FUCHS Special Applications

CEPLATTYN

Lubrication, Maintenance, Service for Open Gears

LUBRICANTS. TECHNOLOGY. PEOPLE. FUCHS

MOVING YOUR WORLD

FUCHS LUBRICANTS GERMANY

We do not just develop lubricants. We develop intelligent solutions for highly complex challenges.

To this end, we have pooled our expertise and experience from a wide range of application areas: FUCHS SCHMIERSTOFFE and FUCHS LUBRITECH became FUCHS LUBRICANTS GERMANY.
Our goal: to keep our customers' world in motion. Efficient, sustainable, reliable.
Today and tomorrow.

What can we move for you?

FUCHS LUBRICANTS GERMANY

Facts and figures

Company: FUCHS LUBRICANTS GERMANY GmbH, a company of the FUCHS Group

Locations: Based in Mannheim, with sites in Bremen, Dohna, Hamburg, Kaiserslautern, Kiel and Wedel; approx. 1,400 employees

Product range: A full range of more than 3,000 products for all application areas

Certifications i. a.: ISO 9001, IATF 16949, ISO 14001, ISO 45001, ISO 50001, ISO 21469, HALAL, KOSHER (detailed certifications at www.fuchs.com/de/en)

CO_2 neutral production*

Since 1931, we have been pursuing the same goal: to keep the world moving. With innovative and technological lubricant solutions that have a sustainable impact on the future. Unconditional reliability is our top priority, it is the foundation of our company and basis for everything that defines us.

Reliability is both a driver and a demand. And it's a promise to all our customers in the fields of automotive suppliers and OEMs, mechanical engineering, metal processing, mining and exploration, aerospace, energy, construction and transport, agriculture and forestry, as well as the paper, steel, metal, cement, forging and food industries, but also qualified lubricant dealers, car dealerships and workshops.

Long-term experience, high development strength and the fulfillment of far-reaching standards are the basis for the special quality of our world-leading product brands. We deliver solutions that are simply more efficient and therefore more sustainable. We always think in holistic solutions. For the development of individual solutions, we enter into an intensive customer dialog with you. This is the way we live up to our claim of moving your world.

MOVING YOUR WORLD

*Partially also based on compensation

HIGH-PERFORMANCE LUBRICANTS FOR THE MOST DEMANDING APPLICATIONS

Expertise in Open Gear lubricants

With increasing size, the demands on the lubrication of Open Gears also increase. Wherever high transmission of forces at low sliding speeds is required, we do everything we can to reduce the wear on your technology to a minimum, thus maximising the reliability and safety of your equipment. Together with gear and machinery manufacturers, we develop innovative adhesive lubricants for Open Gears in kilns and mills. We always strive for the most application-specific solutions – and thus achieve running times of 40 years and more.

FUCHS in motion – your realiable partner in Open Gear lubrication

Large Open Gear drives constitute a mechanical method of transmitting movement and force. The level of success ultimately achieved does not only depend on the gear design and materials used but also on the lubricant quality, volume of lubricant and the means of application. This is particularly true for large, low-speed Open Gear drives where high torques are transmitted.

Demands grow with size
The tolerances involved in the manufacture and assembly of girth gear drives increase in proportion to the size of the gear train. Distortions developing under the influence of load and temperature also increase with size. It is not uncommon to see large gears with a diameter of 14 metres. Transmission ratios typically range between 1:8 and 1:12. Under these conditions effective lubrication is often only possible with difficulty because of the slow sliding speed of the working tooth flanks. A special, correctly applied adhesive lubricant will reliably prevent metal-to-metal contact of the tooth flanks. Lubricants with a high proportion of solids and with superior additives ensure safe running properties in the area of boundary friction. As a result a service life exceeding 20 years can be expected.

Open Gear drives do the heaviest work in many branches of industry
Open Gear drives are very common in the raw materials industry. The girth gear drives that are used in tube mills, coolers, washing drums, kilns, calciners and other machines have to transmit enormous torques, i.e. often up to 50,000 Nm. It is only natural that this kind of force subjects the gear wheels to very high stresses. Such gears are usually designed as spur or helical gears with modified involute profiles. The materials used for the gearing are usually CrNiMo tempered steel (pinion) and alloyed CrMo steel casting or cast iron (girth gear).

Open Gears – where the mighty forces rule lubricants play a crucial role

Open Gears transmit extreme forces. Their service life is subject to several factors, one of them being the lubricants used. FUCHS offers the ideal lubricant range for this heavy-duty application. Our Multi-Phase-Lubrication is the key to the efficiency and long life of your Open Gear.

The lubricant plays an important role

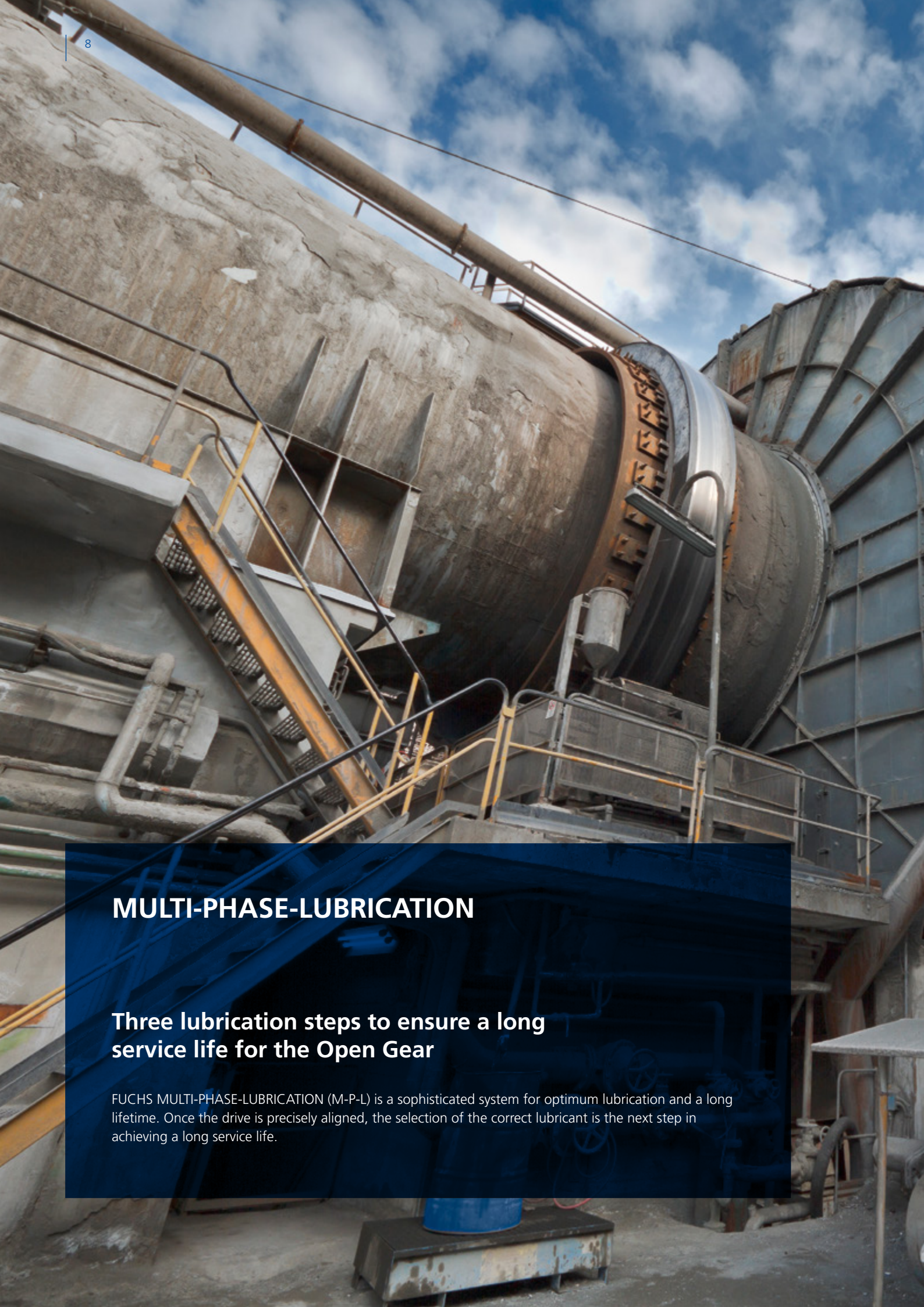
The purpose of all design and tribotechnical efforts is to ensure, in spite of the enormous stresses, long-term, trouble-free operation. The primary cause of damaged gear wheels is not exclusively the problem of faulty adjustment of the drives and radial and axial run-out, but also the use of unsuitable lubricants, shortage of lubricant and its incorrect application. Therefore an optimum load-carrying capacity and smoothed gear teeth are to be achieved. An extremely precise alignment of the gears combined with the correct running-in procedures is essential. For the lubrication of Open Gears adhesive sprayable lubricants are most suitable.

The best solution has a name: CEPLATTYN

Wherever lubrication is required on highly stressed or pre-damaged gear drives, under arctic conditions or in high-temperature environments, FUCHS offers the right lubricant from the CEPLATTYN product range. CEPLATTYN adhesive lubricants are recommended by all leading manufacturers of gears and machines.

Lubrication with the FUCHS CEPLATTYN range of products fully meets the tough tribotechnical requirements. The CEPLATTYN range was developed in the early 60s as the first sprayable non-asphaltic adhesive lubricants. The brand name is a synonym for high-quality and reliable adhesive lubricants.

The CEPLATTYN range includes more than 20 different products and is approved by all major gear and machine manufacturers in the raw materials industry.



MULTI-PHASE-LUBRICATION

Three lubrication steps to ensure a long service life for the Open Gear

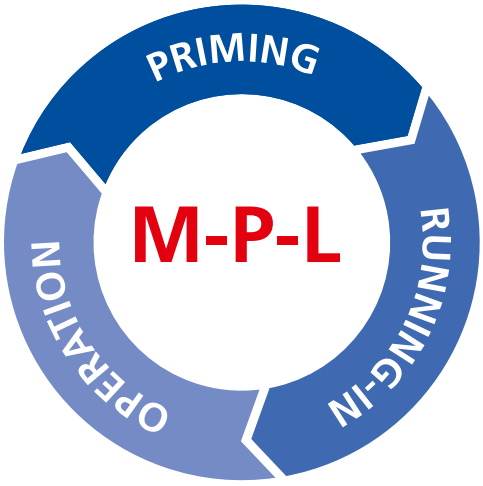
FUCHS MULTI-PHASE-LUBRICATION (M-P-L) is a sophisticated system for optimum lubrication and a long lifetime. Once the drive is precisely aligned, the selection of the correct lubricant is the next step in achieving a long service life.

The most reliable method

FUCHS **M**ULTI-**P**HASE-**L**UBRICATION (M-P-L) is the most reliable method of averting serious mistakes. The use of M-P-L is essential with new gears but it is also helpful after a repair of damaged gear tooth flanks or at any time when the pinion or girth gear is changed. FUCHS M-P-L consists primarily of three components: priming, running-in and operating lubricants. These special M-P-L lubricants are the result of many years of research, and have proved themselves in practical applications all over the world.

The best possible protection against wear

Optimum load transmission implies that the stress is evenly distributed across the full width and height of the teeth. However, for Open Gear drives in particular, even state-of-the-art manufacturing techniques and the most precise alignment possible hardly permit this optimum state to be achieved. The consequences of inadequate load distribution are excessive heating, scuffings, pitting and, in the worst case, even tooth breakage. The operator can, however, have a significant influence on such damage type, and thus on the lifetime of the drive, by selecting the right lubricant.



Priming

Priming lubricants prevent damage during initial operation and are manually applied to the clean teeth of a new or repaired gear. After the first rotations using an auxiliary drive the gear will display the actual contact pattern. Any corrections needed will be shown and can be implemented.

Running-in

Running-in is effected by our RN range of CEPLATTYN. Working tooth flanks are smoothed in this process, which is considered successful as soon as a load-carrying proportion of at least 80% has been achieved.

Operational lubrication

Operational lubrication starts at the end of the running-in process. It is not only subject to the condition and use of the drive but also to environmental influences.

Reference table: the right lubricant for each lubrication step

M-P-L	Lubricants	
Priming lubricants	CEPLATTYN 300 CEPLATTYN GT P	Initial lubrications Manual applications
Running-in lubricants	CEPLATTYN RN CEPLATTYN GT RN	Surface smoothing Automatic spray systems
Operational lubricants	CEPLATTYN KG 10 HMF range CEPLATTYN GT range CEPLATTYN SF range	Regular lubrication Automatic spray systems

On page 29 of this brochure you will find the complete product selection guide, which shows the available lubricants for the different fields of applications.

FUCHS M-P-L can only be applied to a limited extent to drives that are not lubricated by an automatic spray system. FUCHS Service Engineers will be pleased to advise you on the running-in of gears, the operating lubrication of which is subsequently performed manually by dipping or circulation lubrication.

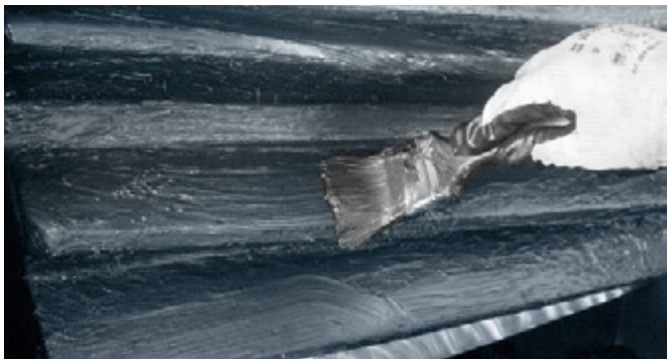
The best solution has a name: CEPLATTYN.

Priming

Priming is the first process step of Multi-Phase-Lubrication. Priming the tooth flanks is necessary to provide initial lubrication during the first revolution of the gears, in the course of assembly.

Priming lubricants prevent damage

Due to the surface finish of the gear teeth, priming is crucial to prevent damage during initial operation. In the context of FUCHS **M**ulti-**P**hase-**L**ubrication (M-P-L) priming or initial lubrication is effected with CEPLATTYN 300 / CEPLATTYN GT P immediately after the assembly of the drive.



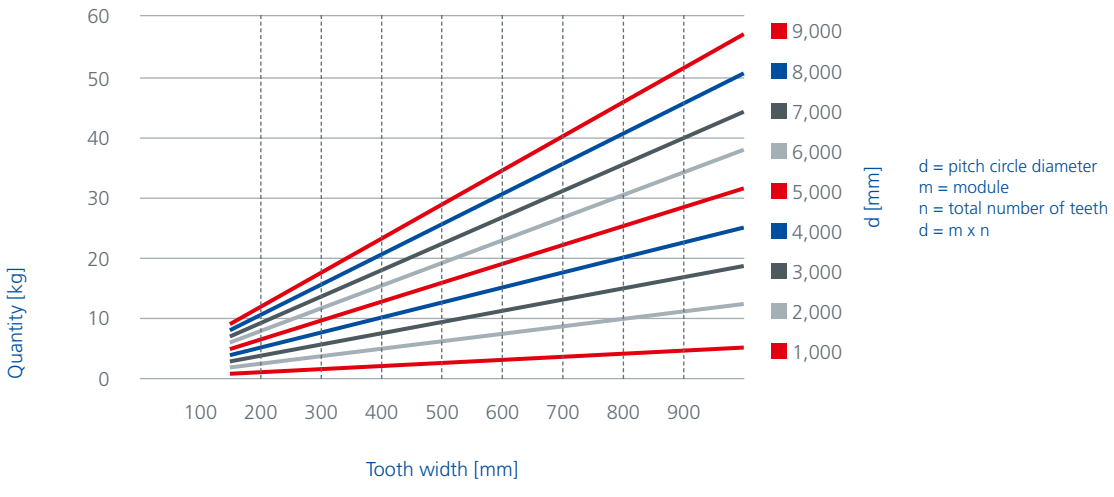
A layer of lubricant must be applied evenly and without air bubbles.

Priming and checking the contact pattern

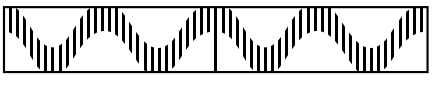
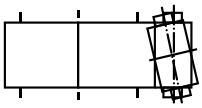
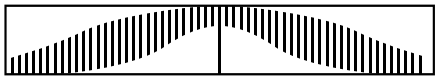
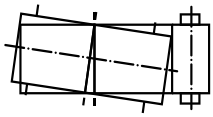
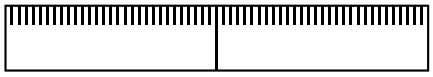
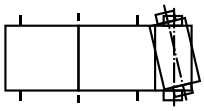
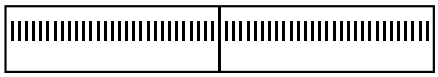
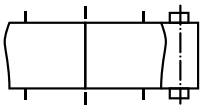
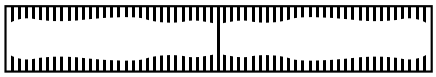
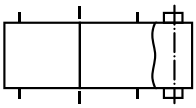
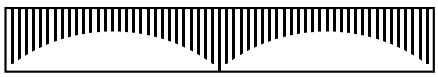
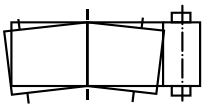
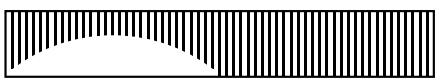
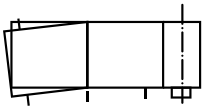
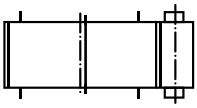
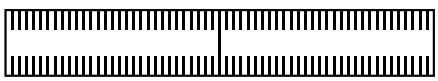
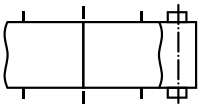
It is necessary to fully clean the tooth flanks before applying a lubricant for the first time. The whole tooth flank area should be thoroughly cleaned up to the bare metal. The tooth flanks are then primed with CEPLATTYN 300 / CEPLATTYN GT P using a stiff-bristled brush or a spatula. Its application includes the working flanks, tooth roots, back flanks and tips in order to avoid corrosion and damage due to any movement during assembly. After priming, turning the gears with the auxiliary drive will result in the actual contact pattern being projected onto the working tooth flanks. Any areas devoid of lubricant must be primed again. The projection facilitates any correction of the transmission gear that may be required.

CEPLATTYN 300 / CEPLATTYN GT P cannot be applied with automatic spray systems.

Quantity of CEPLATTYN 300 / CEPLATTYN GT P



Various contact patterns and their causes

360° picture girth gear	girth gear pinion	
		Contact pattern at the perimeter of the girth gear when the pinion wobbles. ▸Check seating of pinion.
		Contact pattern for wobble impact of the girth gear. ▸Check alignment and fixing of the girth gear.
		Contact pattern due to edge loading. Axles not sufficiently parallel. ▸Realign pinion.
		Circulating pressure point, resulting from manufacturing fault or isolated thermal deformation (protuberances).
		Contact pattern from pinion expanded on both sides, resulting from incorrectly assembled ring tensioning elements.
		Contact pattern with opposing obliquity of the two halves of the girth gear. ▸Check the impact point bolting.
		Contact pattern when one half of the gear is oblique. ▸Check assembly.
		Radial run-out of the gear wheel. The contact pattern appears weaker or stronger over half the perimeter of the girth gear. ▸Readjust.
		Contact pattern when the girth gear has protuberances on both sides, resulting from excessive frictional heating of the jacket seals (often found in oil-lubricated drives). ▸Improve lubrication of seals. Check assembly of seals.

Running-in

Running-in is the second process step of Multi-Phase-Lubrication. This step supports the smoothing of the tooth surface and the optimisation of the load carrying pattern.

The economical way to a higher gearing quality

Controlled running-in with CEPLATTYN RN/CEPLATTYN GT RN running-in lubricants prevents damage in the course of initial operation. CEPLATTYN RN/CEPLATTYN GT RN eliminates manufacturing roughness and smoothes the load-carrying surfaces of tooth flanks, thus overcoming slight deviations in shape and assembly and significantly increasing the contact area. The result: significantly enhanced gearing quality that provides the basis for a long service life.

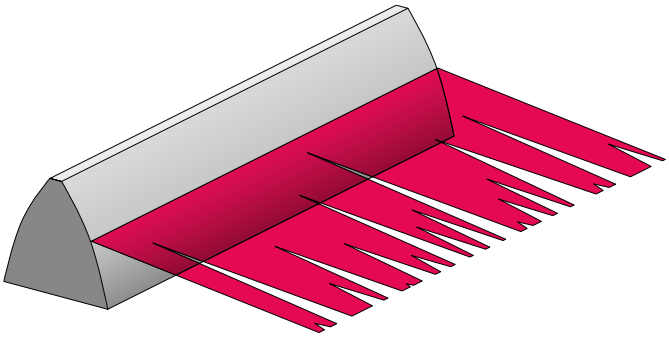
The running-in procedure

The time required for running-in can only be assessed individually and is subject to the hardness of materials, manufacturing tolerances and the way in which a gear has been assembled. On average, the time required to efficiently run in drives on ball mills and kilns in single load steps is 350 hours, during which the lubricant should be continuously applied to the extent possible.

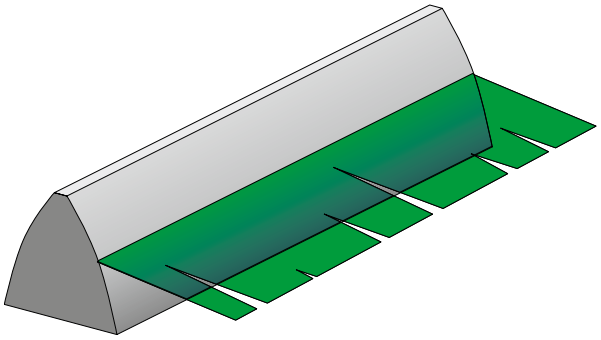
Values may vary in practical applications. The process must be adapted to the given operating conditions. The state of the tooth flanks should be checked throughout the running-in process. This particularly applies to the change of grinding charge, which should only be undertaken when the load-carrying proportion given in the table has been reached. If the contact pattern is considerably worse, readjustment of the transmission gear will be required. Running-in can be considered complete as soon as, at maximum charge or throughput, a load-carrying proportion of at least 80 % has been achieved, and the manufacturing roughness of the loaded teeth surface has been smoothed.

In cases where normal running-in does not result in a sufficient contact pattern or the drive has to be run in at full load, a forced running-in (the quick running-in method) represents the best solution. This forced running-in procedure is also suitable for achieving an optimum carrying capacity and surface finish if the load-carrying surfaces show scuffings, or under unfavourable circumstances if old and new gears have been combined.

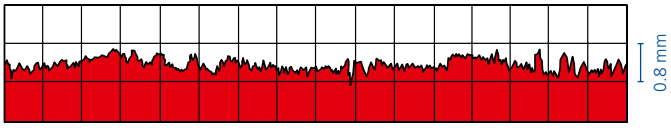
Surface roughness profiles of tooth flanks



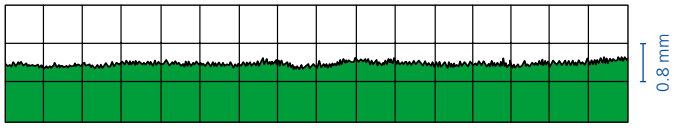
Load-carrying pattern before running-in approx. 50%



Load-carrying pattern after running-in approx. 85%

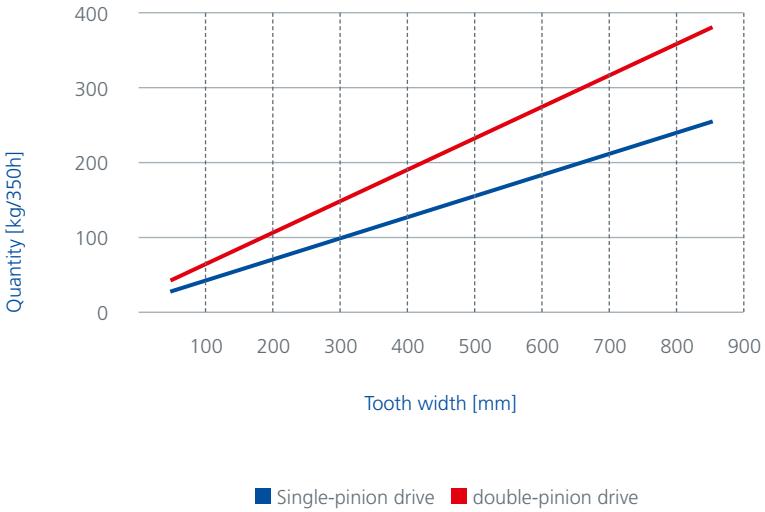


Before running-in with
CEPLATTYN RN
CEPLATTYN GT RN



After running-in with
CEPLATTYN RN
CEPLATTYN GT RN

Quantity of CEPLATTYN RN / CEPLATTYN GT RN



Recommendation of the required quantity for the average running-in period of 350 h.

Operational lubrication

Operational lubrication is the third process step of Mulit-Phase-Lubrication. The selection of the right lubricant in the process step plays an important role in the overall lifetime of the gear set.

Central lubricant supply with CEPLATTYN

Once priming and running-in have been successfully completed, the next point to be considered is operational lubrication. Making the right selection here is very important in terms of low wear, operation without damage, and lifetime of the Open Gear drive. The selection of the lubricant depends on a large number of factors including stress on the working tooth flanks, rotary speed of the transmission gear, actual flank temperatures and condition of the drive. Environmental influences such as dust contamination, humidity and very low or very high ambient temperatures must also be considered.

On the safe side with CEPLATTYN

The changeover to operating lubrication starts at the end of running-in. When changing to the operating lubricant a cleaning procedure is not required. It is just the drum container attached to the lubrication system that has to be replaced. CEPLATTYN lubricants are adhesive lubricants which are suitable for extremely high pressures. They are resistant to water and approved by all leading gear and machine manufacturers.

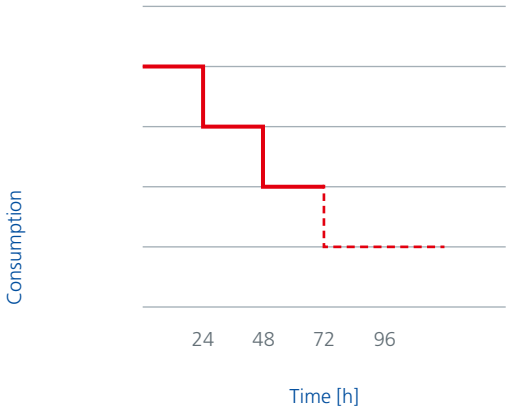
Changeover to operational lubrication

In practice the changeover is achieved through a gradual quantity reduction to a targeted minimum (see graph on the right). It is necessary to measure the quantity every time this value is reduced by the spray system. Small volumes frequently applied avoid phases in which the drive is excessively saturated with lubricant, thus preventing fling-off. The short breaks between cycles prevent a lack of lubrication. Quantity guidelines for various drives are included in the diagram on the right.

Quantity recommendations for operational lubrication

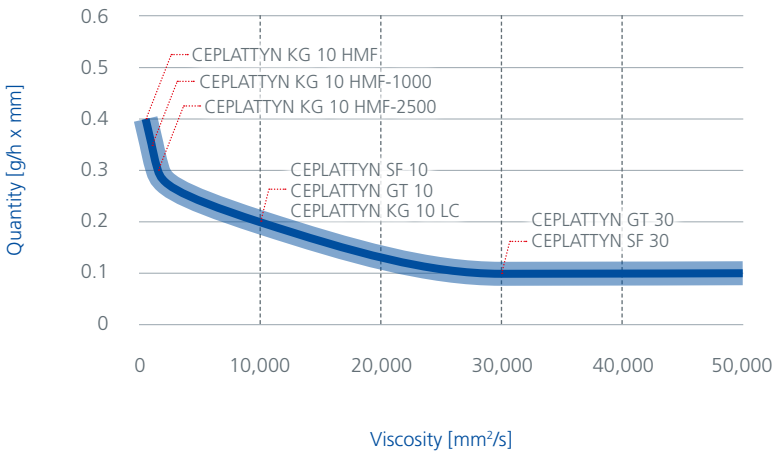
Our quantitiy recommendations for operational lubrication are based on an average-size drive in good condition. The base oil viscosity of our CEPLATTYN products has a large influence on the lubcrication quantity. But other factors such as the type of Open Gear lubricant (grease or fluid) or solid lubricants can also influence the quantity recommendation.

Quantity reduction
changeover running-in lubricant to operational lubricant
e.g. for a mill single-pinion drive



Note: The attainable minimum quantity is directly subject to the operating conditions. Lubrication rates below the minimum may create an increased risk of wear and damage on the tooth flanks.

Quantity of CEPLATTYN for operational lubrication

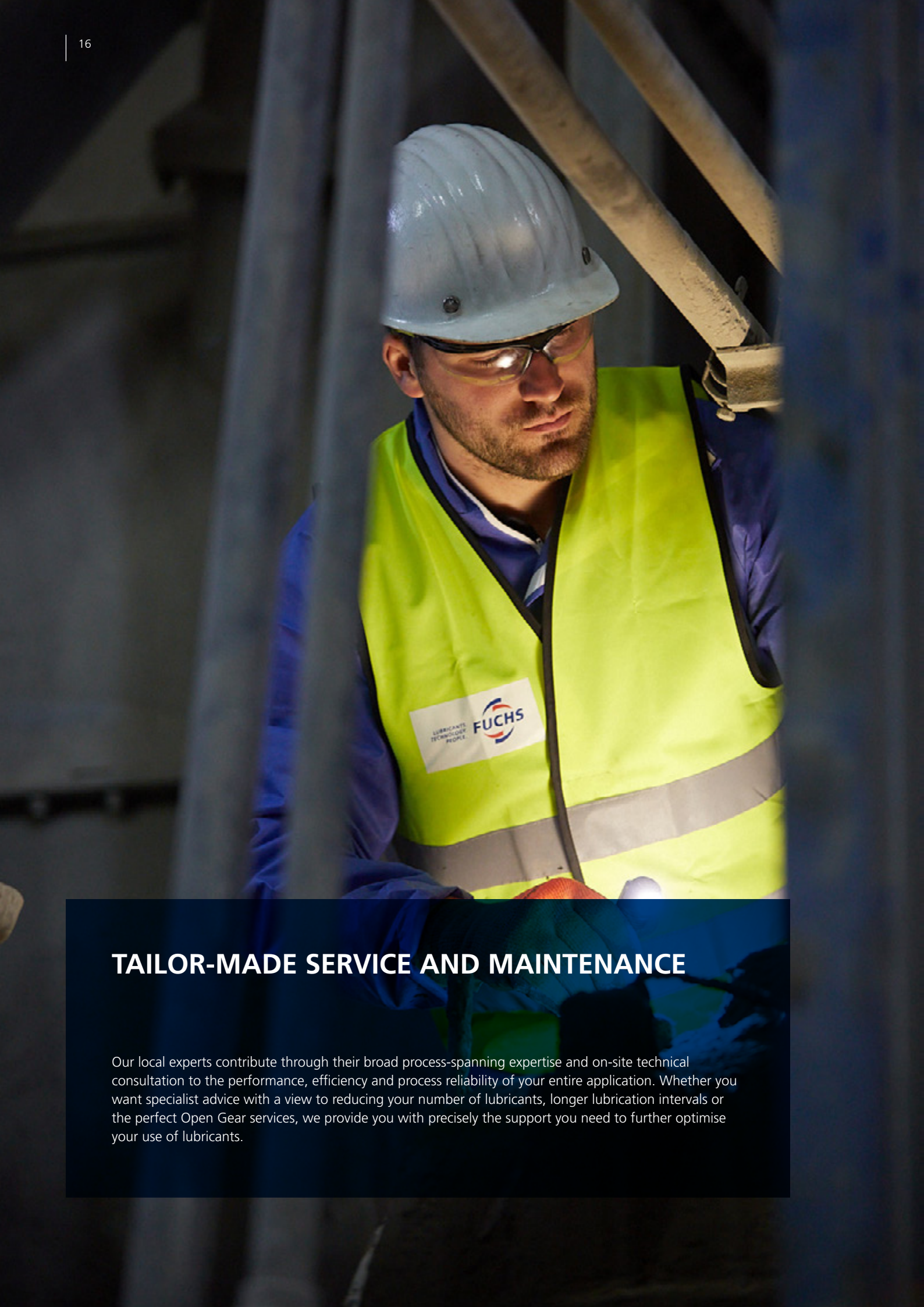


Note: For double-pinion drives, please calculate at a factor of 1.5

The recommended quantities are based on an average-size drive in good condition.

OEM guidelines are to be taken into account in any case.

For further assistance please contact our Service Engineers.



TAILOR-MADE SERVICE AND MAINTENANCE

Our local experts contribute through their broad process-spanning expertise and on-site technical consultation to the performance, efficiency and process reliability of your entire application. Whether you want specialist advice with a view to reducing your number of lubricants, longer lubrication intervals or the perfect Open Gear services, we provide you with precisely the support you need to further optimise your use of lubricants.

FUCHS Open Gear inspection procedure

- Visual check of Open Gear and surrounding conditions
- Pinion and girth gear check
- Vibrations on the pinion bearings
- Temperature conditions on the pinion bearings
- Temperature conditions on the mill/kiln shell
- Check of the spray system
- Inspection of spray and pump equipment
- Temperature conditions across the tooth surfaces of the pinion and girth gears
- Quantity determination of the lubricant
- Documentation of the result in the FUCHS LUBRICANTS INSPECTOR online system

Running-in of new gears

Specially trained service engineers assist with the commissioning and running-in of new gears. They ensure that the drive is run-in optimally according to the principle of the FUCHS MULTI-PHASE LUBRICATION (M-P L) with accurately defined application quantities of the appropriate CEPLATTYN lubricant.

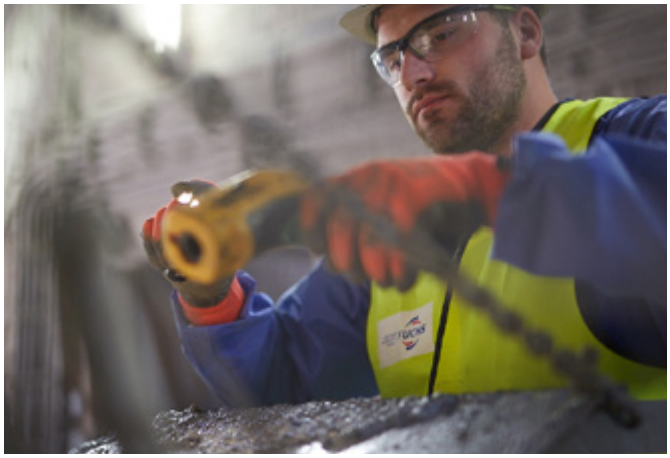
Basic inspection and extended service

Basic inspection of Open Gears

For drive units that are lubricated with CEPLATTYN, our service engineers carry out regular inspections over the entire service life. They make written notes of the general operational status, ascertain the amount of wear on the load-carrying tooth flanks, check the spray lubrication and, if necessary, reset it. In addition, the service engineer takes extensive measurements (oscillation speed, flank temperature, etc.), which are recorded in the FUCHS LUBRICANTS INSPECTOR, a modern documentation system, and are always available to our customers.

Measuring vibrations of the pinion bearing

Measuring the tooth flank temperature



Dynamic check of the contact pattern with a stroboscope

Dynamic check by infrared video thermography

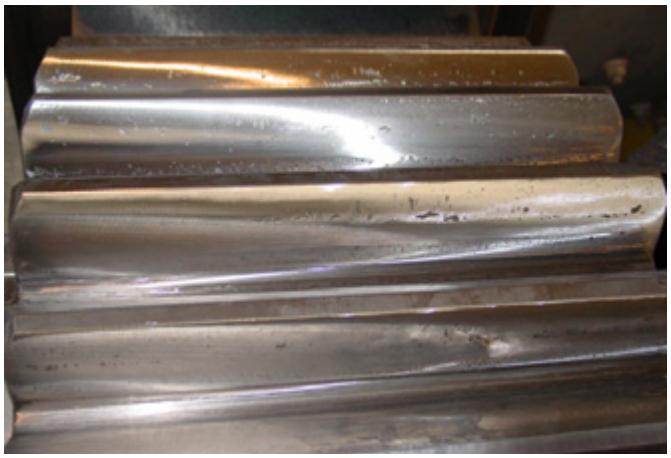
Extended service

The optimization of damaged tooth flanks on Open Gear drives is part of the extended service offered by FUCHS. Such work is primarily a matter of the mechanical treatment of the working tooth flanks by grinding pittings or larger breakages, smoothing scuffings, forced running-in, dynamic cleaning and assistance with alignment of the transmission gears. On heavily worn-out or damaged tooth flanks FUCHS can provide complete mechanical treatment of the entire gear set.

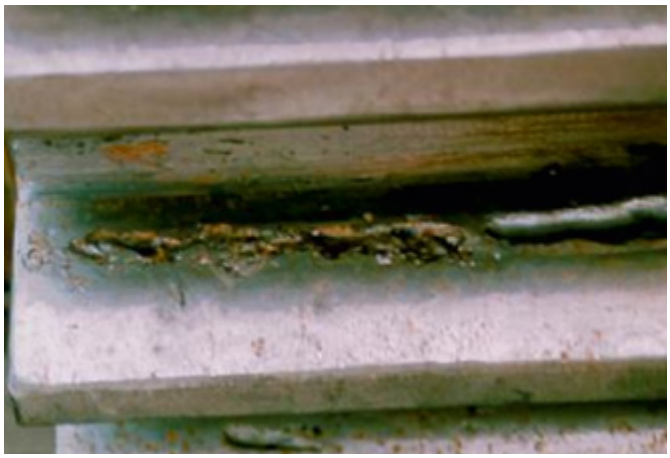
Tooth flanks before grinding

During grinding process

Tooth flanks after grinding



Older pitting and reworked pitting

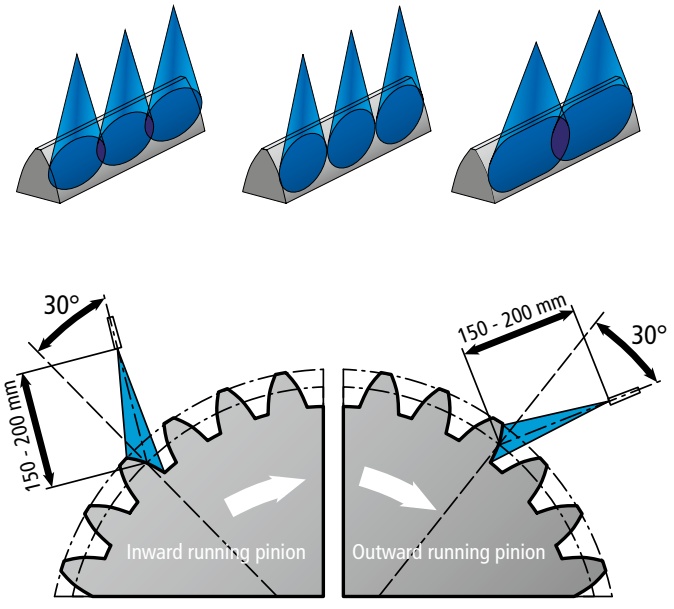


Inspecting the spray system

The following points should be observed before commending operation of the machinery:

- Functional test
- Spray pattern and overlap
- Spray angle
- Nozzle distance
- Lubricant quantity

The increased throughput of a running-in lubricant is necessary in order to flush out any metallic particles due to the removal of the rough surface peaks. The lubricant must then flow freely and drain away to prevent blockages and build-up of any waste.



High Pressure Cleaning

Dynamic high-pressure cleaning with CEPLATTYN CLEANER
Different situations require cleaned toothing of the Open Gear drive. We support our customers with our Open Gear cleaning service.

Why clean an Open Gear?
A clean Open Gear facilitates any work on the drive:

- Maintenance work like repair and grinding as well as periodical checks, e.g. crack inspection (dye-penetrant technique, magnetic particle testing,…) and static wear measurements
- Reversal of a gear set
- Replacement of a gear set

For the cleaning procedure a special fluid called CEPLATTYN CLEANER is used. CEPLATTYN CLEANER was developed especially for the dynamic cleaning of open drives. The product is applied with a high-pressure cleaner and removes due to its excellent cleaning effect old lubricant and dirt from the toothing. Due to it's good lubricating properties cleaning can be carried out without machine downtimes. Our Open Gear cleaning service with CEPLATTYN CLEANER is a very cost-effective solution.

For more information, please ask for our CEPLATTYN CLEANER flyer.

Re-Conditioning service

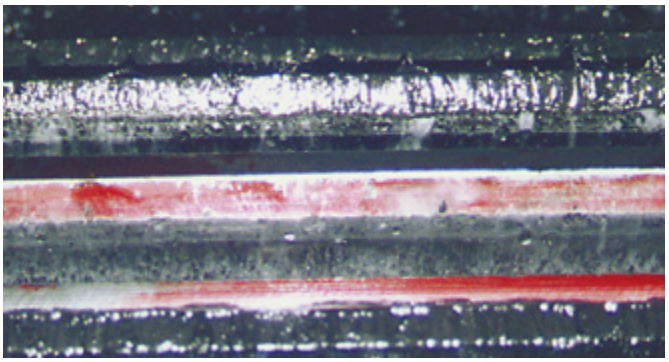
Forced running-in with RE-CONDITIONER

In cases where normal running-in does not result in a sufficient contact pattern or the drive has to be run in at full load, a forced running-in (the quick running-in method) represents the best solution. This forced running-in procedure is also suitable for achieving an optimum load-carrying capacity and surface finish if the load-carrying surfaces show scuffings. In case a new pinion is installed in combination with an old girth gear

Re-Conditioning is used to adapt the old girth gear with the new profile of the pinion. Forced running-in involves a service lubricant known as RE-CONDITIONER being manually applied to the working surfaces in addition to the regular CEPLATTYN RN lubricant during production. This RE-CONDITIONER effects a smoothing of the working surfaces within in a shorter time, thus tremendously reducing the running-in time.

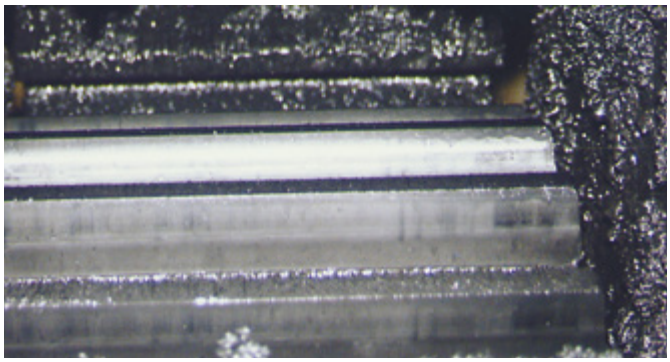
The use of RE-CONDITIONER

Before



red = no contact

After



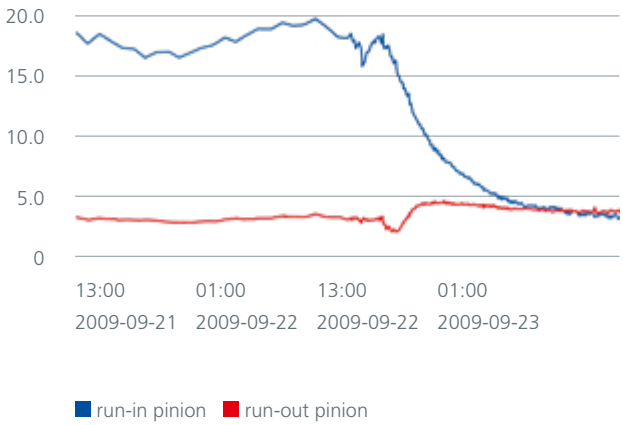
complete tooth contact

Case study: smoother running after Re-Conditioning

When restarting a helical, double-pinion cement mill small deviations in axial and radial run-out of the girth gear had the effect of high vibration differences between the pinion bearings. At the run-out pinion the vibration levels were well below 2 mm/s, but they were above 8 mm/s at the run-in pinion. The operator could not accept this large difference. Even after several corrections of the transmission gear no improvement was achieved. The manufacturer of the machinery therefore initiated a forced running-in. The application of RE-CONDITIONER for nine hours resulted in a carefully controlled redistribution of the load: the vibrations of both bearings were eventually below 2 mm/s. Result: a smooth operation.

The material removal generated through using the RE-CONDITIONER requires specialised technical knowledge. Forced running-in is only carried out by FUCHS Service Engineers. For gears under warranty the machine or gear manufacturer must agree to this procedure being conducted prior to the start of the procedure.

Vibration monitoring



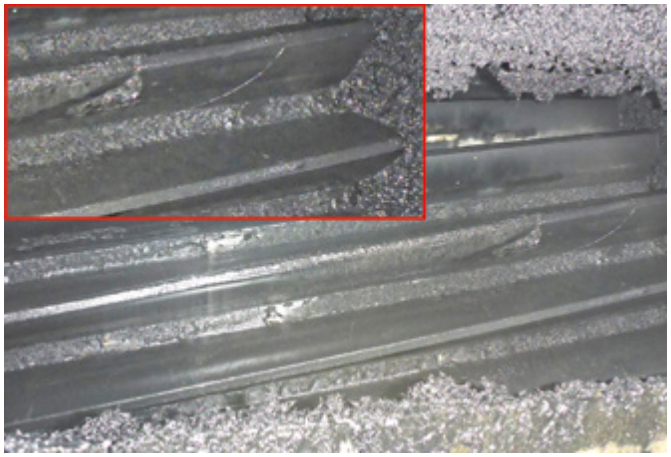
Extract from permanent vibration monitoring at the plant.
Reduction of vibrations during forced running-in.

Tooth flank damage and its causes in Open Gears

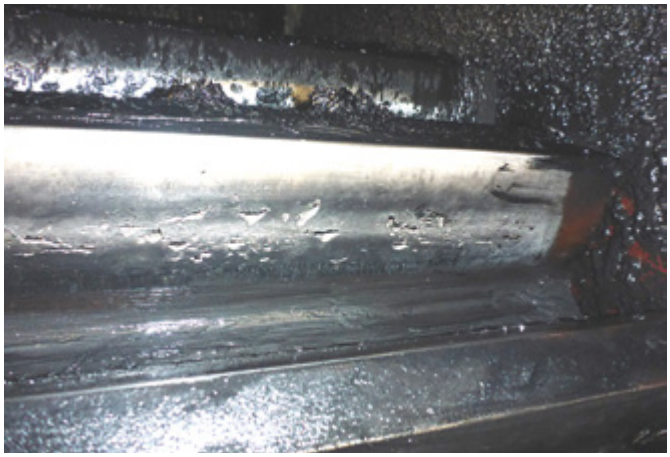
Gears in a wide variety of designs provide movement throughout the industry. If a gear wheel suddenly stops, the causes can differ considerably. Statistically speaking, damaged tooth flanks account for about 60 per cent of gear drive defects.

The correct lubricant eliminates many damage causes. It does not matter whether a light oil or an adhesive lubricant is under consideration. Nor does it matter whether it is a high-speed vehicle gearing or a low-speed Open Gear drive: whenever teeth mesh the appropriate lubricant is one of the most important factors for smooth operation. Scuffings and abrasive wear, for example, can be influenced to a large extent by the lubricant. A poor-quality lubricant also has a direct adverse effect on the occurrence of fretting corrosion, scoring and scuffings. The consequences of a lack of lubricant usually include increased wear or deformations such as the development of rippling and hot or cold flow. The chart below gives a basic overview of the problems that can be experienced.

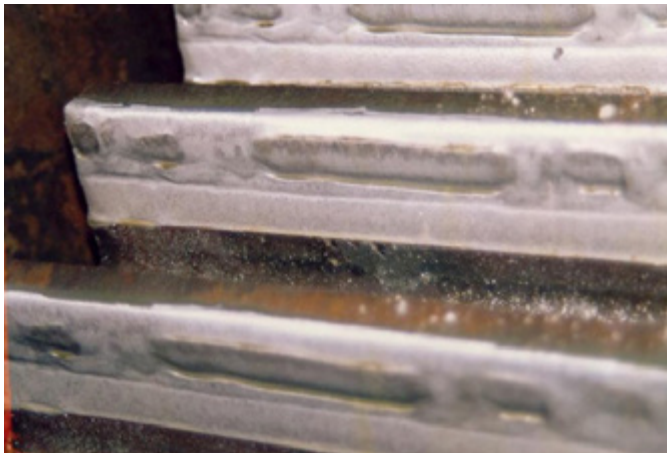
Cracks



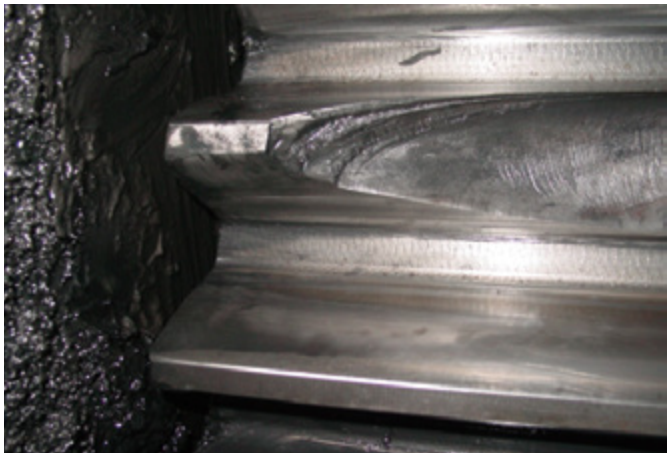
Pittings/seizure



Deformations



Tooth breakages



Potential root causes of Open Gear damage

		Pittings			Deformations			Tooth breakage		Wear				
		Inital/Micro pitting	Destructive/Fatigue Pitting	Flaking	Imprint	Burr Formations	Plastic Deformation	Overload breakage	Fatigue breakage	Abrasive wear	Scratches	Scuffing (Contamination)	Cold welding (Scoring)	Corrosive wear
		Pittings			Deformations			Tooth breakage		Wear				
Operational conditions/assembly faults	Misalignment	■	■	■		■	■	■	■			■	■	
	Pinion/shaft mounting	■	■	■		■	■	■	■					■
	Frequent load changes		■	■		■	■	■	■					
	Overload		■	■		■	■	■	■				■	
	Impact/vibration stress		■	■				■	■					■
	Insufficent running-in	■								■		■	■	
	Dust/Contamination ingress				■	■				■	■	■		
	Dynamic changes		■	■				■	■					
	Incorrect material selection	■	■	■		■	■	■	■					■
	Insufficent lubrication	■					■			■		■	■	■
Lubrication faults	Unsuitable Viscosity	■									■	■	■	
	Inadequate Quantity	■					■			■	■	■	■	■
	Product selection	■								■	■	■		■
	Contaminated lubricant				■					■	■	■		■
	Incorrect application	■								■	■	■	■	■

FUCHS LUBRICANTS INSPECTOR – global online documentation

With the FUCHS LUBRICANTS INSPECTOR, FUCHS provides a unique, ever-enhancing online reporting platform for our Open Gear service. Customers have 24/7 access to inspection reports and trend analyses for their machines.

FUCHS support pillars for a reliable Open Gear operation: service, products, and online reporting

Register now – just ask your responsible Service Engineer or contact us directly at flg.inspector@fuchs.com

Your benefits with the FUCHS LUBRICANTS INSPECTOR

- Individual access hierarchy
- Online access at any time with any device
- Free of charge
- Availability of all reports with filtering options
- Traffic light system for machine status
- Automated notification (with link) of your new inspection reports
- Graphical trend analyses for temperatures and vibrations
- Direct contact button

This is how your dynamic machine inspection report could look like:


MOVING YOUR WORLD

FUCHS

Report for Open Gear Drive

Machine # | Date of Inspection 07.12.2021 | Name of Inspecting Service Engineer Wagner Peter (FUCHS)

OK Tooth Flanks | OK Vibrations | OK Lubrication System

warm Temperatures | warm Bearings | OK Others additional Comments

Headquarter Data

Headquarter

Country
Saudi Arabia

Site

Attention:
(Manager, Condition Monitoring.)

Machine Data

Machine Name
Rod Mill

Machine Manufacturer
CITIC

Load Carrying Pattern
80 %

Gear Data

Number of Pinions
1

Toothing
HELICAL

Pinion Width
610 mm

Lubricant Data

Application Type
SPRAY

Application Position
GIRTH_GEAR

Manufacturer of Lubricant
FUCHS

Lubricant
CEPLATTYN SF 10

Manufacturer of Spray System
BIJUR DELIMON

Number of Nozzles
5

Check of Lubrication System

Sealing	OK
Drainage	OK
Lubricant Pump	OK
Lubricant Filter	OK
Lubricant Pipe	OK
Air Filter/Lubricator	OK
Air Pipe	OK
Air Pressure	OK
Injector/Distributor	OK
Spray Nozzles	OK
Spray Pattern	OK
Control Panel	OK
Cycle Time	Seconds
Spray Time	Seconds
Consumption	g/h

CEPLATTYN GT RN with 480 g/h for 360 h is recommended after Pinion realignment.
The Temperature situation will be improved with these actions.

Additional Comments OK

The current Terms of Use of the FUCHS LUBRICANTS INSPECTOR shall apply.

2022-02-16 Page 1 of 4

SAMPLE REPORT


MOVING YOUR WORLD

FUCHS

Attachments

Girth Gear.avi
Infrared movie

Pictures

Pinion tooth flanks
On the non-drive is a small area with slightly reduced contact visible.
The non-drive side bearing should be slightly raised.

Girth Gear tooth flanks

Tooth Flanks

Load Carrying Pattern 80%

The load-carrying pattern is well distributed.
At the Pinion non-drive side the tooth flank contact seems slightly reduced.
Reason can be a non-parallelity of Pinion and Girth Gear tooth flanks.

The current Terms of Use of the FUCHS LUBRICANTS INSPECTOR shall apply.

2022-02-16 Page 2 of 4

SAMPLE REPORT


MOVING YOUR WORLD

FUCHS

Temperatures

Bearings

Pinion tooth flanks temperatures
The recommended maximum deviation over the entire flank width is ΔTmax=5K. The measured deviation with 11 K is too high. The pinion should be realigned. The non-drive bearing should be raised in steps of 0.2 mm to improve the parallelism of the flanks.
CEPLATTYN GT RN is then used as the operating lubricant at 480 g/h for 360 h.

Bearing lubricant

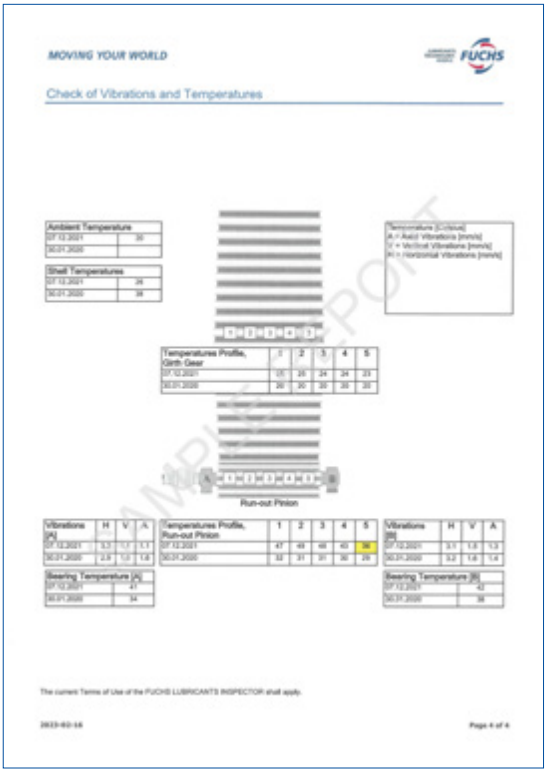
Additional Comments

Girth Gear tooth flank temperature
The temperature distribution on the Girth Gear is more even than on the Pinion, the reason is the large diameter and thus fewer tooth contacts. Girth Gear can cool down during rotation, and the temperature can be better distributed over the entire flank width.
The temperature change is clearly visible in the attached infrared film.

The current Terms of Use of the FUCHS LUBRICANTS INSPECTOR shall apply.

2022-02-16 Page 3 of 4

SAMPLE REPORT


MOVING YOUR WORLD

FUCHS

Check of Vibrations and Temperatures

Ambient Temperature	
07.12.2021	20
30.01.2020	

Shell Temperatures	
07.12.2021	25
30.01.2020	38

Temperatures Profile, Girth Gear	1	2	3	4	5
07.12.2021	25	25	24	24	23
30.01.2020	20	20	20	20	20

Run-out Pinion

Vibrations [A]	H	V	A
07.12.2021	3.3	1.7	1.1
30.01.2020	2.8	1.0	1.8

Temperatures Profile, Run-out Pinion	1	2	3	4	5
07.12.2021	47	49	48	40	36
30.01.2020	32	31	31	30	29

Vibrations [B]	H	V	A
07.12.2021	3.1	1.8	1.3
30.01.2020	3.2	1.6	1.4

Bearing Temperature [A]	
07.12.2021	47
30.01.2020	34

Bearing Temperature [B]	
07.12.2021	42
30.01.2020	38

The current Terms of Use of the FUCHS LUBRICANTS INSPECTOR shall apply.

2022-02-16 Page 4 of 4

SAMPLE REPORT

Complete solutions: the CEPLATTYN ranges

FUCHS offers three different CEPLATTYN ranges, thus always providing our customers with the ideal lubricant for mill or kiln gears.

CEPLATTYN KG 10 HMF range

The lubricants of the CEPLATTYN KG 10 HMF range include black, graphite-containing greases suitable for any kind of Open Gear. The CEPLATTYN KG 10 HMF range provides excellent wear and damage protection for mill and kiln gears. Suitable grades for spray, bath and circulation application are available.

CEPLATTYN GT range

The CEPLATTYN GT range includes milk-coloured, white solid lubricant-containing, high viscosity-fluids suitable for all kinds of Open Gears. Like the graphite-containing greases they provide optimum wear and damage protection for mill gears and low-speed kiln gears. They contain flame-retardant additives to prevent fire on kilns, build up a suitable sealing layer to avoid the occurence of oil leakages and are well pumpable. The CEPLATTYN GT range comprises suitable viscosities for spray, bath and circulation applications and can be used on AGMA and DIN/ISO-designed gears.

CEPLATTYN SF range

The CEPLATTYN SF range includes light-coloured, high-viscosity fluids without solid lubricants. They are designed for use in any kind of mill gear and are especially suitable for use on AGMA-designed gears for high-powered mills in the mining industry. The lubricants of the CEPLATTYN SF range are mainly intended for spray application.

Open Gear CEPLATTYN products and application

Product	Description	Field of application	Method of application
CEPLATTYN 300	Paste with a high graphite content, high-pressure additives	As primer for large Open Gears, gear racks and sliding surfaces	Manually to clean surfaces; do not use in centralised lubrication systems!
CEPLATTYN RN	Sprayable running-in lubricants for Open Gears	Can be applied to single- and double-pinion drives of any kind of tube mills and kilns	Via automatic spraying systems. Spraying should be effected permanently and highest possible quality
CEPLATTYN KG 10 HMF	Sprayable running-in lubricants for large Open Gears	Is used on Open Gear drives of tube mills and kilns, dryers and crushers	Applied via standard spray lubrication systems
CEPLATTYN KG 10 HMF-1000	Sprayable, graphite-containing adhesive lubricant for Open Gears	Is used for heavy-load applications because of its high base oil viscosity	Applied via standard spraying system
CEPLATTYN KG 10 HMF-2500	Highly viscous, sprayable adhesive lubricant for Open Gear drives	Suited for shock loads in heavy-duty applications because of its high base oil viscosity and the resulting good cushioning effect	Sparingly applied by commercially available spraying systems
CEPLATTYN KG 10 HMF LC	Sprayable, extremely high-viscosity adhesive lubricant for Open Gears	High base oil viscosity and thus good damping characteristics make it especially suitable for shock-loaded gear in heavy-duty applications	Applied economically via conventional spray lubrication systems. At temperatures below +5°C / +40°F additional heating systems may have to be used for spraying
CEPLATTYN GT P	Priming lubricant with white solid lubricants	Used as priming lubricant for Open Gears	By spatula, brush or non-fiber cloth onto previously cleaned surfaces
CEPLATTYN GT RN	Sprayable running-in lubricant for Open Gears	Used to smoothen the tooth surface of newly installed girth gears or pinions and for optimizing the load-carrying pattern	By automatic spraying systems
CEPLATTYN GT 3	Increased-viscosity adhesive lubricant with white solid lubri- cants for Open Gears	Especially for application on Open Gears in critical operating conditions	Suitable for the application in bath and circulation systems
CEPLATTYN GT 10	High-viscosity adhesive lubricant with white solid lubri- cants for Open Gears	Especially for Open Gears under critical operating conditions, such as slow-speed kiln drives with increased tooth flank temperatures, mill drives with extreme drive power, and drives frequently operated under start-stop conditions	Suitable for the application in bath and circulation systems
CEPLATTYN GT 30	Extremely high-viscosity adhesive lubricant with white solid lubricants for Open Gears	Especially for Open Gears under critical operating conditions, such as slow-speed kiln drives with increased tooth flank temperatures, mill drives with extreme drive power, and drives frequently operated under start-stop conditions	Suitable for the application in spraying system
CEPLATTYN SF 10	Light-coloured, highly viscous adhesive lubricant for Open Gears on mills	Especially for heavy-duty, high-speed open mill drives subject to high vibrations	Via commercially available spraying systems
CEPLATTYN SF 30	Sprayable, extremely high-viscosity lubricant for Open Gears	Especially for extremely heavy-duty Open Gear drives exposed to high shock loads	Via spray systems
CEPLATTYN CLEANER	Special cleaner with very good lubrication properties	Especially for dynamic cleaning of Open Gear systems. Also suitable for the cleaning of other metallic components	High-pressure device or manually

FUCHS LUBRICANTS GERMANY

Visit us on
our website!

Innovative lubricants need Experienced application engineers

Every lubricant change should be preceded by expert consultation on the application in question. Only then the best lubricant system can be selected. Experienced FUCHS engineers will be glad to advise on products for the application in question and also on our full range of lubricants.

Contact:

FUCHS LUBRICANTS GERMANY GmbH
Friesenheimer Str. 19
68169 Mannheim/Germany
Phone +49 621 3701-0
zentrale-flg@fuchs.com
www.fuchs.com/de

930159717 02/2023