

Supplier Approval

SEW drives of the series

X.F... / X.K... / P... / XP... / P-X...

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

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Change information:

Chap. /page	Description (changes to the previous edition)	Modification no.
General	SEW lubricants added.	
	Lubricant supplier Texaco deleted.	
1.3 / 4	Chapter lubricant change intervals added.	
1.4 / 5	Oil supply systems extended.	
1.5 / 6	Specifications on radial oil seals extended.	

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1. Introduction/area of application




The present document describes the approved lubricants for SEW-EURODRIVE industrial gear units (helical gear units, bevel-helical gear units and planetary gear units). The approvals are valid worldwide.

SEW accepts no liability if different lubricants are used in the gear units and/or they are used outside of the recommended temperature ranges.

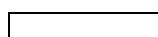
Lubricants for industrial gear units are subject to approval. The approval will be made according to the document "Supplier approval for qualification and approval of lubricants – gear unit oils" 07004__13 in its current version.

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	Öltyp / Oil Type	ISO, SAE NLGI	SEW EURODRIVE	bremser & leguil		Castrol	
X...	CLP HC NSF H1	VG 68 ¹⁾		-35 -20 -10	+45	-40 -25 -15	+45
				Cassida Fluid HF 68		Optileb HY 68	
P...	CLP HC NSF H1	VG 220 ¹⁾		-20 -5 +5	+75	-25 -5 +5	+75
				Cassida Fluid GL 220		Optileb GT 220	
						SEW 07004213	
	CLP HC NSF H1	VG 460 ¹⁾		-15 +5 +20	+90	-15 +5 +20	+95
				Cassida Fluid GL 460		Optileb GT 460	
						SEW 07004213	

Abbreviations:



Mineral lubricant



Synthetic lubricant

CLP

Mineral oil

CLP HC

Synthetic hydrocarbons (PAO)

E

Oil based on esters



Lubricant for the food industry (**NSF H1**-compliant)



Biodegradable oil (lubricant for agriculture, forestry, and water management)

1) Lubricants must only be used if service factor is $F_s \geq 1.3$

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

RWDR

Radial oil seal

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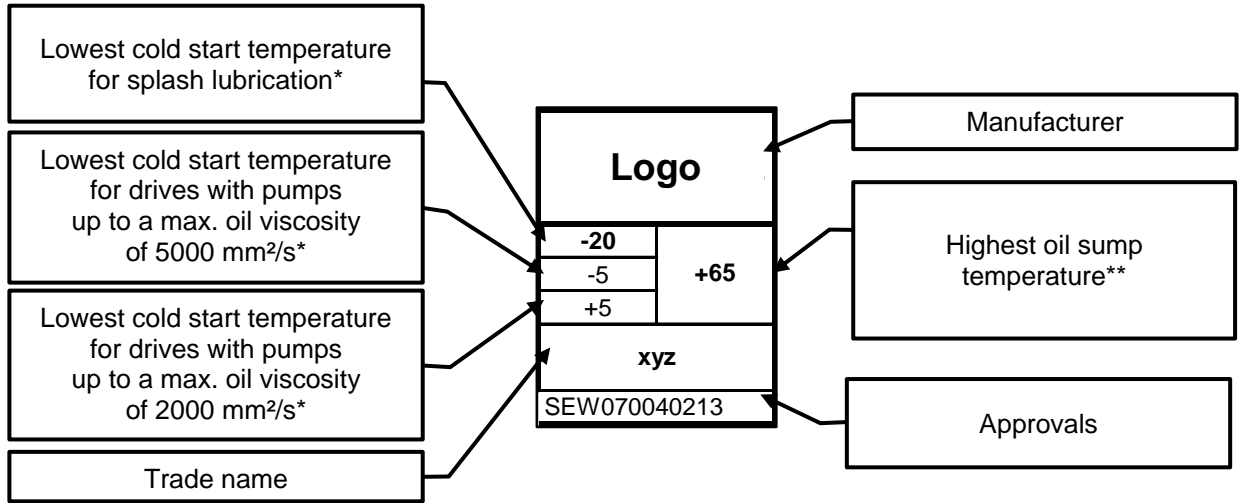
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1.2 Explanations on the individual lubricants

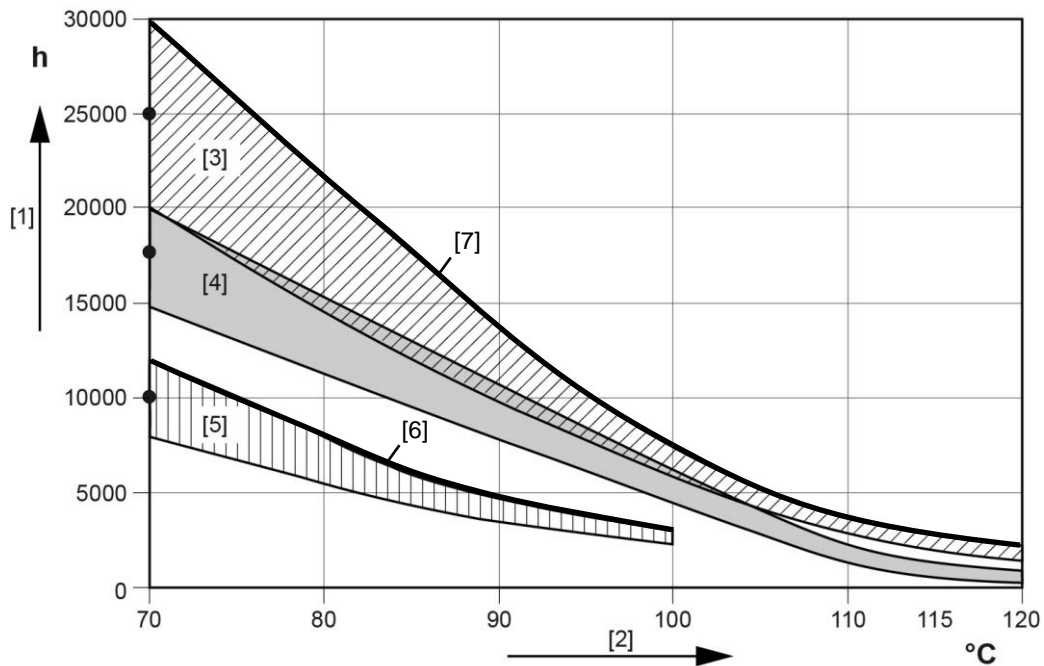


* In case of low temperatures, the oil must be heated to the specified minimum temperature, for example by using an oil heater. The maximum permitted oil viscosity per pump type can be found in chapter 1.4.

** 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.



- | | |
|---|---------------------------|
| [1] Operating hours | [4] CLP HC/CLP HC NSF H1 |
| [2] Sustained oil bath temperature
Average value per oil type at 70 °C | [5] CLP (CC)/E |
| [3] CLP PG/CPL PG NSF H1 | [6] SEW GearOil Base |
| | [7] SEW GearOil Poly (H1) |

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1.4 Explanations on oil supply systems and their viscosity

Type	Name	Supplier	Maximum oil viscosity [mm ² /s]	Picture	Comment
Shaft end pump for pressure lubrication	SEP		5000		Flanged on the gearbox housing
Shaft end pump for pressure lubrication	SEP		2000		Mounted inside the vertical agitator gearbox housing
Motor pump for pressure lubrication	ONP		2000		
Motor pump for pressure lubrication	ONP		2000		
Motor pump for pressure lubrication (light)	ONP1L		5000		
Motor pump for pressure lubrication	ONP1		5000		
Device for oil cooling by air	OAC		2000		
Motor pump an heat exchanger for pressure lubrication and cooling by air	OAP		2000		
Device for oil cooling by water	OWC	 	2000		
Motor pump an heat exchanger for pressure lubrication and cooling by water	OWP	 	2000		
Device for oil cooling by air	OAC1		5000		
Motor pump an heat exchanger for pressure lubrication and cooling by air	OAP1		5000		
Device for oil cooling by water	OWC1		5000		
Motor pump an heat exchanger for pressure lubrication and cooling by water	OWP1		5000		

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1.5 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.

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

Material class	Manufacturer	Material	Permitted oil sump temperature		
S	1 NBR	1 Freudenberg	72 NBR 902	-40° C ²⁾ to +80 °C	
		2 Trelleborg	4NV11	-40° C ²⁾ to +80 °C	
	2 FKM	1 Freudenberg	1	75 FKM 585	-25° C ²⁾ to +115 °C
			2	75 FKM 170055	-25° C ²⁾ to +115 °C
		2 Trelleborg	1	VCBVR	-25° C ²⁾ to +115 °C

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. Industrial gear units (X.F..., X.K..., P..., XP..., P-X...)

Typ / Type	Öltyp / Oil Type	ISO, SAE NLGI	SEW EURODRIVE				Mobil																	
X... 	CLP	VG 150 ¹⁾	-20	+65	-20	+65	-20	+65	-20	+65	-20	+65	-20	+65	-20	+65	-20	+65	-20	+65	-20	+65		
			-5		-5		-5		-5		-5		-5		-5		-5		-5		-5		-5	-5
			+5		+5		+5		+5		+5		+5		+5		+5		+5		+5		+5	+5
			SEW Gear Oil Base 150 E ¹			Optigear BM 150	Alpha SP 150	Renolin CLP 150 Plus	Renolin HighGear 150	Mobilgear 600 XP 150	Klüberoil GEM 1-150 N													
			SEW070040313			SEW070040313			SEW070040013															
P... 	CLP	VG 220	-15	+75	-15	+75	-15	+75	-15	+75	-15	+75	-15	+75	-15	+75	-15	+75	-15	+75	-15	+75		
			0		0		0		0		0		0		0		0		0		0		0	
			+10		+10		+10		+10		+10		+10		+10		+10		+10		+10		+10	
			SEW Gear Oil Base 220 E ¹			Optigear BM 220	Alpha SP 150	Renolin CLP 220 Plus	Renolin HighGear 220	Mobilgear 600 XP 220	Klüberoil GEM 1-220 N			Shell Omala Oil F 220	Carter EP 220									
			SEW070040313			SEW070040313			SEW070040013															
P... 	CLP	VG 320	-10	+85	-10	+85	-10	+85	-10	+85	-10	+85	-10	+85	-10	+85	-10	+85	-10	+85	-10	+85		
			+5		+5		+5		+5		+5		+5		+5		+5		+5		+5		+5	
			+15		+15		+15		+15		+15		+15		+15		+15		+15		+15		+15	
			SEW Gear Oil Base 320 E ¹			Optigear BM 320	Alpha SP 320	Renolin CLP 320 Plus	Renolin HighGear 320	Mobilgear 600 XP 320	Klüberoil GEM 1-320 N			Shell Omala Oil F 320	Carter EP 320									
			SEW070040313			SEW070040313			SEW070040013															
P... 	CLP	VG 460	-5	+90	-5	+90	-5	+90	-5	+90	-5	+90	-5	+90	-5	+90	-5	+90	-5	+90	-5	+90		
			+10		+10		+10		+10		+10		+10		+10		+10		+10		+10		+10	
			+20		+20		+20		+20		+20		+20		+20		+20		+20		+20		+20	
			SEW Gear Oil Base 460 E ¹			Optigear BM 460	Alpha SP 460	Renolin CLP 460 Plus	Renolin HighGear 460	Mobilgear 600 XP 460	Klüberoil GEM 1-460 N			Shell Omala Oil F 460	Carter EP 460									
			SEW070040313			SEW070040313			SEW070040013															
P... 	CLP	VG 680	0	+90	0	+90	0	+90	0	+90	0	+90	0	+90	0	+90	0	+90	0	+90	0	+90		
			+15		+15		+15		+15		+15		+15		+15		+15		+15		+15		+15	
			+25		+25		+25		+25		+25		+25		+25		+25		+25		+25		+25	
			SEW Gear Oil Base 680 E ¹			Optigear BM 680	Alpha SP 680	Renolin CLP 680 Plus	Renolin HighGear 680	Mobilgear 600 XP 680	Klüberoil GEM 1-680 N			Carter EP 680										
			SEW070040313			SEW070040313			SEW070040013															
P... 	CLP	VG 1000	+5	+90	+5	+90	+5	+90	+5	+90	+5	+90	+5	+90	+5	+90	+5	+90	+5	+90	+5	+90		
			+20		+20		+20		+20		+20		+20		+20		+20		+20		+20		+20	
			+30		+30		+30		+30		+30		+30		+30		+30		+30		+30		+30	
						Optigear BM 1000																		

NOTICE: The thermal application limits of radial oil seal materials (chapter 1.5) have to be considered as well.

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Typ / Type	Öltyp / Oil Type	ISO, SAE NLGI	SEW EURODRIVE				Mobil				
X... 	CLP HC	VG 32 ¹⁾									
		VG 68 ¹⁾									
		VG 150 ¹⁾									
		VG 220									
		VG 320									
		VG 460									
		VG 680									
P... 		VG 1000									

NOTICE: The thermal application limits of radial oil seal materials (chapter 1.5) have to be considered as well.

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Typ / Type	Öltyp / Oil Type	ISO, SAE NLGI	SEW EURODRIVE	bremser & leguil	Castrol	FUCHS	Mobil	KLÜBER LUBRICATION	Shell	TOTAL	
X... 	II CLP HC NSF H1	VG 68 ¹⁾	-35	+45	-40	+45					
			-20		-25						
-10			-15								
			Cassida Fluid HF 68		Optileb HY 68						
P... 	II CLP HC NSF H1	VG 220 ¹⁾	-20	+75	-25	+75					
			-5		-5						
+5			+5								
			Cassida Fluid GL 220		Optileb GT 220						
E 	II CLP HC NSF H1	VG 460 ¹⁾	-15	+90	-15	+95					
			+5		+5						
+20			+20								
			Cassida Fluid GL 460		Optileb GT 460						
	E	VG 460									

NOTICE: The thermal application limits of radial oil seal materials (chapter 1.5) have to be considered as well.