XP 220					
	-20 30					SEW 070040313	-20 +80 Renolin CLP 150 Plus	-20 +80 Mobilgear 600 XP 150					
	Standard -15 40												
	-20 30												

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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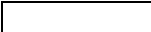
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Abbreviations:

	Synthetic lubricant
	Mineral lubricant
CLP	Mineral oil
CLP PG	Polyglycol (PG)
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.
	Easily biodegradable oil for environmentally sensitive areas
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. Lubricants with the addendum PSS in brackets are compatible both with conventional oil seals and PSS.

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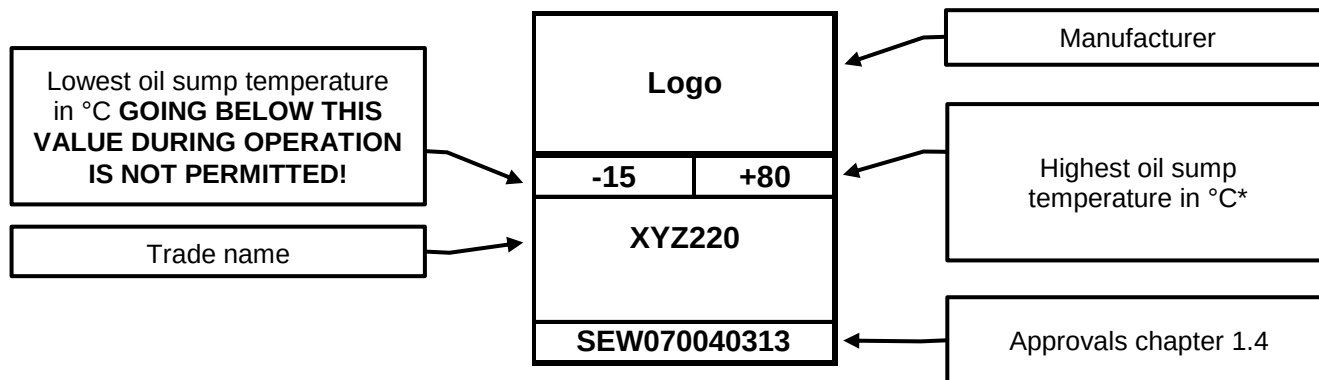
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1.2. Explanations on the individual lubricants

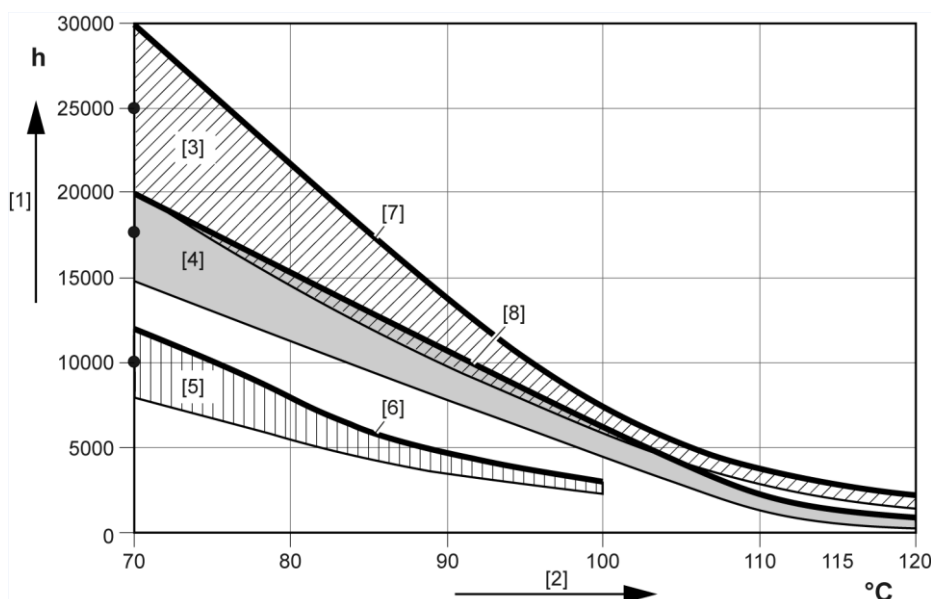


* The service life will be considerably reduced when exceeded. Observe the lubricant change intervals according to chapter 1.3.

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/CPL PG NSF H1
- [4] CLP HC/CLP HC NSF H1
- [5] CLP / E

- [6] SEW GearOil Base
- [7] SEW GearOil Poly / GearOil Poly H1
- [8] SEW GearOil Synth / GearOil Synth H1

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		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	bremser & 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	-15 +80 Mobilgear 600 XP 220	-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			-20 +80 GearOil Base 150 E1 /US1* SEW 070040313		-20 +80 Optigear BM 150	-20 +80 Renolin CLP 150 Plus	-20 +80 Mobilgear 600 XP 150	-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			-15 +80 GearOil Base 220 E1/US1 SEW 070040313			-15 +80 Renolin CLP 220 Plus	-15 +80 Mobilgear 600 XP 220			-15 +80 AP-SGO 220	
	-20 30			-20 +80 GearOil Base 150 E1/US1* SEW 070040313			-20 +80 Renolin CLP 150 Plus	-20 +80 Mobilgear 600 XP 150			-20 +80 AP-SGO 150	
		CLP-PSS	VG 220	-15 +80 GearOil Base 220 E1/US1 SEW 070040313			-15 +80 Renolin CLP 220 Plus	-15 +80 Mobilgear 600 XP 220			-15 +80 AP-SGO 220	
				-20 +80 GearOil Base 150 E1/US1* SEW 070040313			-20 +80 Renolin CLP 150 Plus	-20 +80 Mobilgear 600 XP 150			-20 +80 AP-SGO 150	

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

* Viscosity as US version available on request.

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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 80	⊗	CLP PG	VG 220	-25 +115 Gear Oil 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				-30 +115 Gear Oil Poly 150 E1 SEW 070040313					-30 +115 Klübersynth GH 6-150			
	Standard -25 80				-25 +115 Gear Oil Poly 220 E1 SEW 070040313					-25 +115 Klübersynth GH 6-220			
	-30 70	⊗	CLP PG -PSS	VG 150	-30 +115 Gear Oil Poly 150 E1 SEW 070040313					-30 +115 Klübersynth GH 6-150			
	Standard -25 40				-25 +95 Gear Oil Poly 220 H1 E1 SEW 070040313					-25 +95 Klübersynth UH1 6-220			
	-20 80				-20 +115 Gear Oil Poly 460 H1 E1 SEW 070040313					-20 +115 Klübersynth UH1 6-460			
	-30 30	⊗	CLP PG-NSF H1 (-PSS)	VG 150	-30 +80 Gear Oil 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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 R.. RES K.7 KES HK.. F..  	Standard -25 60	 CLP HC	VG 220 ³⁾	-30 +110 GearOil Synth 220 E1 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			-35 +105 GearOil Synth 150 E1 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			VG 68			-35 +75 Renolin Unisyn CLP 68	-40 +75 Mobil SHC 626		-40 +75 Shell Omala S4 GX 68		
	-40 0			VG 32			-40 +50 Renolin Unisyn OL32	-40 +50 Mobil SHC 624				-40 +50 Dacnis SH 32
	Standard -25 60		VG 220 ³⁾	-30 +110 GearOil Synth 220 E1 SEW 070040313				-25 +110 Mobil SHC 630				
	-30 50			-35 +105 GearOil Synth 150 E1 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	bremser & leguill	Castrol	FUCHS	Mobil	KLÜBER LUBRICATION	Shell	SINOPEC	TOTAL	
 R.. RES K.7 KES HK.. F..  	Standard -15 40	  CLP HC - NSF H1	VG 460	-20 +110	-15 +100	-15 +100	-15 +100		-15 +105				
	GearOil Synth 460 H1 E1			Cassida Fluid GL 460	Optileb GT 460	Cassida Fluid GL 460	Klüberoil 4UH1-460 N						
	SEW 070040313			SEW 070040313									
	-30 +90			-25 +80	-25 +80	-25 +80	-25 +80		Klüberoil 4UH1-220 N				
	GearOil Synth 220 H1 E1			Cassida Fluid GL 220	Optileb GT 220	Cassida Fluid GL 220							
	SEW 070040313			SEW 070040313									
	-35 0				-35 +50	-40 +50	-35 +50		-35 +50				Klüberoil 4UH1-68 N
	GearOil Synth 220 H1 E1			Cassida Fluid GL 220	Optileb GT 220	Cassida Fluid GL 220							
	SEW 070040313	SEW 070040313											
	-40 -10		-40 +30	-40 +30	-40 +30	-40 +30	KlüberSummit HySyn FG 32						
	GearOil Synth 460 H1 E1	Cassida Fluid GL 460	Optileb GT 460	Cassida Fluid GL 460									
	SEW 070040313	SEW 070040313											
-25 30	  CLP HC - NSF H1 - PSS	VG 220	-30 +90	-25 +80	-25 +80	-25 +80							
GearOil Synth 220 H1 E1			Cassida Fluid GL 220	Optileb GT 220	Cassida Fluid GL 220								
SEW 070040313			SEW 070040313										
Standard -15 50	 E 	VG 460				-15 +95		-15 +95					
Plantogear 460 S			Klüberbio CA2-460										
S2			S2										
-20 +85			Plantogear 320 S										
-20 40		VG 320				S2							

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

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

Produkt / Product	Umgebungstemperatur / Environment Temperature	Öltyp / Oil Type	ISO, SAE NLGI	SEW EURODRIVE	bremer & leguill	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			-25 +70 GearOil Poly 220 E1 SEW 070040313					-25 +70 Klübersynth GH 6-220			
	-30 30			-30 +60 GearOil Poly 150 E1 SEW 070040313					-30 +60 Klübersynth GH 6-150			
	Standard -20 60	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			-25 +70 GearOil Poly 220 H1 E1 SEW 070040313					-25 +70 Klübersynth UH1 6-220			
	-30 30			-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!

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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	0 +80 Mobilgear 600 XP 680	0 +80 Klüberoil GEM 1-680 N	0 +80 Shell Omala SG 680	0 +80 AP-SGO 680	0 +80 Carter EP 680
	-20 25			-20 +65 GearOil Base 150 E1/US1* SEW 070040313		-20 +65 Optigear BM 150	-20 +65 Renolin CLP 150 Plus	-20 +65 Mobilgear 600 XP 150	-20 +65 Klüberoil GEM 1-150 N	-20 +65 Shell Omala SG 150	-20 +65 AP-SGO 150	-20 +65 Carter EP 150
	Standard 0 40			0 +80 GearOil Base 680 S E1 SEW 070040313			0 +80 Renolin CLP 680 Plus	0 +80 Mobilgear 600 XP 680			0 +80 AP-SGO 680	
	-20 25			-20 +65 GearOil Base 150 E1/US1* SEW 070040313			-20 +65 Renolin CLP 150 Plus	-20 +65 Mobilgear 600 XP 150			-20 +65 AP-SGO 150	
		CLP-PSS	VG 680	0 +80 GearOil Base 680 S E1 SEW 070040313			0 +80 Renolin CLP 680 Plus	0 +80 Mobilgear 600 XP 680			0 +80 AP-SGO 680	
	-20 25			-20 +65 GearOil Base 150 E1/US1* SEW 070040313			-20 +65 Renolin CLP 150 Plus	-20 +65 Mobilgear 600 XP 150			-20 +65 AP-SGO 150	
				0 +80 GearOil Base 680 S E1 SEW 070040313			0 +80 Renolin CLP 680 Plus	0 +80 Mobilgear 600 XP 680			0 +80 AP-SGO 680	
	-20 25			-20 +65 GearOil Base 150 E1/US1* SEW 070040313			-20 +65 Renolin CLP 150 Plus	-20 +65 Mobilgear 600 XP 150			-20 +65 AP-SGO 150	

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

* Viscosity as US version available on request.

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Produkt / Product	Umgebungstemperatur / Environment Temperature		Öltyp / Oil Type	ISO, SAE NLGI					Mobil			SINOPEC		
S.. HS.. 	Standard -20 80		CLP PG	VG 460 ¹⁾						-20 +115 Klübersynth GH 6-460				
	-25 60					-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								-30 +85 Klübersynth GH 6-150					
	Standard -20 80		CLP PG -PSS	VG 460 ¹⁾						-20 +115 Klübersynth GH 6-460				
	-25 60								-25 +100 Klübersynth GH 6-220					
	-30 40								-30 +85 Klübersynth GH 6-150					
	Standard -20 70	 	CLP PG - NSF H1 (PSS)	VG 460	-20 +110 GearOil Poly 460 H1 E1					-20 +110 Klübersynth UH1 6-460				
	SEW 070040313													
	VG 220				-25 +80 GearOil Poly 220 H1 E1					-25 +80 Klübersynth UH1 6-220				
				SEW 070040313										
				VG 150	-30 +65 GearOil Poly 150 H1 E1					-30 +65 Klübersynth UH1 6-150				
	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 -15 60	CLP HC 	VG 460				-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		VG 150 ³⁾				-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		VG 68				-35 +50 Renolin Unisyn CLP 68	-40 +55 Mobil SHC 626		-40 +50 Shell Omala S4 GX 68		
	-40 0		VG 32				-40 +30 Renolin Unisyn OL32	-40 +30 Mobil SHC 624				-40 +30 Dacnis SH 32
	Standard -15 60	CLP HC -PSS 	VG 460					-20 +105 Mobil SHC 634				
	-30 30		VG 150 ³⁾					-30 +75 Mobil SHC 629				

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

Supplier Approval

SEW drives of the series

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Produkt / Product	Umgebungstemperatur / Environment Temperature	Öltyp / Oil Type	ISO, SAE NLGI	SEW EURODRIVE	bremser & leguil	Castrol	FUCHS	Mobil	KLÜBER LUBRICATION	Shell	SINOPEC	TOTAL
S.. HS.. 	Standard -15 40	Ex CLP HC - NSF H1 Fork icon	VG 460		-15 +85	-15 +90	-15 +85		-15 +90			
					Cassida Fluid GL 460	Optileb GT 460	Cassida Fluid GL 460		Klüberoil 4UH1-460 N			
					SEW 070040313							
					-25 +75	-25 +70	-25 +75		-25 +70			
	-25 30	Ex CLP HC - NSF H1 - PSS Fork icon	VG 220		Cassida Fluid GL 220	Optileb GT 220	Cassida Fluid GL 220		Klüberoil 4UH1-220 N			
					SEW 070040313							
					-35 +40	-40 +40	-35 +40		-35 +40			
	-35 0		VG 68		Cassida Fluid HF 68	Optileb HY 68	Cassida Fluid HF 68		Klüberoil 4UH1-68 N			
					-40 +25	-40 +20	-40 +25		-40 +25			
	-40 -10		VG 32		Cassida Fluid HF 32	Optileb HY 32	Cassida Fluid HF 32		KlüberSummit HySyn FG 32			
	Standard -15 40	Ex CLP HC - NSF H1 - PSS Fork icon	VG 460		-25 +75	-15 +90	-25 +75					
					Cassida Fluid GL 220	Optileb GT 460	Cassida Fluid GL 220					
					SEW 070040313							
					-35 +40	-25 +70	-35 +40					
	-25 30	Ex E Motor icon	VG 460				-15 +95		-15 +95			
							Plantogear 460 S		Klüberbio CA2-460			
							S2		S2			
							-20 +85					
	-20 40		VG 320				Plantogear 320 S					
							S2					

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

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

Produkt / Product	Umgebungstemperatur / Environment Temperature	Öltyp / Oil Type	ISO, SAE NLGI	SEW EURODRIVE	b bremer & leguill	Castrol	FUCHS	Mobil	KLÜBER LUBRICATION	Shell	SINOPEC	TOTAL
S.7p 	Standard -20 80	CLP PG (PSS) 	VG 460 ¹⁾	-20 +115								
	Gear Oil Poly 460 E1											
	SEW 070040313											
	VG 220 ¹⁾		-25 +100									
			Gear Oil Poly 220 E1									
			SEW 070040313									
	VG150 ¹⁾		-30 +85									
			Gear Oil Poly 150 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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SEW drives of the series

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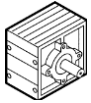
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6. Spiroplan gear units (W.., HW..)

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	 CLP PG (PSS)	VG 460	-20 +115 GearOil Poly 460 W E1 SEW 070040313								
	-20 60	 CLP PG NSF H1 (PSS)	VG 460	-20 +115 GearOil Poly 460 H1 E1 SEW 070040313					-20 +115 Klübersynth UH1 6-460			
	-30 20	 CLP PG NSF H1 (PSS)	VG150 ¹⁾	-30 65 GearOil Poly 150 H1 E1 SEW 070040313					-30 +65 Klübersynth UH1 6-150			
	-40 10	 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!

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7. Spiroplan gear units (W.9)

Produkt / Product	Umgebungstemperatur / Environment Temperature	Öltyp / Oil Type	ISO, SAE NLGI	SEW EURODRIVE	bremer & leguill	Castrol	FUCHS	Mobil	KLÜBER LUBRICATION	Shell	SINOPEC	TOTAL
W.9 	Standard -25 60	CLP PG	VG 220	-25 +100 Gear Oil Poly 220 E1 SEW 070040313				-25 +95 Mobil Glygoyle 220	-25 +100 Klübersynth GH 6-220			
	Standard -25 60			-25 +100 Gear Oil Poly 220 E1 SEW 070040313					-25 +100 Klübersynth GH 6-220			
	-20 80			-20 +115 Gear Oil Poly 460 E1 SEW 070040313					-20 +115 Klübersynth GH 6-460			
	-30 40	CLP PG - PSS	VG 150	-30 +85 Gear Oil Poly 150 H1 E1 SEW 070040313					-30 +85 Klübersynth GH 6-150			
	Standard -25 40			-25 +80 Gear Oil Poly 220 H1 E1 SEW 070040313					-25 +80 Klübersynth UH1 6-220			
	-20 70			-20 +110 Gear Oil Poly 460 H1 E1 SEW 070040313					-20 +110 Klübersynth UH1 6-460			
	-30 20	CLP PG - NSF H1 (PSS)	VG 150	-30 +65 Gear Oil Poly 150 H1 E1 SEW 070040313					-30 +65 Klübersynth UH1 6-150			
		CLP PG - NSF H1 (PSS)	VG 460	-20 +110 Gear Oil Poly 460 H1 E1 SEW 070040313					-20 +110 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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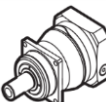
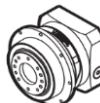
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8. PxG

Produkt / Product		Öltyp / Oil Type	ISO, SAE NLGI	SEW EURODRIVE		bremner & leguil	Castrol	FUCHS	Mobil	KLÜBER LUBRICATION	Shell	SINOPEC	TOTAL
 PxG 		CLP PG (PSS)	VG 220	-15	+90								
				GearOil Poly 220 E1									
				SEW 070040313									
		VG150	-20	+90									
			GearOil Poly 150 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								
				SEW Grease HL2 E1									
			NLGI 2	-15	+90								
				SEW 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				Mobil			SINOPEC						
PS.F 	Standard			CLP PG (PSS)	VG 220					-25	+100							
	-25	80								GearOil Poly 220 EL					-25	+100	Klübersynth GH 6-220	
										SEW 070040313								
			 	CLP PG NSF H1 (PSS)	VG 460						-20	+100						
	-20	80									GearOil Poly 460 H1 EL					-20	+100	Klübersynth UH1 6-460
											SEW 070040313							
			CLP HC	VG 32					-40	+50								
-40	0								Mobil SHC 624									

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

Supplier Approval

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10. PS.C gear units

Produkt / Product	Umgebungstemperatur / Environment Temperature		Öltyp / Oil Type	ISO, SAE NLGI	SEW EURODRIVE				Mobil			SINOPEC	
	Standard -15 40		CLP	VG 220	-15 +80 GearOil Base 220 E1 / US1 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				Mobil			SINOPEC	
	Standard -25 60		CLP PG (PSS)	VG 220	-25 +100 GearOil Poly 220 E1 SEW 070040313					-25 +100 Klübersynth GH 6-220			
	-20 60	 	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!

Supplier Approval

SEW drives of the series

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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	bremner & leguil	Castrol	FUCHS	Mobil	KLÜBER LUBRICATION	Shell	SINOPEC	TOTAL
	Standard -25 60	CLP HC (PSS)	VG 220	-30 +110 GearOil Synth 220 E1 SEW 070040313				-25 +110 Mobil SHC 630				
	-30 50			-35 +105 GearOil Synth 150 E1 SEW 070040313				-30 +100 Mobil SHC 629				
	Standard -15 40			-20 +110 Gear Oil Synth 460 H1 E1 SEW 070040313				-15 +100 Cassida Fluid GL 460				
	-25 30			-30 +85 GearOil Synth 220 H1 E1 SEW 070040313				-25 +80 Cassida Fluid GL 220				
	Standard -15 40	CLP HC - NSF H1 (PSS)	VG 460	-20 +110 Gear Oil Synth 460 H1 E1 SEW 070040313	-15 +100 Cassida Fluid GL 460	-15 +100 Optileb GT 460	-15 +100 Cassida Fluid GL 460					
	-25 30			-30 +85 GearOil Synth 220 H1 E1 SEW 070040313								
	Standard -15 40			-20 +110 Gear Oil Synth 460 H1 E1 SEW 070040313								
	-25 30			-30 +85 GearOil Synth 220 H1 E1 SEW 070040313								

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

Supplier Approval

SEW drives of the series

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Produkt / Product	Umgebungstemperatur / Environment Temperature	Öltyp / Oil Type	ISO, SAE NLGI	SEW EURODRIVE	bremner & 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 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			-35 +105 GearOil Synth 150 E1 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			-30 +110 GearOil Synth 220 E1 SEW 070040313				-25 +110 Mobil SHC 630				
	-30 50			-35 +105 GearOil Synth 150 E1 SEW 070040313				-30 +100 Mobil SHC 629				
	Standard -15 40		VG 460	-20 +110 GearOil Synth 460 H1 E1 SEW 070040313	-15 +100 Cassida Fluid GL 460	-15 +100 Optileb GT 460	-15 +100 Cassida Fluid GL 460		-15 +105 Klüberoil 4UH1-460 N			
	-25 30			-30 +90 GearOil Synth 220 H1 E1 SEW 070040313	-25 +80 Cassida Fluid GL 220	-25 +80 Optileb GT 220	-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 SEW 070040313	-15 +100 Cassida Fluid GL 460	-15 +100 Optileb GT 460	-15 +100 Cassida Fluid GL 460					
	-25 30			-30 +90 GearOil Synth 220 H1 E1 SEW 070040313	-25 +80 Cassida Fluid GL 220	-25 +80 Optileb GT 220	-25 +80 Cassida Fluid GL 220					
			VG 220	-20 +110 GearOil Synth 460 H1 E1 SEW 070040313	-15 +100 Cassida Fluid GL 460	-15 +100 Optileb GT 460	-15 +100 Cassida Fluid GL 460					
				-30 +90 GearOil Synth 220 H1 E1 SEW 070040313	-25 +80 Cassida Fluid GL 220	-25 +80 Optileb GT 220	-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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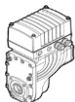
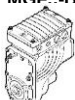
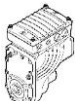
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Produkt / Product	Umgebungstemperatur / Environment Temperature	Öltyp / Oil Type	ISO, SAE NLGI	SEW EURODRIVE	bremser & leguil	Castrol	FUCHS	Mobil	KLÜBER LUBRICATION	Shell	SINOPEC	TOTAL
 MGF...R  MGF...C /PG 	Standard -25 60	CLP HC (PSS)	VG 220	-30 +110 GearOil Synth 220 E1 SEW 070040313				-25 +110 Mobil SHC 630				
	-30 50			-35 +105 GearOil Synth 150 E1 SEW 070040313				-30 +100 Mobil SHC 629				
	Standard -15 40			-20 +110 GearOil Synth 460 H1 E1 SEW 070040313	-15 +100 Cassida Fluid GL 460	-15 +100 Optileb GT 460	-15 +100 Cassida Fluid GL 460					
	-25 30			-30 +90 GearOil Synth 220 H1 E1 SEW 070040313	-25 +80 Cassida Fluid GL 220	-25 +80 Optileb GT 220	-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.