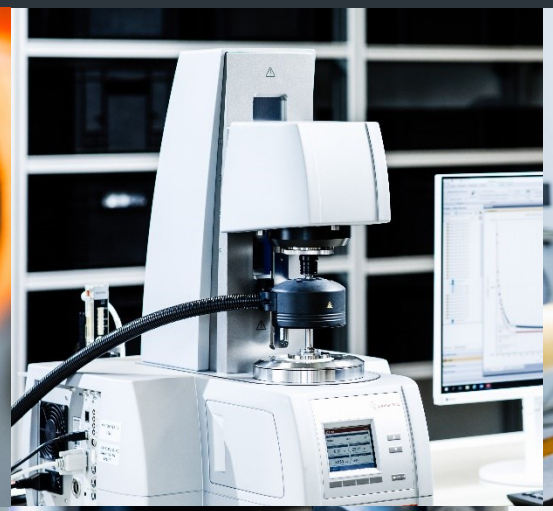
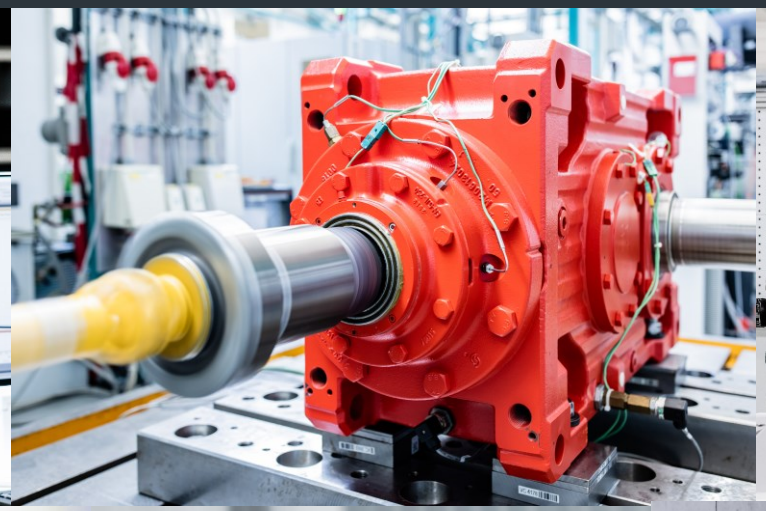
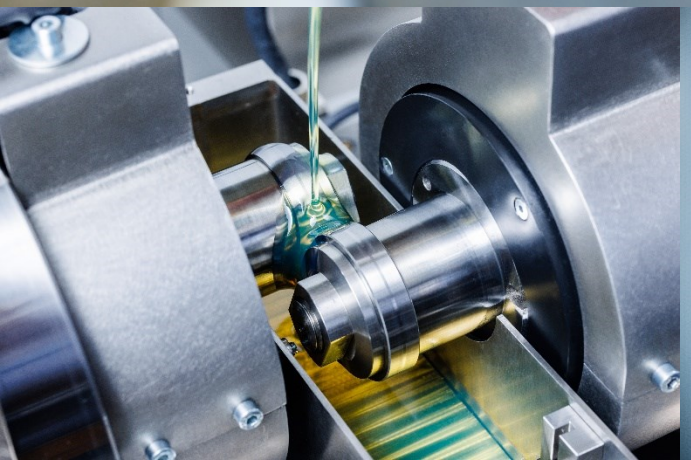
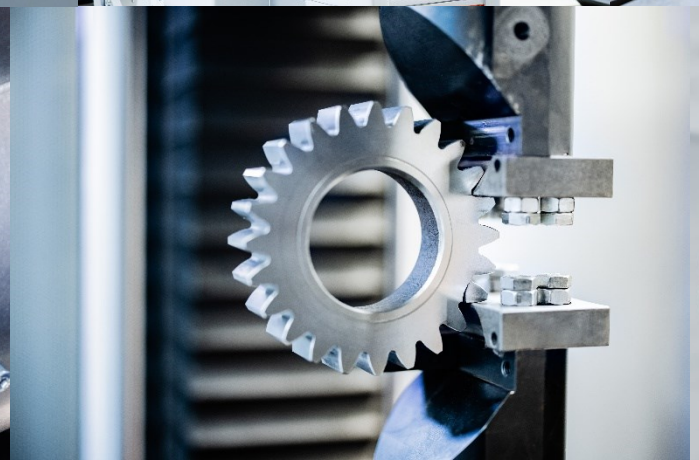
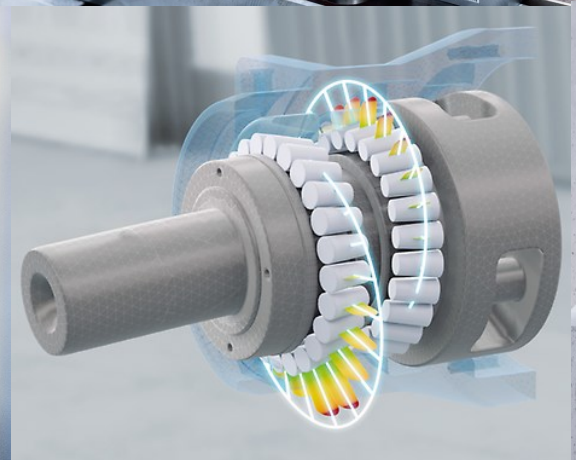
SEW-Eurodrive Gear Units and Their Lubricants for Increased Efficiency and Service Life


Your motion is our drive

SEW-Eurodrive Lubricants

Lubricants @ SEW-EURODRIVE

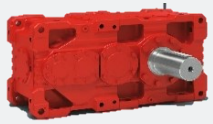
- Approval process for lubricants
- Selection of lubricants
- Dynamic seal test

Performance Examples

- Differentiation in Gear Units
- Differentiation in Sealing Systems

Oil flow simulation

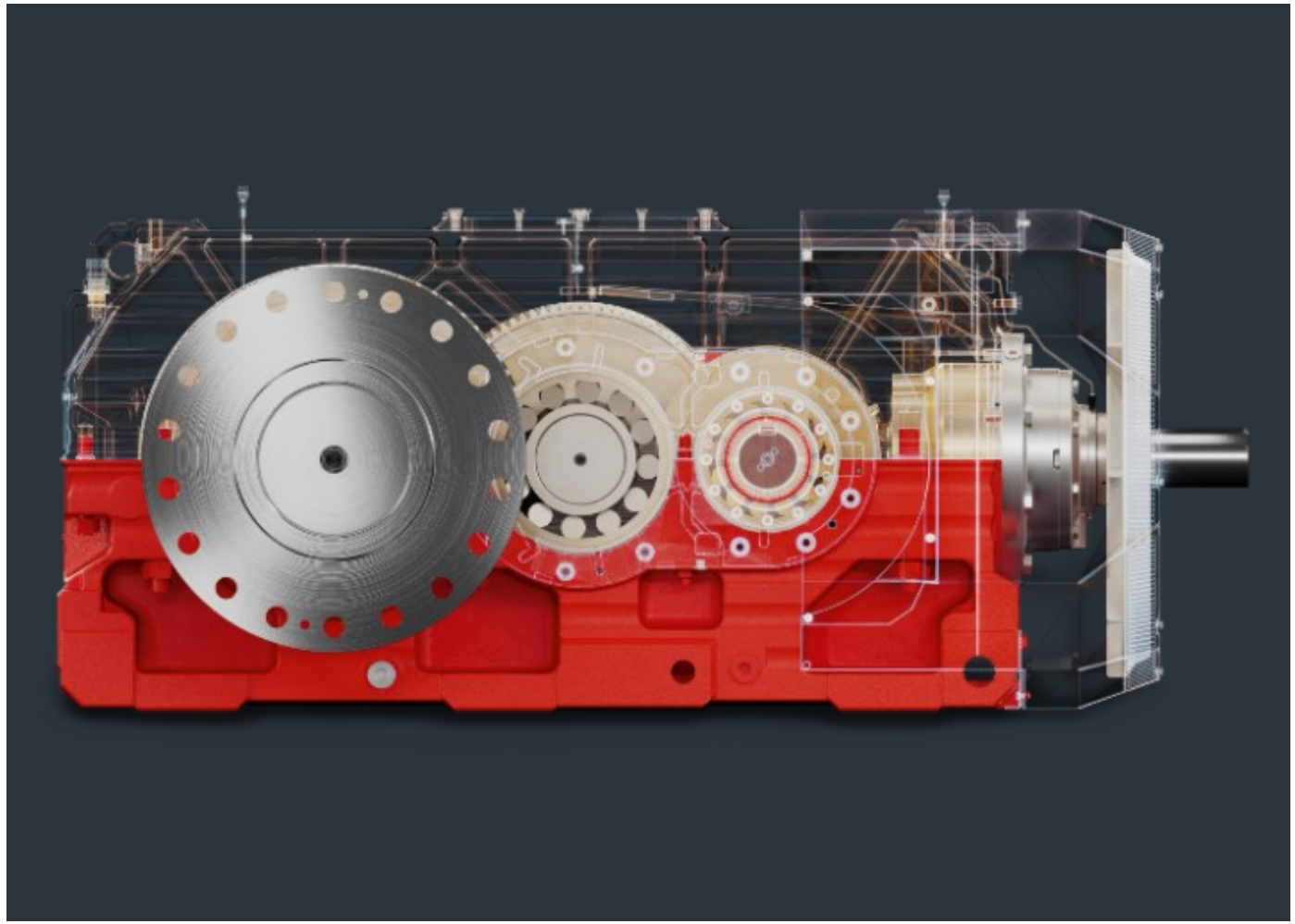
SEW transmission kit

	Spur gear	Bevel gear without offset	Helical-worm gear units	Hypoid	SPIROPLAN®
Servo gear unit					
Gear motors					
Spur and bevel gears					
Industrial planetary gears					

Torque: 5 Nm – 10 MNm

Can the different gear units be operated with a universal gear oil?

Requirements of gear lubricants



- Reduce ware
- Dissipate heat
- Minimize vibrations
- Reduce noise
- Reduce friction
- Corrosion protection
- Transport contaminations to the filter

SEW lubricant approval process according 07004_ _13

1

Technical data

Parameter/characteristic

- Identification of type of oil
- Viscosity class – ISO-VG
- Kinematic viscosity at 40 °C
- Kinematic viscosity at 100 °C
- Viscosity index
- Pour point
- Density at 15 °C
- Flash point
- Ignition temperature
- Corrosion protection – steel
- Corrosion protection – copper

2

Basic tests

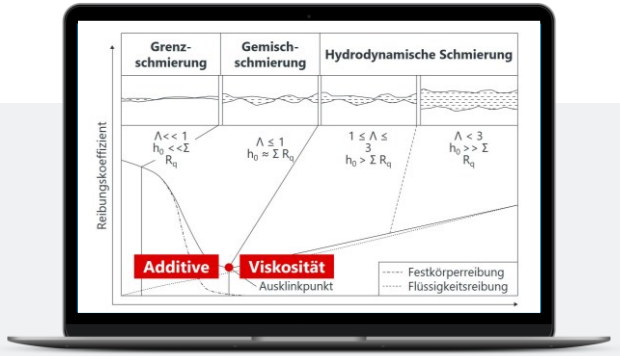
Gear unit tests

FE8 bearing test

240 h

RWDR 240 h screening test

3



Long-term seal test

2016 h

Dynamic 2016 h tests

4

Approval

Information is available in technical data sheets and safety data sheets

An approval of a new oil can't be done only by technical data sheets!

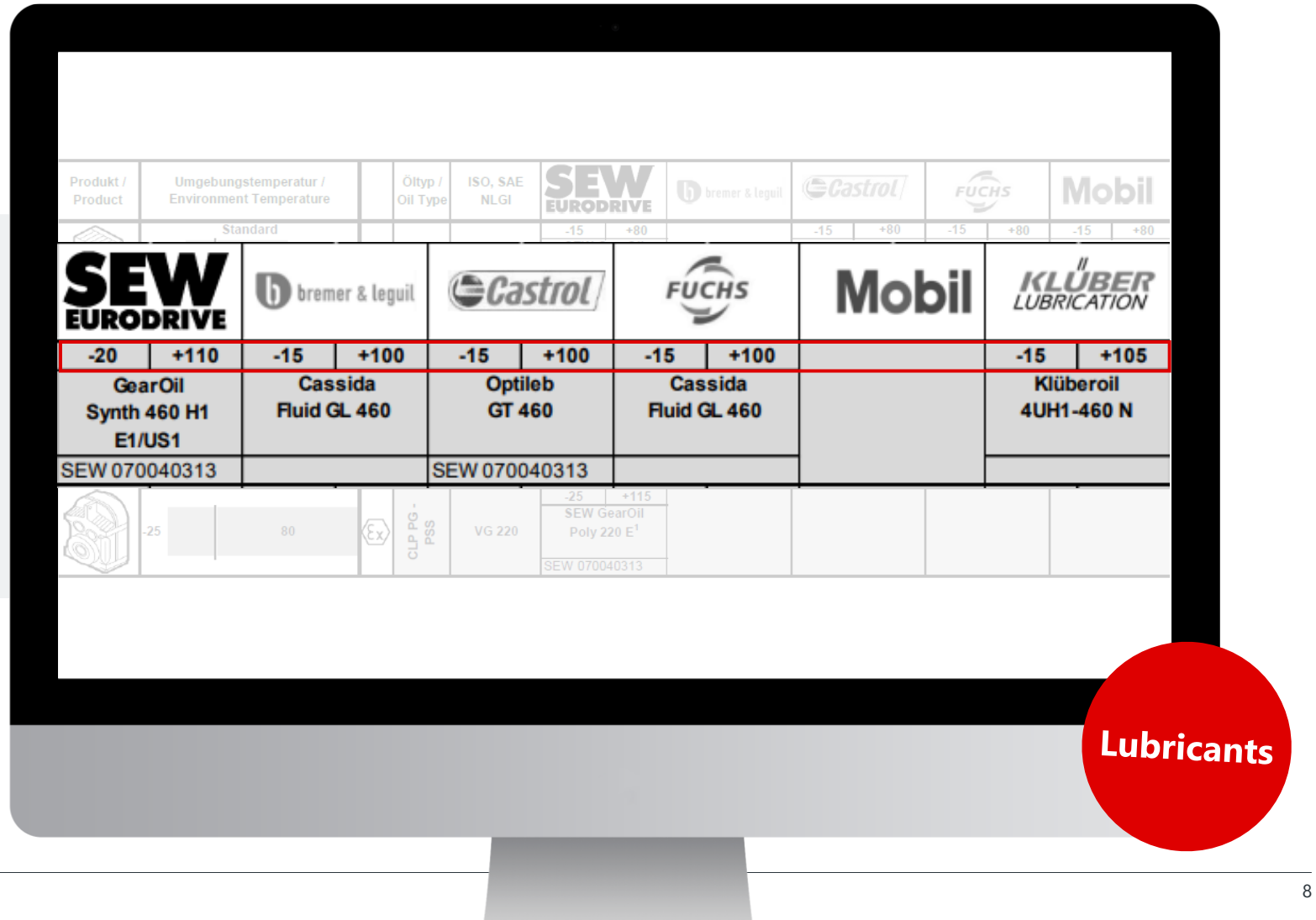
According SEW 07004..13 specification

The approval ensures the
compatibility & function
of lubricants (oil, grease),
bearing, gears & seals!

www.sew-eurodrive.de/lubricants/

According SEW 07004..13 specification

The approval ensures the compatibility & function of lubricants (oil, grease), bearing, gears & seals!



SEW transmission kit

	Spur gear	Bevel gear without offset	Helical-worm gear units	Hypoid	SPIROPLAN®
Servo gear unit					
Gear motors					
Spur and bevel gears					
Industrial planetary gears	*				
				CLP PG & CLP-HC	CLP PG

5 Nm

Torque

10 MNm

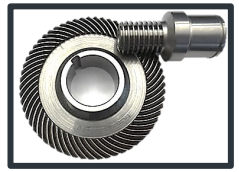
FZG-Gear Testing
micro-pitting resistance FVA 54-7
* low-speed wear DGMK 377-01

FE8-Test

Seal Test

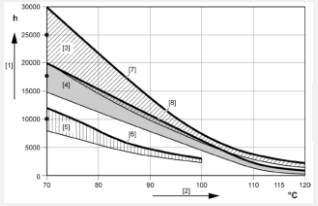
Worm gear test

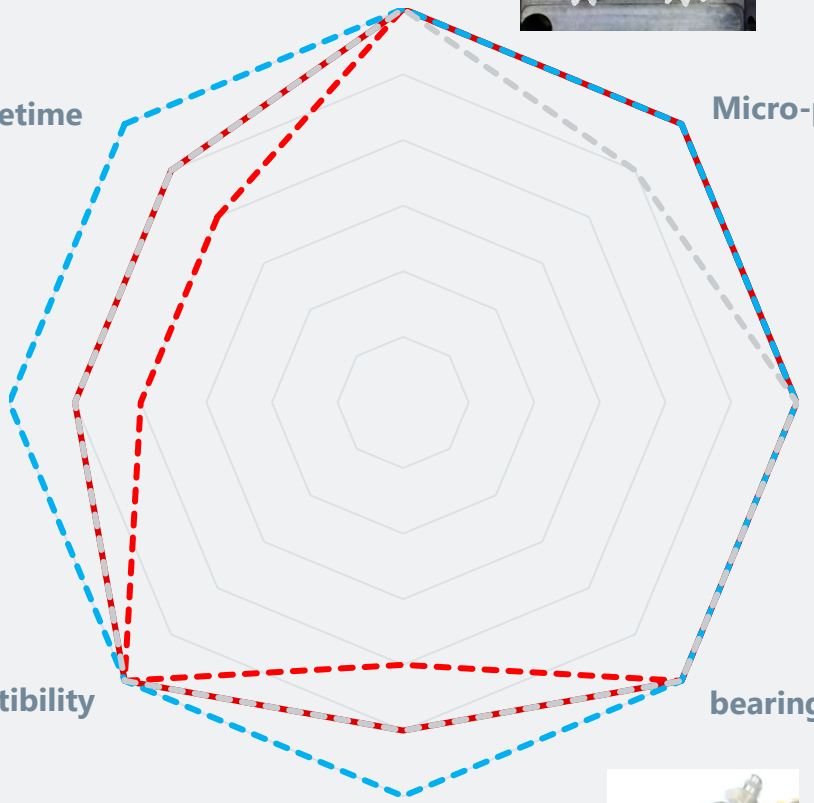
Hypoid-Test



SPIROPLAN ®-Test

SEW lubricant requirements





SEW-Eurodrive Lubricants

Lubricants @ SEW-EURODRIVE

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Performance Examples

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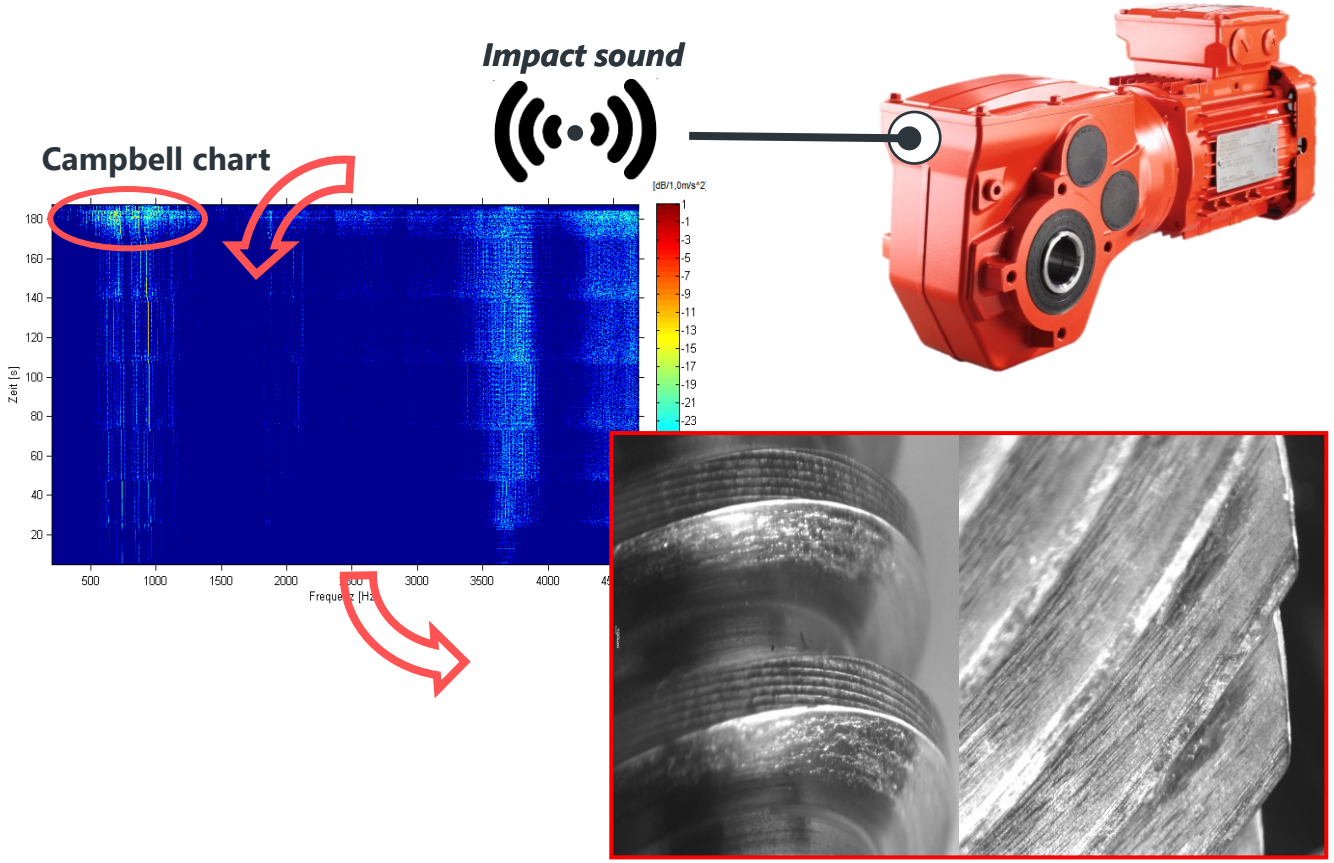
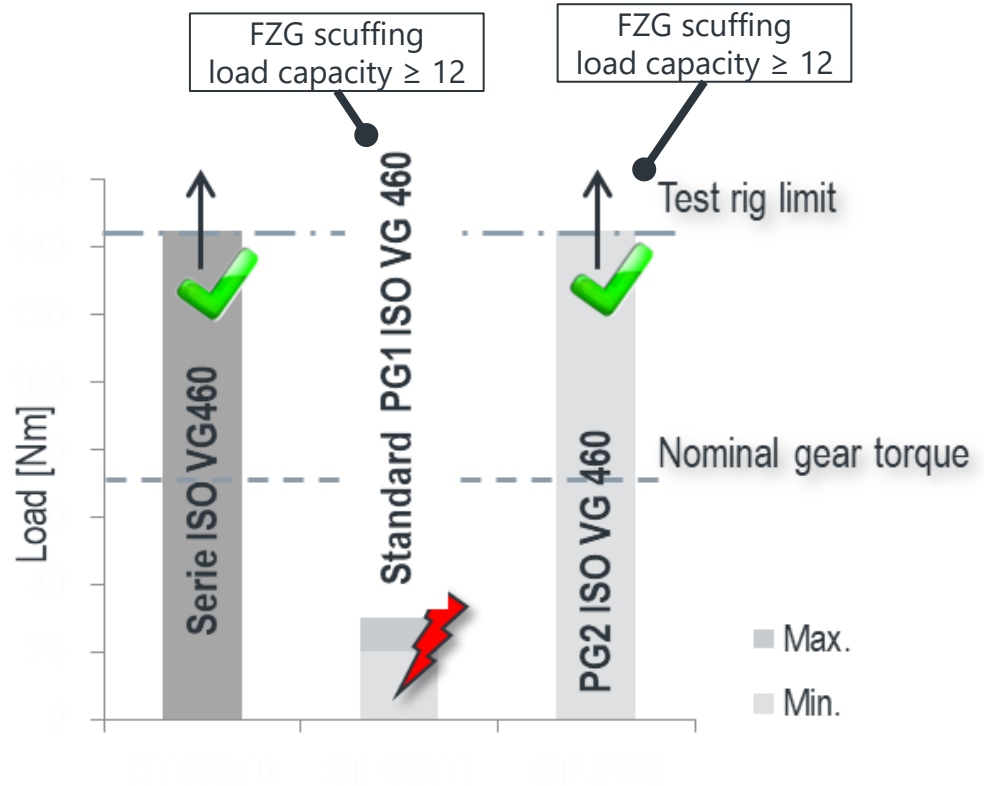
Oil flow simulation

Lubricants SPIROPLAN® Perfomance

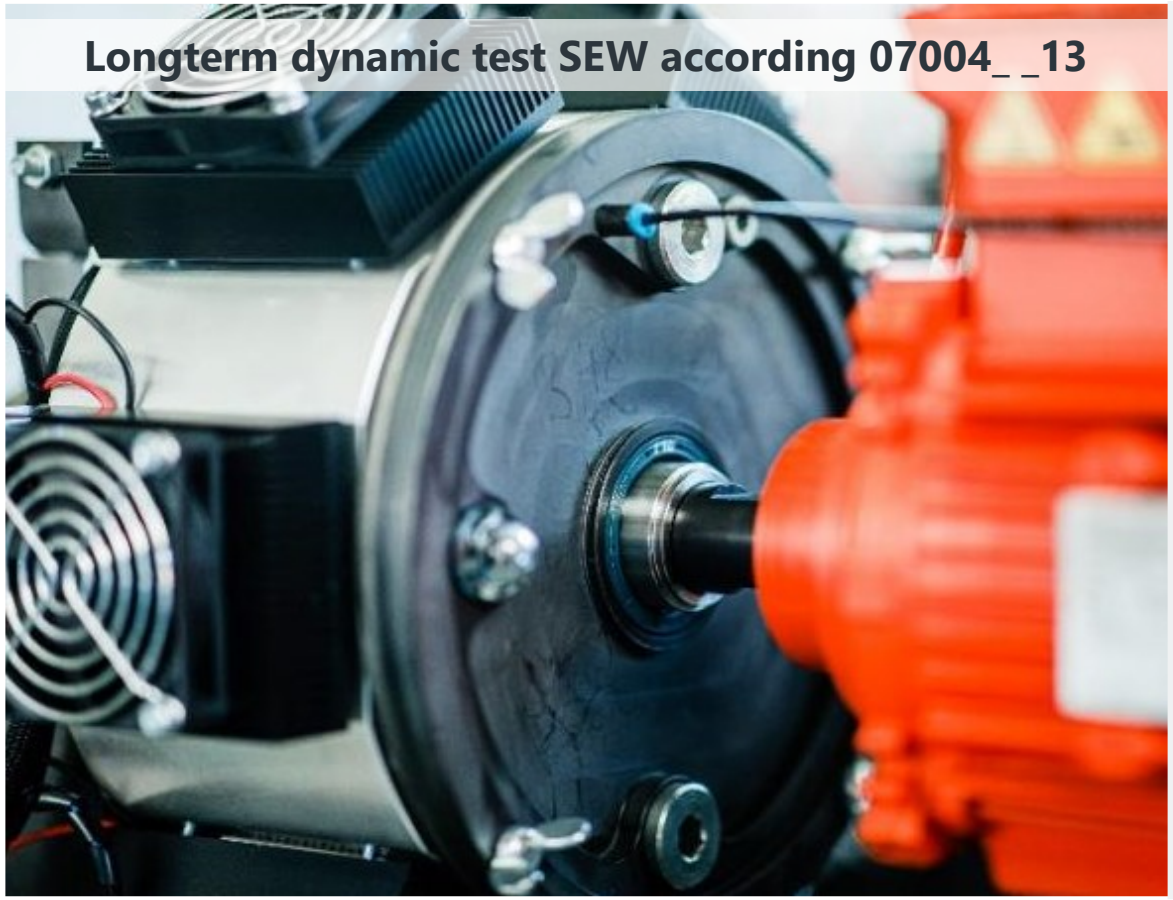
Detection of scuffing

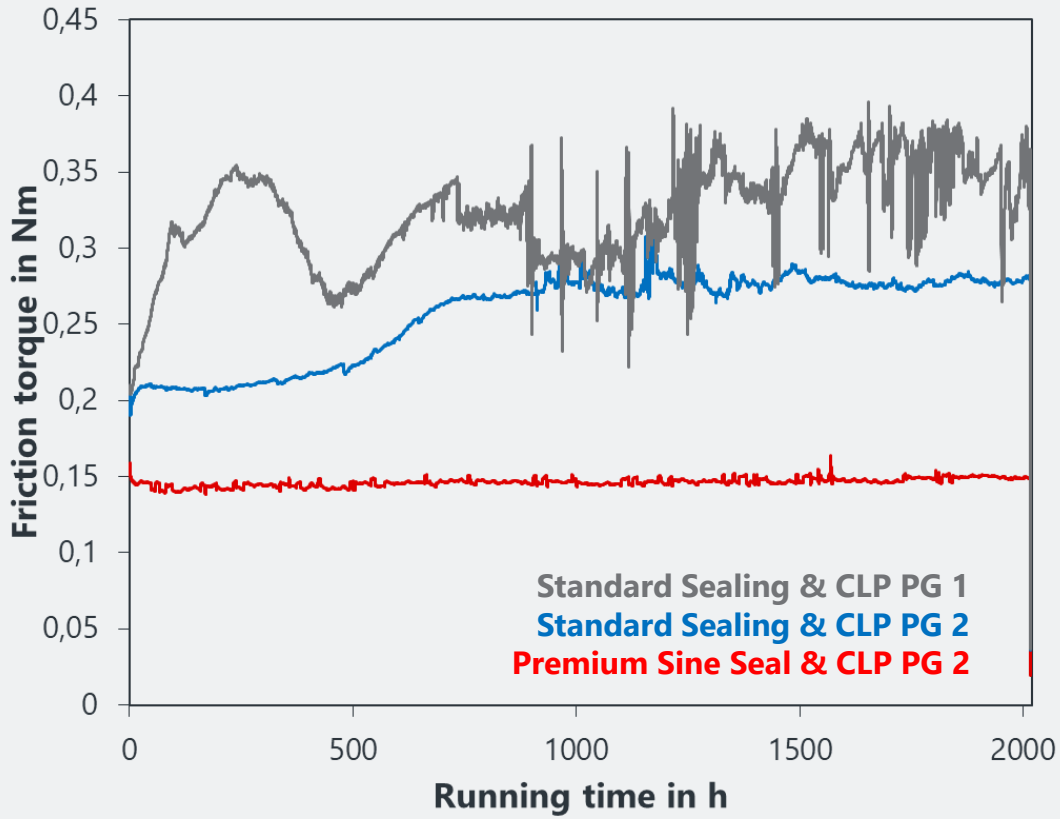




The additive system of PG oils is crucial for the scuffing load capacity in SPIROPLAN® gears!

Lubricants Sealing Performance





In-situ measurement
of the friction torque

50%

less friction
and sealing losses with PSS

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Performance Examples

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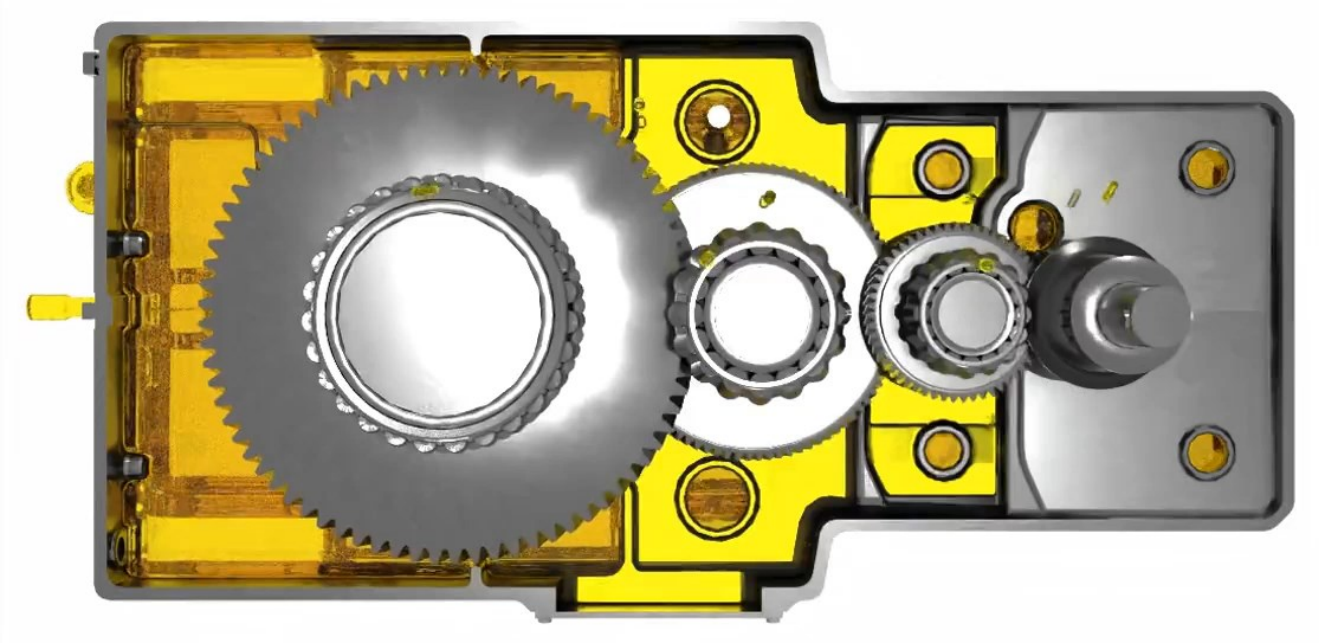
Oil flow simulation

SEW Oil flow simulations Agitator / Mixer

Splashing effect / Heat dissipation:

Top view: Pressure lubrication upper bearings:

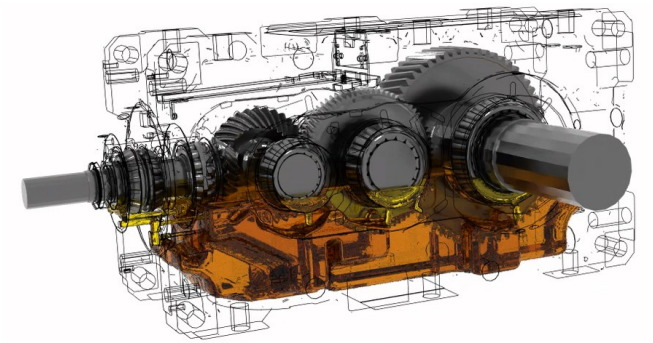


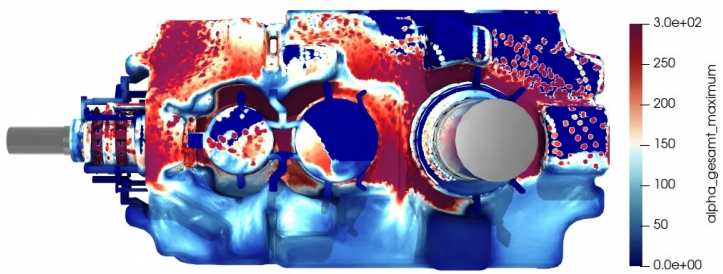
CFD simulation is a precise method for investigating oil flow and analyzing local oil level and splashing effects depending on kinematic viscosity, rotation speed and oil level

Simulative evaluation of the heat transfer and surface temperature distribution of an industrial gear

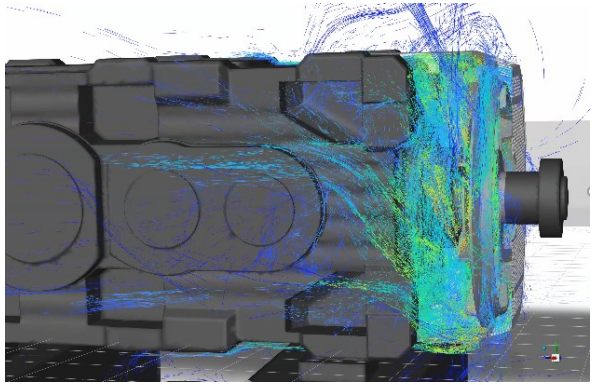
With fan – forced convection:

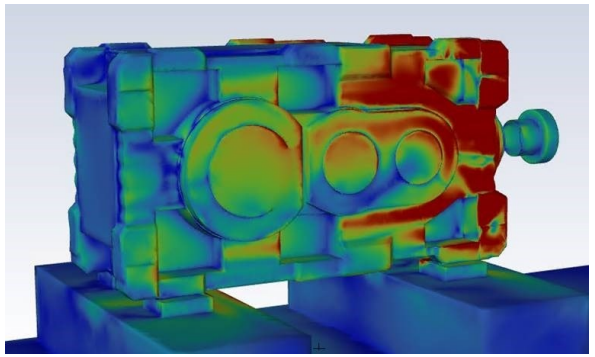
Evaluation of the inner heat transfer (DIVE)



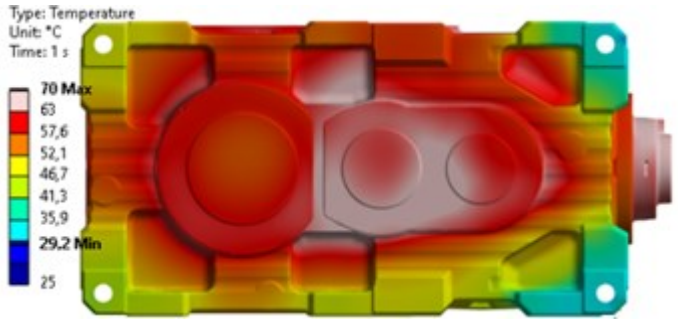


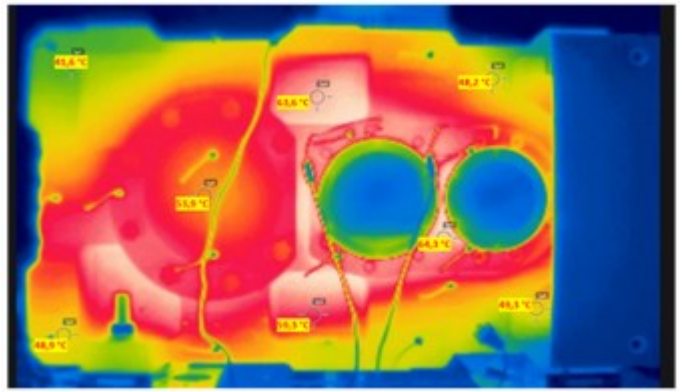
Evaluation of outer heat transfer using CFD (ANSYS Fluent)





Determinations of surface temperature distribution (ANSYS Mechanical)





Simulating the inner heat transfer, analyzing the outer heat transfer and implementation of the bearing losses leads to good results concerning the surface temperature distribution