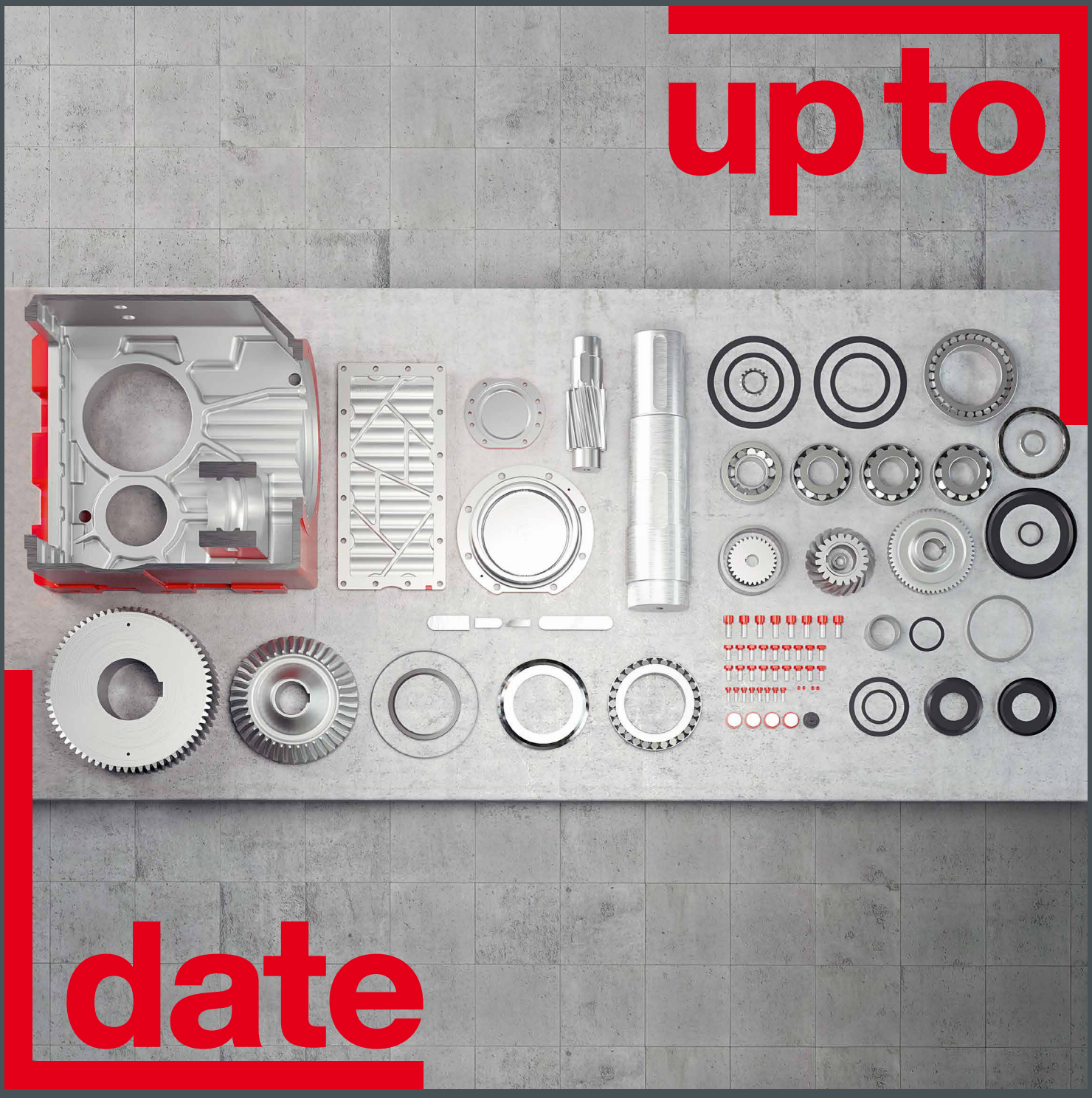
SEW EURODRIVE

Omnibus

All topics in one issue
up to date



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2020

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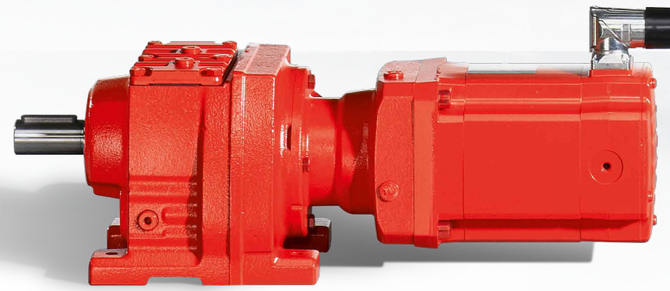
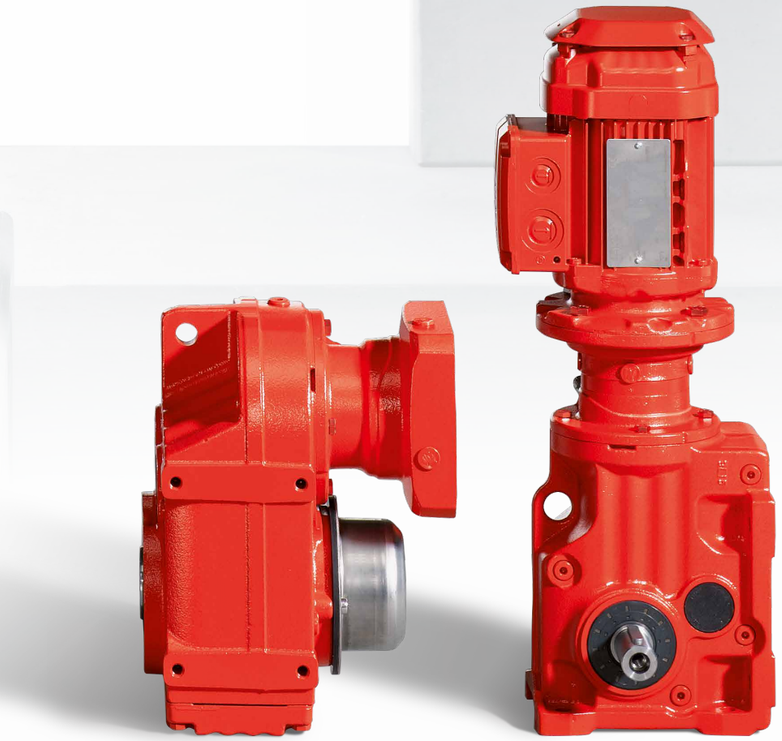
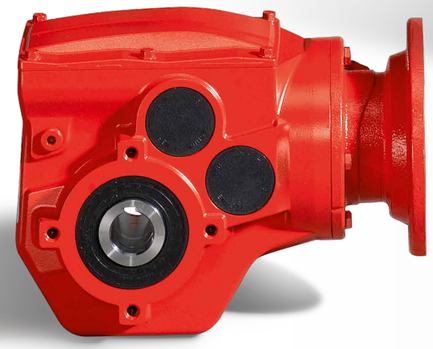
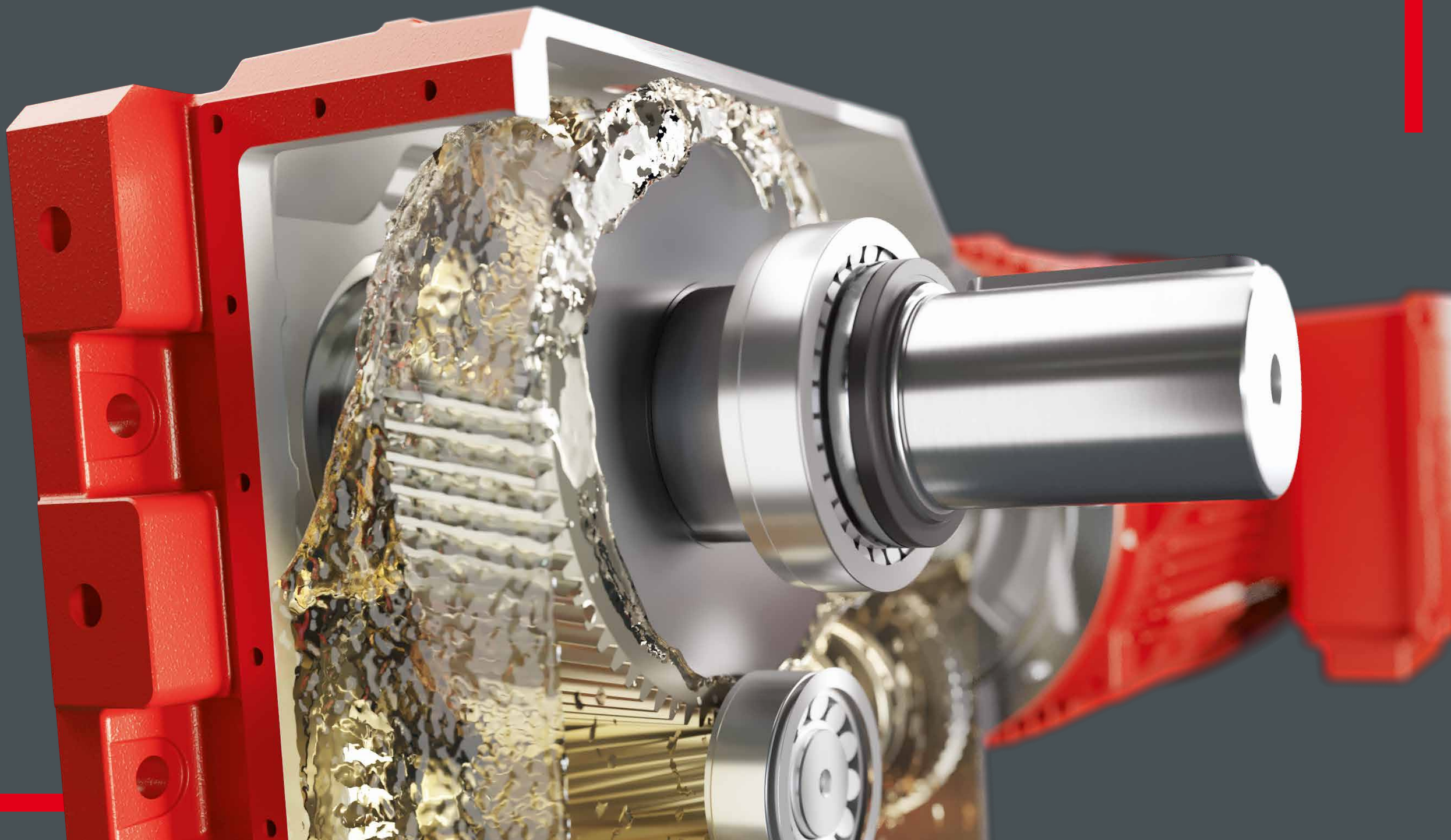






Sustainable lubrication

Using lubricant with a clear conscience
GearFluid by SEW-EURODRIVE



Facts about crude oil and lubricants

Did you know that humans have been using crude oil for more than 12 000 years? Whereas it used to be oil that had made its way to the earth's surface and reacted with oxygen to form a type of bitumen, its uses have changed considerably over the millennia and become more specialized – and that includes extraction. Today, oil is all around us in different materials, clothing and lubricants. However, everything is still based on crude oil. With our new GearFluid, which is based on renewable raw materials, we will show you that there are other options.

1

Crude oil is all around us

Crude oil is the starting ingredient for countless materials that are all around us every day. Its best known use is perhaps in plastics. Depending on the arrangement of the molecules and the substances added, materials can have different properties. They can be rigid, flexible, transparent, or colored. They can have insulating properties or be made into foams and used as filling material for seats, for example.

2

Crude oil in clothing

Many articles of clothing contain polyester or polyamide fibers, which are manufactured from crude oil. These artificial fibers are very robust and, depending on the design, make our clothing cozy and soft, hard-wearing and long-lasting, or even waterproof.

3

Crude oil in cosmetics and medicines

Creams, ointments, medicines, shaving foam and cosmetics products often contain paraffin. Paraffins are a mixture of saturated hydrocarbons that are obtained during vacuum distillation.

Crude oil and lubricants
Facts

Not all crude oils are the same

Every oil has a unique composition. Around 170 types are known worldwide. The different types are named according to where they are extracted. Well-known examples include “Brent” (European oil) and “West Texas Intermediate” (United States).

Since raw oil is made up of approximately 17 000 ingredients, the extracted oils vary. Sulfur is just one element of many. Most of the compounds in oil are hydrocarbon compounds. Apart from anything else, this is an important indication of how crude oil is formed – from organic material.

Crude oil is actual biomass

Millions of years ago, microorganisms and algae died and sank to the bottom of the sea. Due to the lack of oxygen, they didn’t decompose, but instead formed a sludge. Over the course of many millions of years, the combination of no oxygen, pressure and temperature transformed this into the crude oil that is pumped out today.

Crude oil is not finite

Oil itself will never run out, since the creation process described in Point 5 is always ongoing – so, naturally, is also happening now – as long as plants, phytoplankton and microorganisms such as zooplankton exist.

However, given the current rate of consumption, it is doubtful whether there will be sufficient reserves in the future, and indeed whether these can be extracted cost-efficiently without damaging nature.

Crude oil and its uses

Most people will surely immediately think of oil being used as fuel, such as gasoline, kerosene, heating oil and petroleum.

However, liquefied gas (LPG) is also obtained during oil extraction. Around 90 percent of the crude oil extracted is burnt.
The remainder is processed. A large portion of this (approx. 7%) serves as a basic material for the chemical industry.

Crude oil as a lubricant

Lubricants are used to ensure drives and machinery of all kinds operate with low friction. In general, these are oil-based, as obtaining and processing oil without complex synthesis processes has, till now, been comparatively cost-effective.

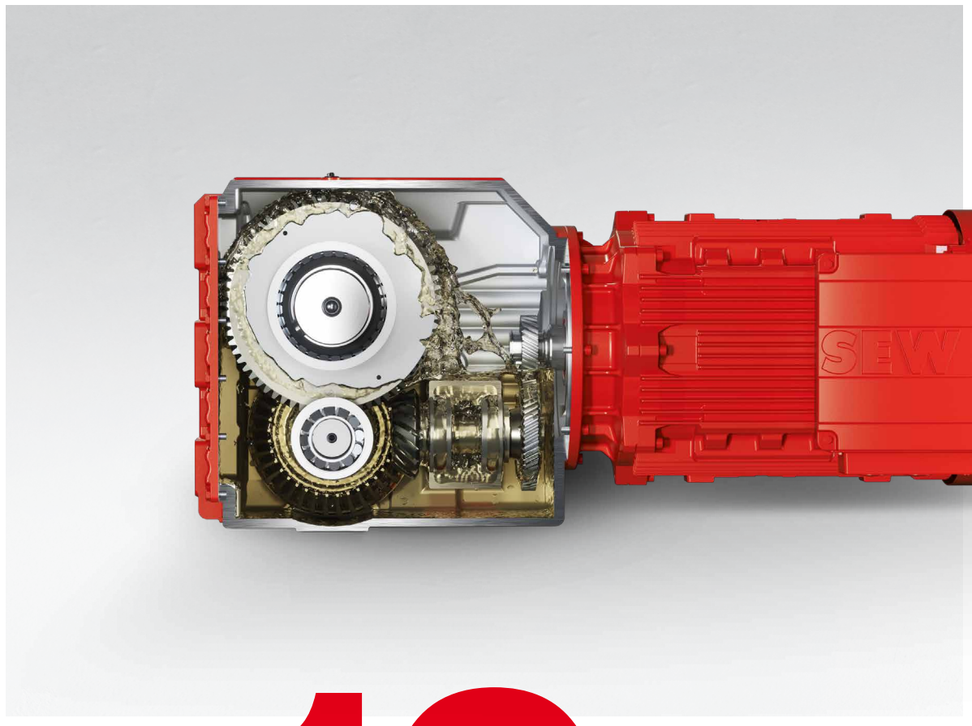
Mixing in up to 30% different additives can create high-quality, ready-to-use oils. Depending on the application, specialist oils such as motor oil, gear oil, chain oil, hydraulic oil, sewing machine oil or cutting oil are used.

Not all oils are the same

You can’t just use any oil as a lubricant in industrial gear units, either. Unfortunately, vegetable oils are generally not suitable for use as gear oils. They age quickly, become rancid and lose their lubricating characteristics.

Among industrial gear oils, there is a distinction between mineral and synthetic lubricants. Mineral lubricants can be manufactured very cost-effectively through vacuum distillation. They consist of molecular chains with different structures, and can also contain other materials such as sulfur and nitrogen. During the manufacturing process, the molecular chains are completely fractured, undesirable components are removed and similar molecules are put together again in structured form. Additives can be used to alter characteristics in a targeted way. Technically food grade gear oils are physiologically harmless and have no taste. Biodegradable lubricants to OECD 301 are used in areas where there is a risk of the oil being released into the environment.

Crude oil and lubricants
Facts

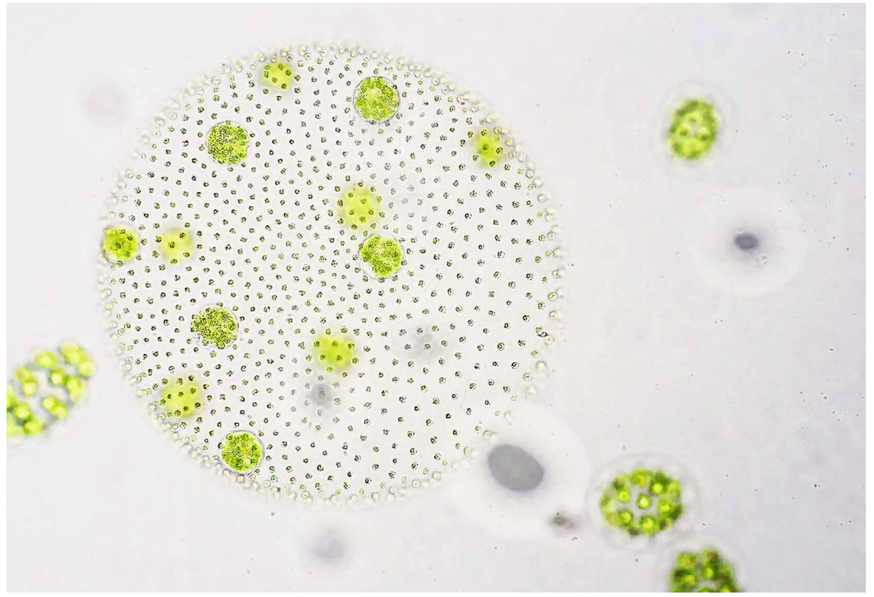


1

10

Oils from biomass

Instead of using crude oil, these oils are based on renewable raw materials. Sustainable biomass and food waste are converted into oil in a sophisticated synthesis process. A sustainable CO_2 cycle can only be achieved using CO_2 obtained from the air and/or from biomass.



2

3

1 Gear unit with GearOil by SEW-EURODRIVE
2 Phytoplankton
3 Gear oil in the twin-disc test rig
4 GearFluid

4

Oil from sustainable biomass

GearFluid by SEW-EURODRIVE is manufactured using sustainable biomass, e.g. from waste, rather than fossil raw materials – this is shown in a certified mass balance approach. The extended service life and the resulting fewer oil changes reduce oil consumption and therefore also the costs for an oil change compared to conventional polyglycol lubricants. In addition, this saves more CO_2.

GearFluid by SEW-EURODRIVE complies with the Renewable Energy Directive of the European Commission. This directive stipulates that no foodstuffs or palm-based raw materials should be used in production.

We have also thought carefully about the containers for the GearFluid. The canisters are manufactured using plastic that contains some recycled material.

As you can see, the new GearFluid by SEW-EURODRIVE has many benefits. It's really not hard to implement sustainable production and protect the environment in several ways at once.

Keen to find out more? Our sales experts will be happy to help.

Sustainable

The base oil for our GearFluid is manufactured from sustainable biomass and does not use any fossil raw materials.

Service life

Compared to conventional polyglycol oils, our GearFluid can extend the service life of the lubricant and the interval between oil changes for the gear units by as much as 50%.

Efficient

Our GearFluid boosts efficiency compared to mineral oils, and reduces energy consumption and operating costs, meaning it is also a very efficient lubricant.

Resources

By using our GearFluid, you can reduce your Corporate Carbon Footprint (CCF). In this way, our economy can meet its responsibility to keep the environment intact, actively protect it and use resources sustainably.

Lower CO_2 emission

The base oil for our GearFluid is manufactured with 84% less CO_2 emission compared with conventional polyglycol base oils.

Organic materials

The biomass used consists entirely of naturally occurring organic materials and food waste. No additional agricultural land is required to produce the biomass. As a result, GearFluid helps achieve the goal of greater sustainability.

Quickly biodegradable

GearFluid can also be used in environmentally sensitive areas.
According to OECD 301B, GearFluid by SEW-EURODRIVE is quickly biodegradable.

Biological and environmentally friendly

GearFluid by SEW-EURODRIVE – 84% less CO_2 emission compared to conventional polyglycol lubricants

1 **Sustainable biomass made from green and food waste, among other things**

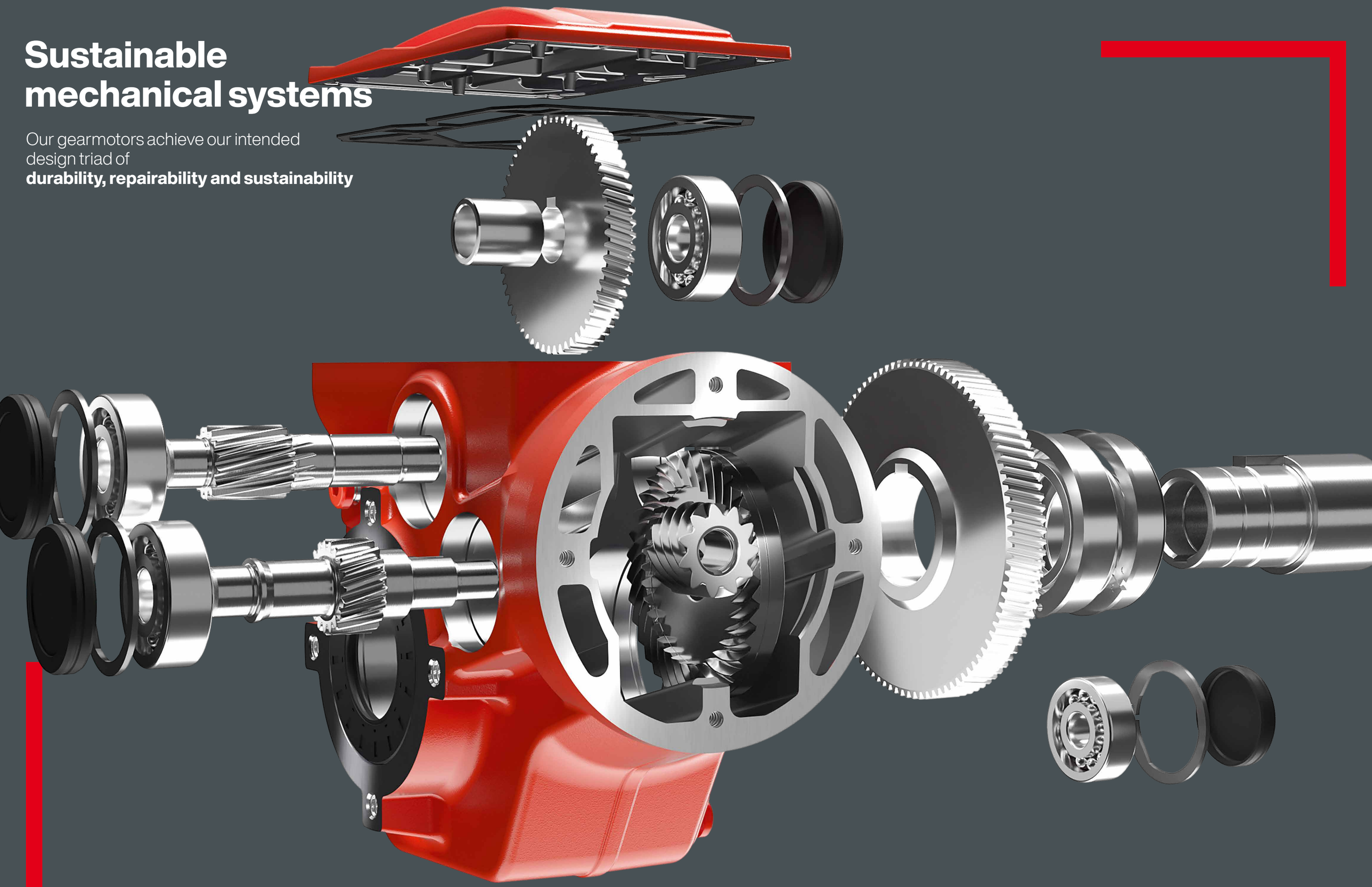
2 **Processing and synthesis of the biomass into the base oil for the GearFluid**

3 **Mixing in high-quality additives creates the finished GearFluid**

4 **Filling the gear units and canisters with GearFluid by SEW-EURODRIVE**

Sustainable mechanical systems

Our gearmotors achieve our intended design triad of
durability, repairability and sustainability



Sustainable mechanical systems

Everyone knows that when you buy a product these days, it normally breaks after a few years. Getting it repaired is often time-consuming or more expensive than buying a new device. Besides being annoying, that isn't customer-friendly and it definitely isn't sustainable. We at SEW-EURODRIVE take a different approach. Our gearmotors achieve the triad of durability, repairability and sustainability.

Durability

How long does a gearmotor of this kind actually last? We're still not entirely sure about ours, but we keep getting gear units from the 1960s to be repaired or overhauled, so we can justifiably say that gear units from SEW-EURODRIVE are durable. Indeed, our gearmotors with a service factor of $f_B \geq 1$ have always been designed with a high fatigue strength. This calculated fatigue strength applies to the gear units and motors, with the exception of wear parts. Typical wear parts in this connection are bearings, oil and oil seals, all of which are affected by aging.

However, if you want to slow the aging process and thus extend maintenance intervals – which is good for both your budget and the environment – simply opt for PSS Radial oil seal on the input side and combined oil seals on the output side when making a new purchase. These wear parts boast up to double the service life of normal oil seals.

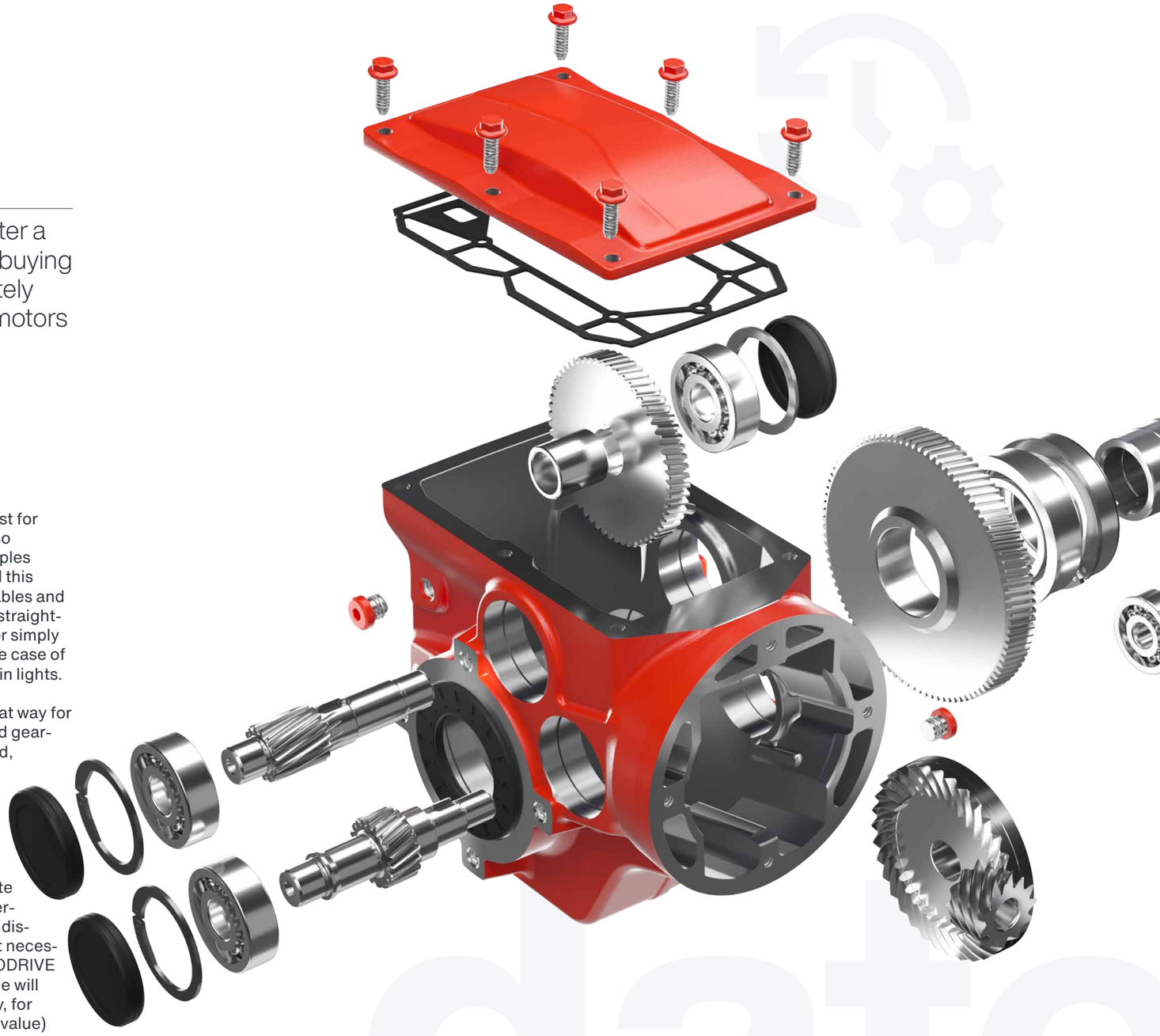
Wear parts also determine the service life and therefore the maintenance intervals of a unit. The above-mentioned oil seals and GearOil by SEW-EURODRIVE significantly increase the lifespan of gear units and extend maintenance intervals. Unscheduled downtimes are virtually eliminated and overhauls can be planned. All other components, such as the housing, shafts and gearing, have an unlimited service life – naturally, only if they are operated within the specified parameters.

Repairability

Nowadays, many products are designed only to last for a certain amount of time. In some cases, this is also referred to as planned obsolescence. Likely examples include inkjet printers and washing machines, and this author also suspects it is the case with TVs, wearables and other products. Replacing wear parts is often not straightforward, which means maintenance/repair work or simply replacing a part becomes uneconomical – as in the case of smartphone batteries or permanently fitted LEDs in lights.

We take the approach that it doesn't have to be that way for our products. All components of our gear units and gearmotors can be removed, repaired and reassembled, and all these individual components are available as spare parts worldwide for decades.

How about an actual example? With all standard gearmotors from SEW-EURODRIVE, the gear unit and motor are connected using a pinion shaft that has a key and a mounted pinion with an appropriate groove. Unlike push-in pinions that are pressed permanently into place, this enables non-destructive disconnection. Experienced customers can carry out necessary repairs themselves. Alternatively, SEW-EURODRIVE staff from one of the 85 assembly plants worldwide will take care of repair and servicing work. In Germany, for example, the service team offers as-new (original value) repairs. This preventive approach involves replacing all bearings and sealing elements and using an impulse voltage tester to check all electrical components. With as-new repairs, customers benefit from a 24-month warranty for defects covering the entire drive.



If you don’t see the SEW logo, it’s not from SEW-EURODRIVE – sustainable mechanical systems!

So you know what’s inside, we have written on the gear units where they come from. All standard gear unit housings will have a cast SEW logo to clearly identify them in the future, meaning you can be 100% certain it's a genuine SEW-EURODRIVE gear unit.

Sustainability

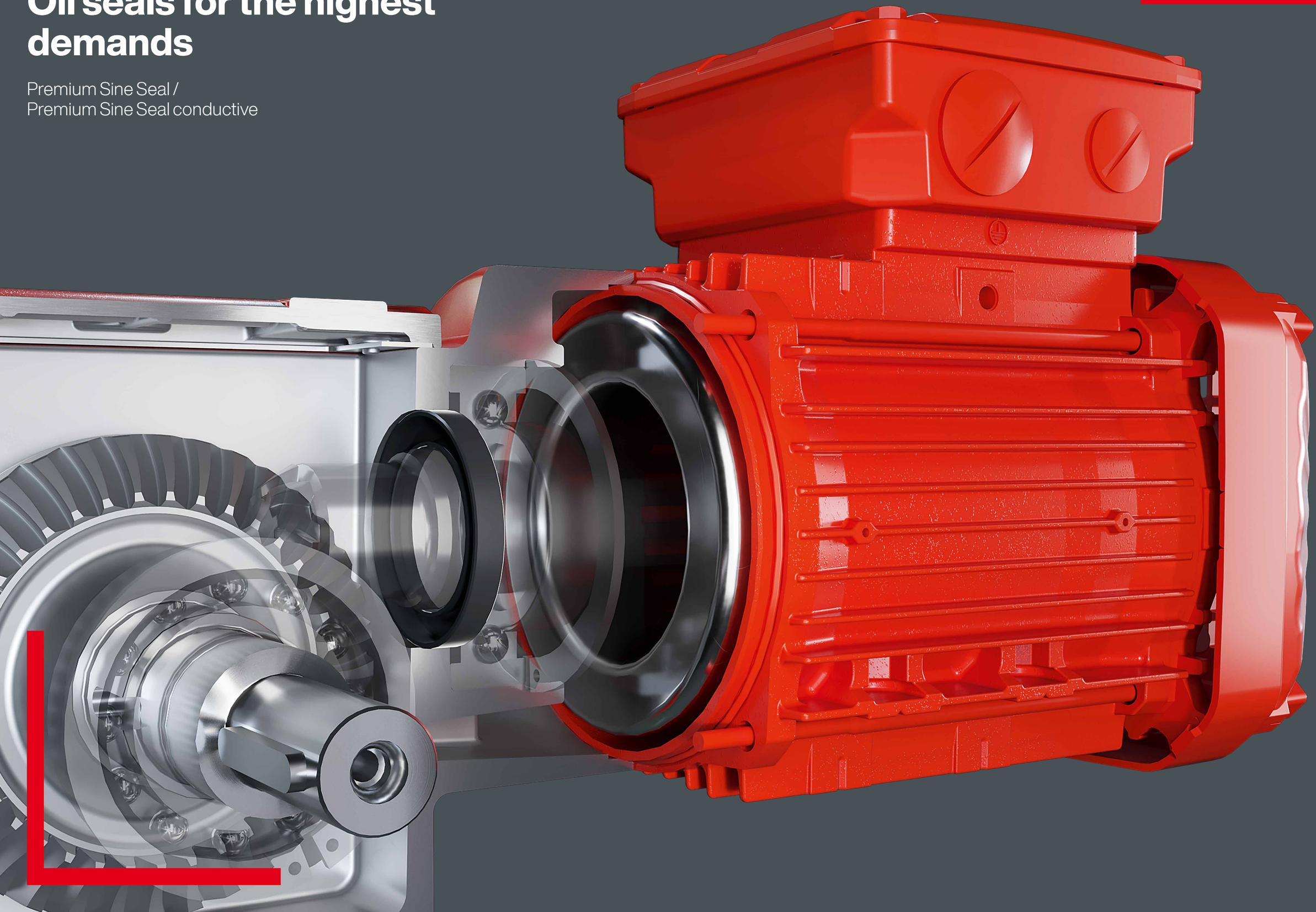
Sustainability involves numerous aspects. We believe these definitely include durability and repairability, but saving on resources is a key aspect, too. What's more, a gearmotor from SEW-EURODRIVE weighs an average of 18% less than a comparable solution with an adapter flange and IEC motor. This plays a particularly important role in the case of mobile drives, because correspondingly lower drive power is required. Due to the lower mass being moved, energy is saved or none at all is required.

Reuse and recyclability also contribute to sustainability. A gearmotor mainly consists of gray cast iron, aluminum and copper. These materials can all be recycled and returned to the product cycle.

Our development engineers have also given some consideration to the sustainability of the lubricant. As everyone should be aware, the base oil for a gear unit lubricant is fossil mineral oil. However, sustainably produced biomass is used as the base oil for the new GearFluid by SEW-EURODRIVE. During the GearFluid manufacturing process, this results in CO_2 savings of 84% compared with conventional polyglycol lubricants. By eliminating fossil raw materials, users can thus reduce their corporate carbon footprint (CCF).

Oil seals for the highest demands

Premium Sine Seal /
Premium Sine Seal conductive



Oil seals

Premium Sine Seal
For a long service life in demanding applications

Oil seals have a single purpose – to seal machine housings. They ensure no oil or other lubricants leak out and, at the same time, prevent anything that could harm the gear unit from getting in.

Sealing rings are subject to particularly extreme stresses in positioning drives with a fast pulsed voltage supply and a constantly changing direction of movement. High friction and temperatures on the sealing lip make rapid wear inevitable.

Premium Sine Seal oil seals from SEW-EURODRIVE are perfect for very heavy-duty applications of this kind. Even under adverse conditions, they ensure reliable, long-lasting sealing.

→ Double the service life thanks to a special geometry
→ 50% less wear than conventional sealing systems
→ Particularly suitable for high motor speeds and high temperatures

Both seal tight

Premium Sine Seal oil seals are available in two versions – the standard design for an extended service life and a design with a special non-woven fabric to prevent harmful leakage currents via the bearings.

Premium Sine Seal

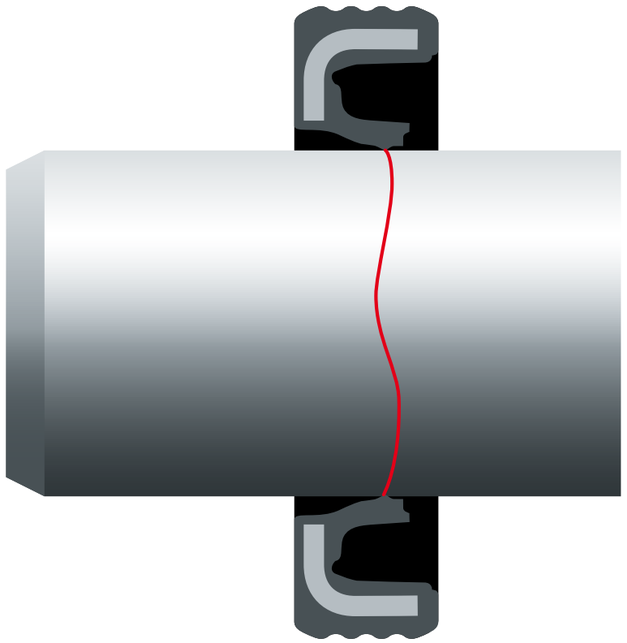
- Motor speeds up to 6000 min^{-1}
- -25 °C to +115 °C
- Maintenance interval 20 000 h
- For highly dynamic applications

Premium Sine Seal conductive

- Motor speeds up to 6000 min^{-1}
- -25 °C to +115 °C
- Maintenance interval 10 000 h
- To prevent harmful leakage currents via the bearings

Top left: Premium Sine Seal conductive
Bottom right: Premium Sine Seal

Well-conceived design



The Premium Sine Seal consists of a metal carrier encased by an elastomer. The sinusoidal sealing lip is attached to the internal membrane, which eliminates the need for the circular spring that is otherwise normally required. Decreasing the contact pressure on the shaft in this way lowers the sealing lip's temperature and reduces wear.

The sinusoidal sealing lip gives Premium Sine Seal sealing rings a larger contact surface (0.6 mm instead of the usual 0.2 mm). This improves their thermal dissipation and makes the elastomer last longer.

The friction and temperature transfer are distributed more effectively, and the amount of wear is reduced. No score marks are created on the shaft. If the sealing ring is replaced, this means the new one can simply be fitted at the same location.

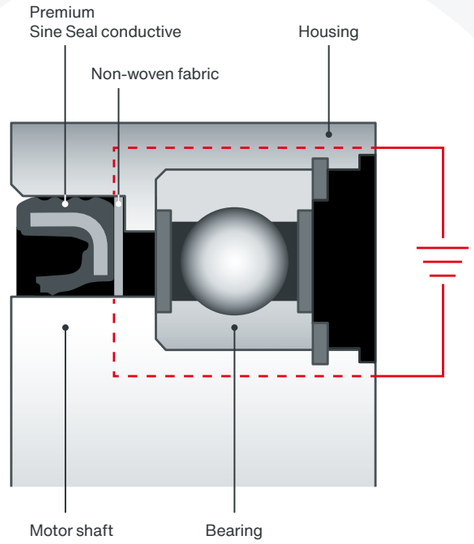
SEW-EURODRIVE engineers worked with a development partner to create the Premium Sine Seal for use in SEW-EURODRIVE gearmotors, thereby providing a durable motor seal for our gear units utilized in conjunction with CMP.. and CM3C.. synchronous servomotors or with standard asynchronous motors and the decentralized MOVIGEAR® drive system.

Electrically conductive non-woven fabric

Highly effective against electrical erosion

Current can sometimes flow through the bearing system in electric motors. Bearing ring surfaces then often exhibit typical signs of electrical erosion, and the grease is subject to extreme stresses. Both these things drastically reduce the service life of bearings, which often leads to premature bearing failure.

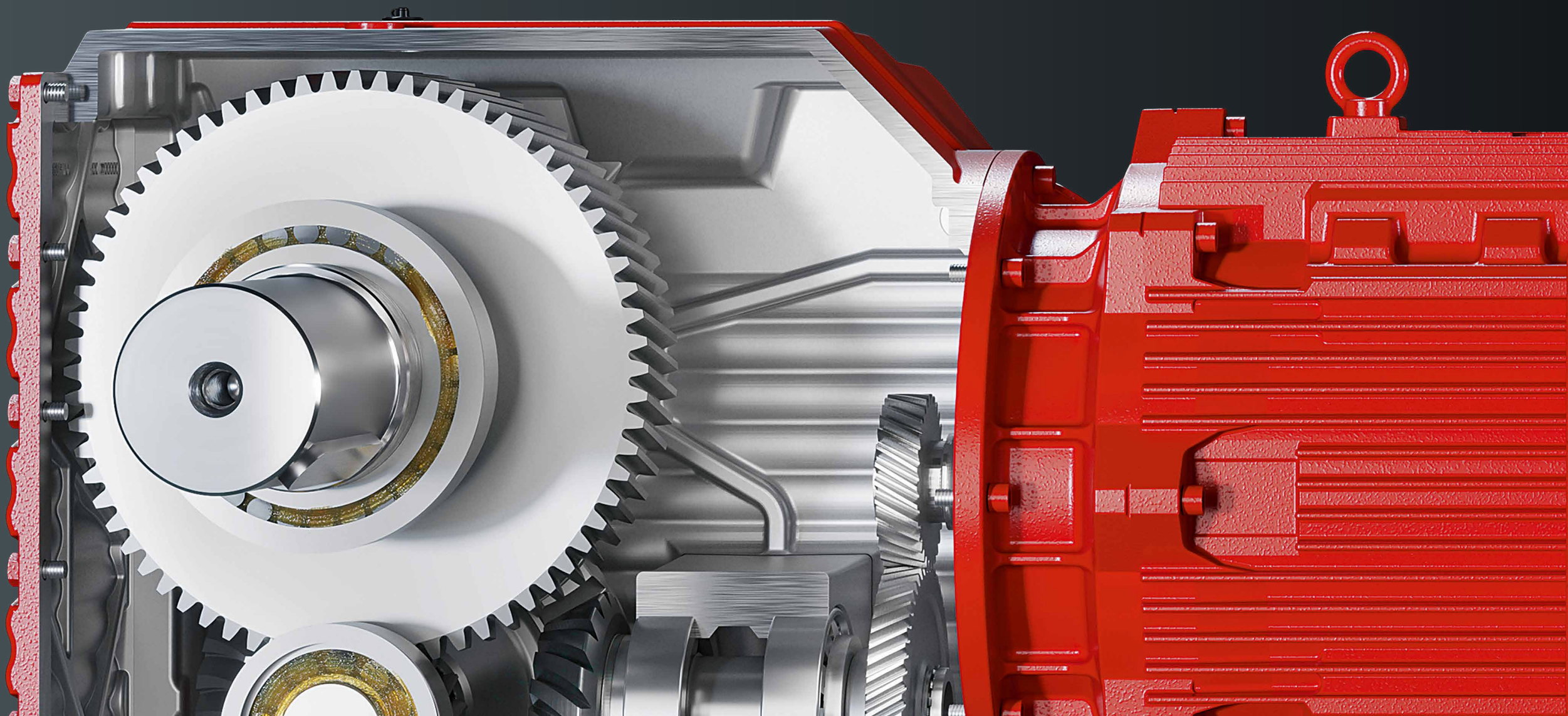
Using an electrically conductive non-woven fabric as a current contact bridge between the housing and shaft protects the bearings against harmful leakage currents within the drive unit.



GREASE BY SEW-EURODRIVE

FOR A WELL-GREASED PERFORMANCE

With high thermal and mechanical strain



WITH HIGH THERMAL AND MECHANICAL STRAIN

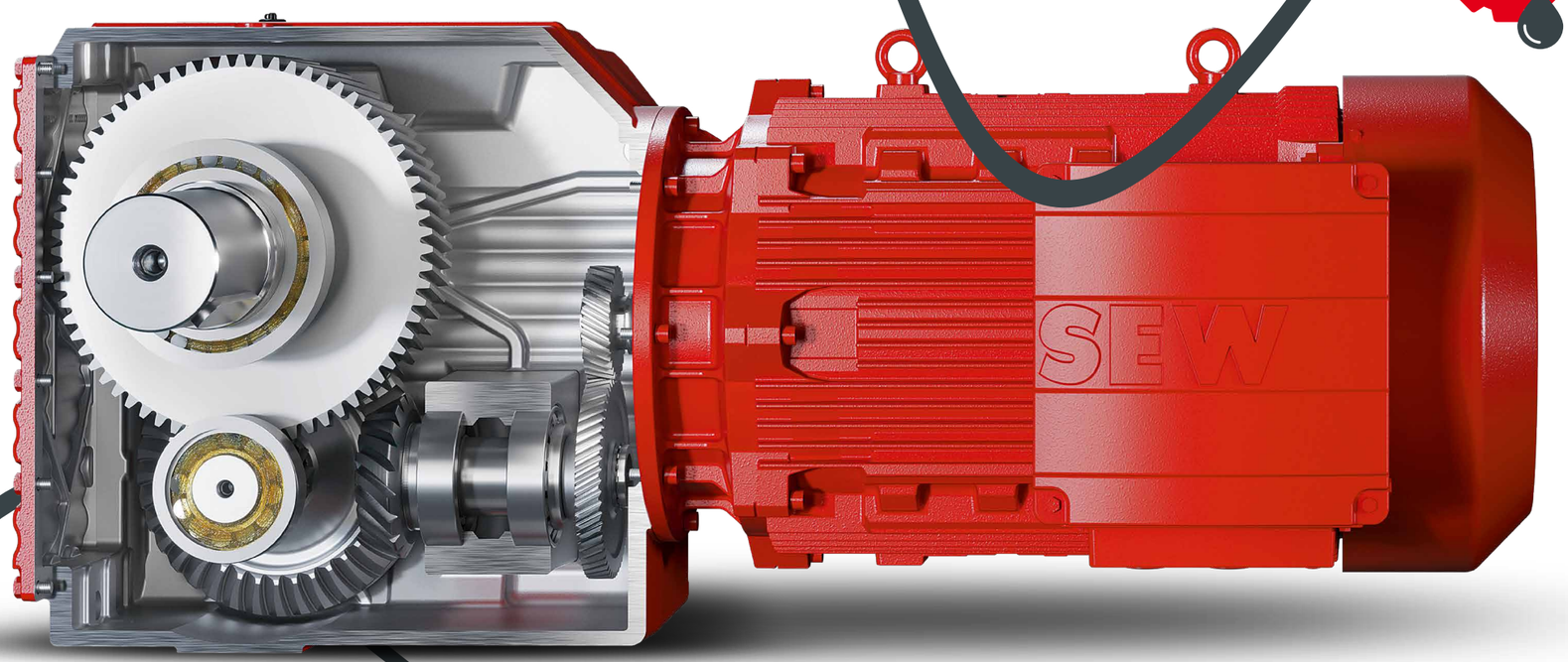
Each of our drive systems meets the highest demands. Achieving this requires top performance from principal actors such as the motor and gear unit and from the supporting cast – including lubricants and grease. Our Grease by SEW-EURODRIVE was specifically designed for use in highly stressed rolling bearings and oil seals of gear units and motors.

More performance?
Our 90 years of experience in gear unit engineering and well-honed tribological expertise formed the basis, and Grease by SEW-EURODRIVE is the outcome. This is a high-performance special grease for highly stressed bearings and seals. It is characterized by low friction coefficients and high thermal and mechanical stability. Its outstanding service life ensures long maintenance cycles. It has a shelf life of up to 36 months and thus simplifies internal logistics. In developing Grease by SEW-EURODRIVE, we systematically focused on compatibility with our SEW gear oils. Now, these two lubricants – GearOil by SEW-EURODRIVE and Grease by SEW-EURODRIVE – form a coordinated lubrication system for high gear unit efficiency and top performance in all operating points.

Shelf life of up to
36 months

↘ Less risk for a premature failure

Coordinated lubrication system



PACKAGING SIZE

For use in an industrial environment:
– 500 g cartridges of Grease HL 2 E1 by SEW-EURODRIVE: 03041476

For use in the food industry:
– 500 g cartridges of Grease HL 2 H1 E1 by SEW-EURODRIVE: 03041484

YOUR BENEFITS – AT A GLANCE

SAVE TIME AND CUT COSTS

No more bothersome hunting for a suitable gear unit grease for bearings and oil seals. Grease by SEW-EURODRIVE is used by SEW-EURODRIVE during the assembly of gear units and gearmotors. For servicing and maintenance work, Grease by SEW-EURODRIVE can be ordered in 500 g cartridges.

RELIABILITY

Thanks to the comprehensively tested compatibility with SEW GearOil lubricants and seals.

INVESTMENT PROTECTION

Due to a wide service temperature range, high thermal and mechanical stability and resistance to aging.

FEWER FAILURES

Minimizes sealing ring wear and reduces the risk of premature roller bearing failure.

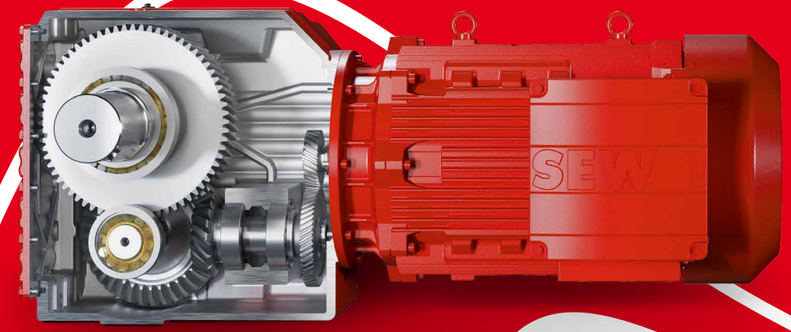
SIMPLE LOGISTICS

Thanks to the long shelf life of up to three years.

Less wear, more flexibility
Grease by SEW-EURODRIVE brings our customers the best possible protection for all kinds of gear unit bearings and conventional oil seals. It reduces wear on sealing rings long term. The risk of early rolling bearing failure is also cut. Grease by SEW-EURODRIVE is also available in an NSF H1 version that is approved for use in the food and feed industries.

Coordinated recipe
For our high-performance Grease by SEW-EURODRIVE, we use a coordinated recipe that protects your SEW gear units particularly reliably. Its performance potential and practicality have been shown in numerous test runs and trials. It meets SEW-EURODRIVE's strict requirements in full.

Careful selection of components is one of the factors responsible for the top-quality product. The calcium sulfonate complex saponified lubricating grease is based on a semi-synthetic base oil or fully synthetic base oil (NSF H1 variant). An optimized additive package provides the finishing touch to the high-performance grease.

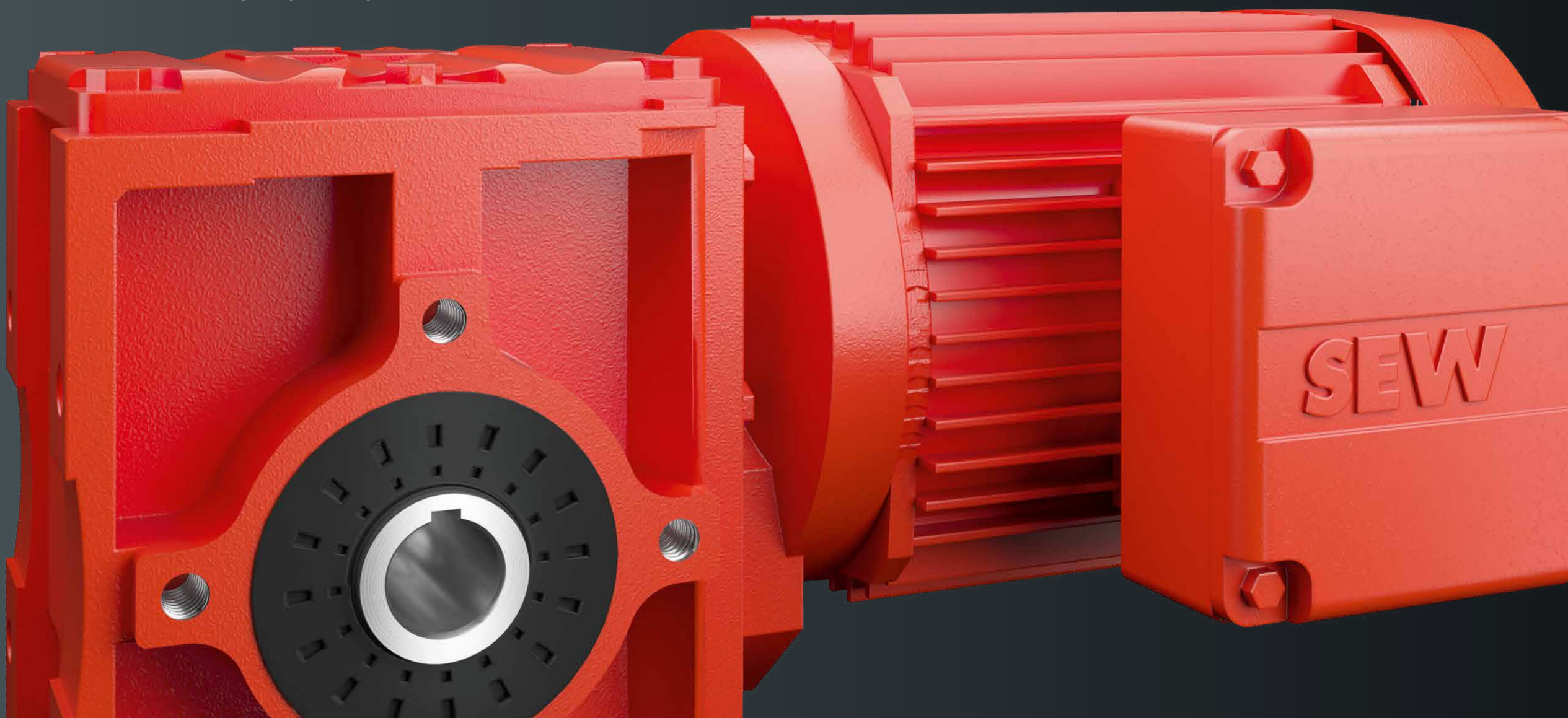


up to date

EXTENDED PROTECTION

12 MONTHS ON TOP – AN EXTRA YEAR OF REASSURANCE

Answers to the most frequently asked questions



EXTENDED WARRANTY PERIOD FOR GEAR UNITS AND GEARMOTORS

The system projects that use our drive technology are becoming increasingly complex and time-consuming to implement. As a result, it can happen that customers install components they have already ordered and received in the machine, without immediately moving to startup. Only once the entire system is complete and set up is it accepted by the end customer and production can start. However, the statutory warranty period usually begins on the date of receipt (passing of risk), not the first time the gearmotor is switched on.

Our aim, though, is to ensure you are kept on the safe side. With our extended warranty period, we offer you an additional 12 months of 100% reassurance to the same level as the statutory warranty on new drives that are equipped with our PREMIUM protection package. This is regardless of whether the drive is started up later for project reasons or is put into operation on the first day after delivery.

Here, our FAQ go into more detail about what that means.

+ Extended protection

Thanks to extended statutory warranty period

FAQ

WHAT DOES THE STATUTORY WARRANTY INCLUDE?

If an item is faulty at the passing of risk, the seller is liable for subsequent performance (repair or replacement) within the statutory warranty period. Buyers of our products naturally also have this right. As a rule, the warranty period begins on delivery of the item (passing of risk).

The length of the statutory warranty period varies from country to country. In Germany and most other EU countries, it is two years.

WHEN AND HOW IS THE OPTIONAL 12-MONTH EXTENDED WARRANTY PERIOD FROM SEW-EURODRIVE AVAILABLE? WHAT CONDITIONS ARE ATTACHED TO IT?

The extended warranty period can be selected when ordering a new gear unit or gearmotor.

The only condition is that the gear units or gearmotors must be equipped with the PREMIUM protection package from SEW-EURODRIVE (Premium Sine Seal oil seal on the input end, FKM sealing ring on the output side, GearOil by SEW-EURODRIVE) when ordering. Otherwise, the same conditions apply during the SEW-EURODRIVE extended warranty period as during the statutory warranty period.

FOR WHICH PRODUCTS IS THE EXTENDED WARRANTY PERIOD OFFERED?

The warranty period for the following drives can be extended by 12 months when they are covered by PREMIUM protection:

- **Standard gear units and gearmotors**
  - with DR.., DRN.., DR2S.. asynchronous motors
  - with CMP(Z).., CM3C.. servomotors
  - with AM.., AR.., AQ.., EWH.. adapters
  - with AD.., AT.. input components
- **MOVIGEAR® (Generation C)**

DO I HAVE TO REGISTER MY GEAR UNIT/ GEARMOTOR FOR THE EXTENDED WARRANTY PERIOD?

No. The extended warranty period can be selected/configured directly when ordering a new drive. It is therefore part of your order. Additional registration is not required. Unfortunately, it is not possible to extend the warranty period for a drive that has already been delivered.

I HAVE ALREADY CONTRACTUALLY AGREED A WARRANTY PERIOD WITH SEW-EURODRIVE THAT IS LONGER THAN THE STATUTORY WARRANTY PERIOD. CAN I RECEIVE THE OPTION OF THE SEW-EURODRIVE EXTENDED WARRANTY ON TOP OF THAT?

The “extended warranty” option from SEW-EURODRIVE only enables you to add 12 months to the statutory warranty period applicable in the country of delivery. If different warranty periods have been contractually agreed, it is possible to switch to PREMIUM protection.

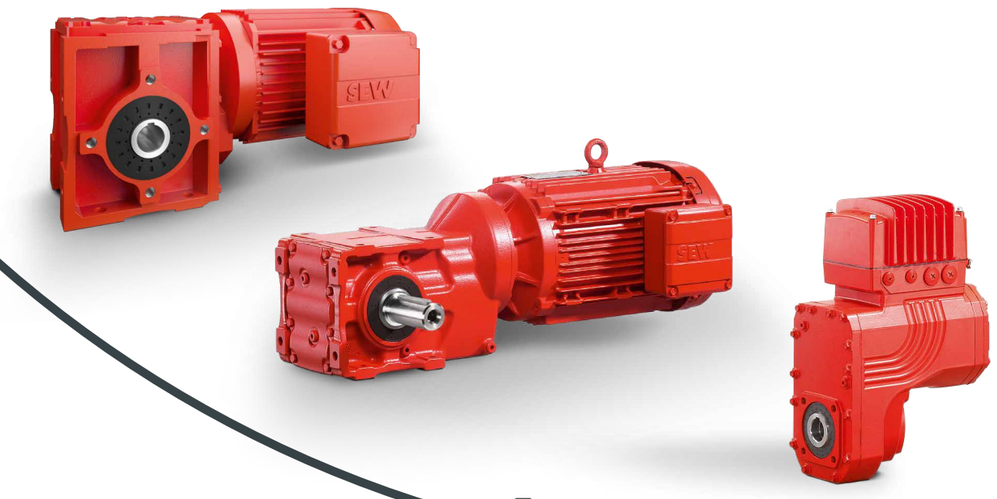
OPTIONAL* 12 MONTH WARRANTY

HOW LONG AFTER THE INSTALLATION OF THE DRIVES DO MY RIGHTS UNDER THE EXTENDED WARRANTY PERIOD REMAIN VALID?

As a rule, the statutory warranty period always begins on delivery of the item (passing of risk). This also applies to our gear units and gearmotors, no matter whether these are first put into storage or installed and started up immediately. Our additional protection in the form of the “extended warranty” begins once the statutory warranty period expires.

WHAT SHOULD I DO IF I DISCOVER A FAULT IN MY GEAR UNIT/GEARMOTOR DURING THE PERIOD OF THE EXTENDED WARRANTY?

The procedure and our services are the same as during the statutory warranty period. Please consult our general terms and conditions, which you will find on our website at www.sew-eurodrive.de/meta-pages/general_terms_and_conditions.html.



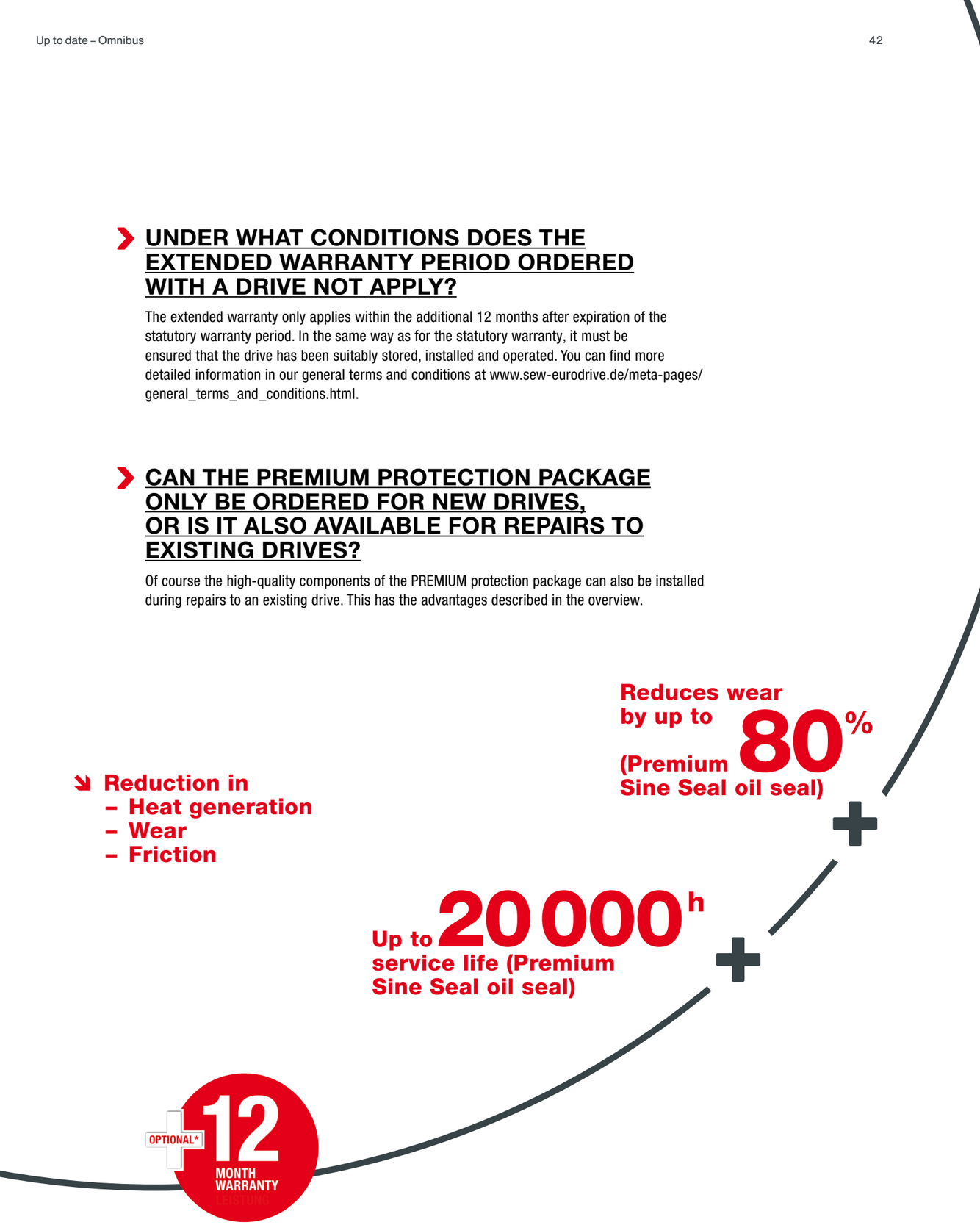
Use of GearOil by SEW-EURODRIVE

UNDER WHAT CONDITIONS DOES THE EXTENDED WARRANTY PERIOD ORDERED WITH A DRIVE NOT APPLY?

The extended warranty only applies within the additional 12 months after expiration of the statutory warranty period. In the same way as for the statutory warranty, it must be ensured that the drive has been suitably stored, installed and operated. You can find more detailed information in our general terms and conditions at www.sew-eurodrive.de/meta-pages/general_terms_and_conditions.html.

CAN THE PREMIUM PROTECTION PACKAGE ONLY BE ORDERED FOR NEW DRIVES, OR IS IT ALSO AVAILABLE FOR REPAIRS TO EXISTING DRIVES?

Of course the high-quality components of the PREMIUM protection package can also be installed during repairs to an existing drive. This has the advantages described in the overview.



ADVANTAGES OF SEW-EURODRIVE PREMIUM PROTECTION

Alongside the extended warranty, the high-quality components contained in our PREMIUM protection package bring further advantages for users.

PREMIUM-PROTECTION PACKAGE	WITHOUT	WITH
Seal (input end)		
Motor/adapter	Standard sealing ring	**Premium Sine Seal oil seal**
Heat generation	Standard	**Reduced**
Wear	Standard	**Reduced by up to 80%**
Thermal power losses due to friction	Standard	**Reduced by up to 45%**
Service life	Standard (approx. 10 000 hours, depending on operating conditions)	**Doubled (approx. 20 000 hours, depending on operating conditions)**
Seal (output side)		
Gear unit output shaft (application)	Standard sealing ring	**High-quality FKM oil seal**
Material	Standard NBR (nitrile rubber)	**High-quality FKM (fluorocarbon rubber)**
Temperature resistance	Standard	**Increased**
Chemical resistance	Standard	**Increased**

PREMIUM-PROTECTION PACKAGE	WITHOUT	WITH
Lubrication	Standard gear unit oil	**GearOil by SEW-EURODRIVE**
Special formulation and logistics for long-lasting top quality worldwide	No	**Yes**
Damage load stage to FZG scuff test DIN ISO 14635-1, A/8.3/90	Standard, ≥ 12	**High to > 14**
Wear protection for rolling bearings to FE8 rolling bearing test (DIN 51819-3, D 7.5/80 – 80)	Standard, ≤ 30 mg	**Improved, ≤ 5 mg**
Resistance to aging	Standard	**Increased**
Service life	Standard	**Extended by up to 50%**
Storage time for oil packaging units (barrel, canister)	Standard, up to 3 years	**Extended, up to 6 years, depending on the lubricant**
Best test results in the relevant lubricant category, in line with the stringent quality requirements of SEW-EURODRIVE testing specification no. 07 004 03 13	No	**Yes**

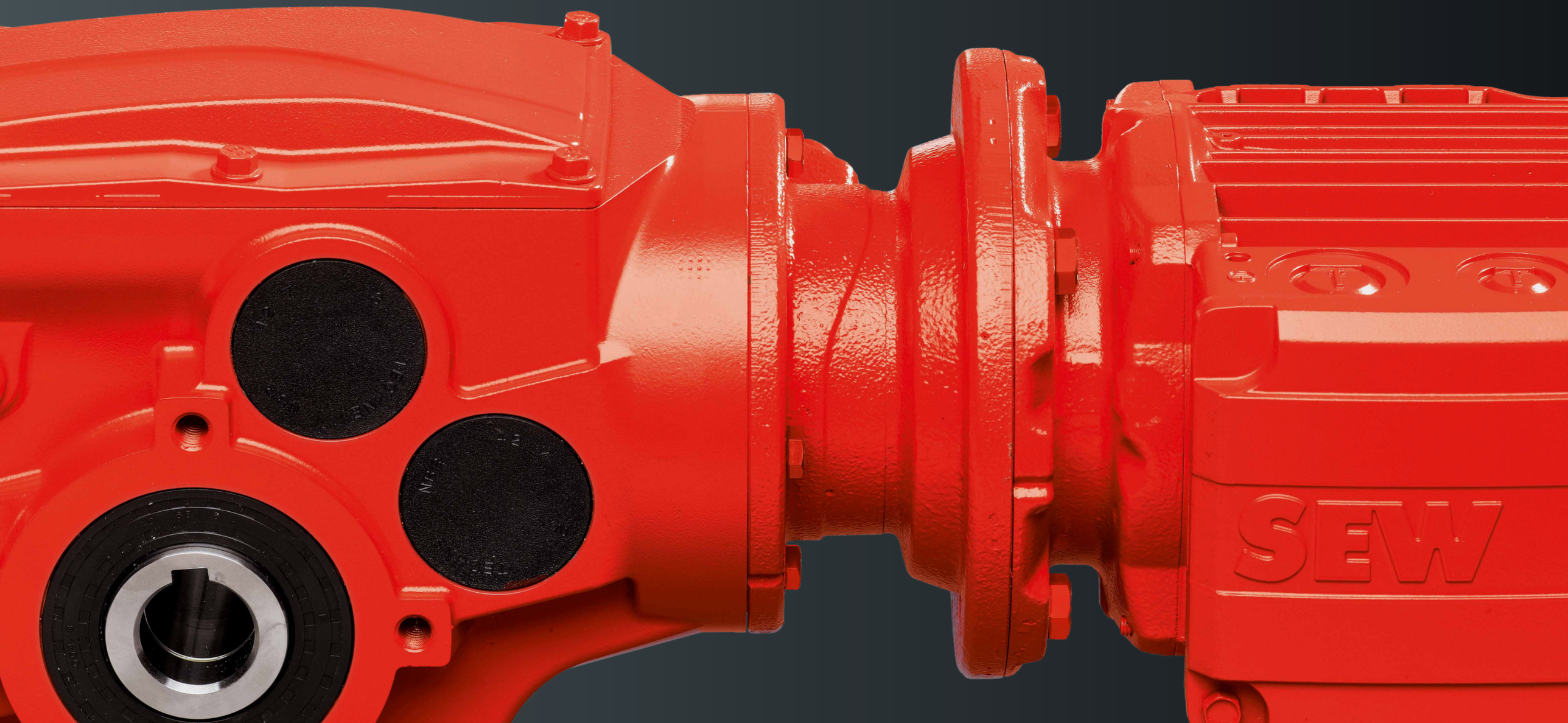
*** This option can only be purchased as an extension to the statutory warranty period. If different warranty periods have been contractually agreed, it is possible to switch to PREMIUM protection.**

up to date

ADAPTER AMS.. AND AQS..

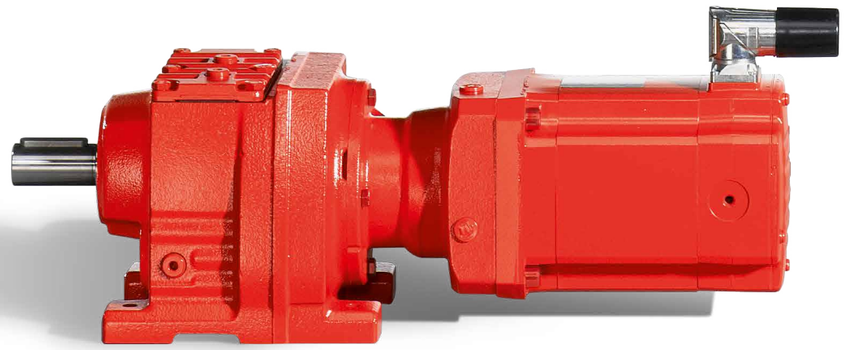
SHORTER, MORE FLEXIBLE, LIGHTER

The new adapters for your range of combinations



THE NEW ADAPTERS FOR YOUR RANGE OF COMBINATIONS

Up to
53%
shorter installation length compared to the previous AQ.. adapters



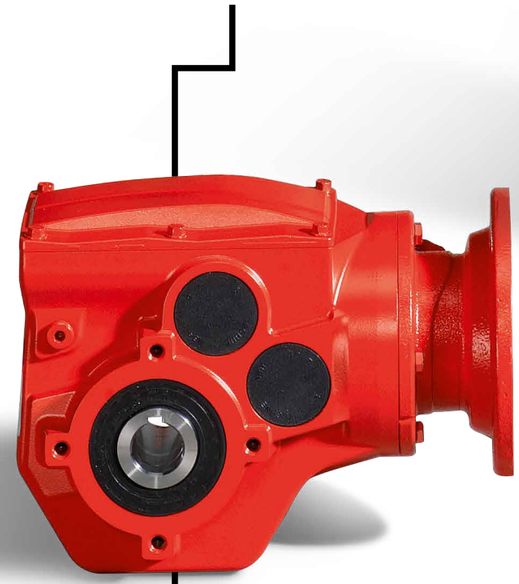
We are all familiar with adapters – we use USB, HDMI and plug adapters for electronic devices all the time. Mechanical devices have adapters, too. You're sure to have seen them used for bits on cordless screwdrivers or as sockets in your ratchet set. Adapters are a real blessing when it comes to using a device with a standardized interface in a variety of ways – even if you end up with almost a drawerful of them at home.

Drive technology has adapters, too. These usually come into play when a gear unit and a motor from different manufacturers are to be combined into a single drive solution. Obviously, it's easiest when both components come from us, because then our LIA interface can be used, eliminating the need for an additional adapter.

However, there are also applications where the motor does not come from us – generally when IEC or NEMA motors are to be installed or system operators want to ensure rapid replacement of a faulty motor without opening the gear unit. This is where the new adapters from SEW-EURODRIVE offer a wide variety of combination options.

To make things easy for you here, too, we have revised and reworked our adapter series. One advantage should be mentioned from the start – they are much shorter! Particularly when it comes to machine automation, the extra length added by the adapter is a key consideration. The adapters are compatible with all sizes of SEW-EURODRIVE's R.., F.., K.., S.. and W..9 gear unit series.

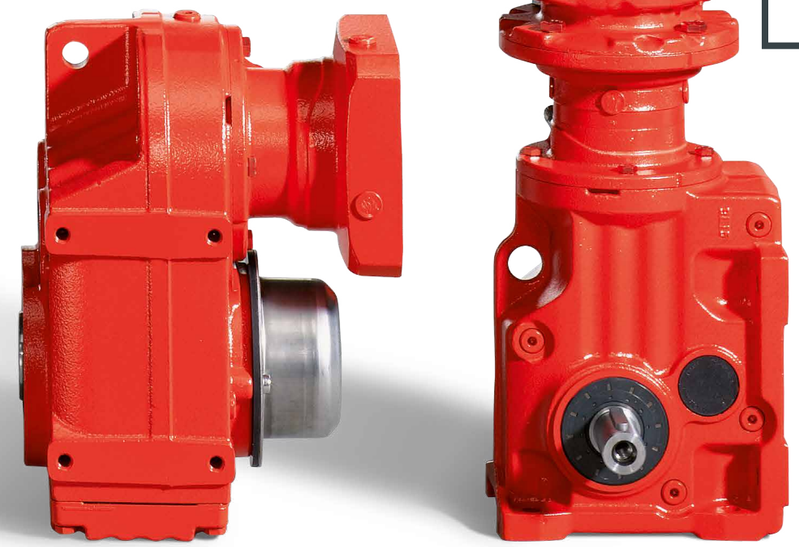
The AMS.. series (for mounting IEC and NEMA motors) and AQS..series (for mounting synchronous servomotors) make motor installation easier. In addition, AQS.. adapters can be used to mount a wider range of market-standard synchronous motors thanks to new adapter variants. In mounting position M4, AMS.. adapters have the option of being fitted with a condensation drain hole. Selecting reinforced bearings further extends the bearing service life.



+ Possible to remove motors even if the input and output are blocked

+ Thermal length compensation of the motor shaft thanks to the integrated claw coupling

+ Reduced weight



Up to
37%
shorter installation length compared to the previous AM.. adapters

+ AMS.. with optional drain hole /DH for drives in mounting position M4

WHAT ADVANTAGES DO THE NEW ADAPTERS OFFER YOU?

AQS.. ADAPTERS

- Up to 53% shorter installation length compared to the previous AQ.. adapters
- Reduced weight
- A coupling with spreading function for faster installation (AQSH..)
- Possible to remove motors even if the input and output are blocked
- A new basic flange (LIA105) for combination with even small helical gear units (R..07 and R..17) and the new W..19 SPIROPLAN® gear unit
- New adapter variants for connecting market-standard servomotors
- Thermal length compensation of the motor shaft thanks to the integrated claw coupling

AMS.. ADAPTERS

- Up to 37% shorter installation length compared to the previous AM.. adapters
- Simplified motor installation for the AMS.. adapters (NEMA) and sizes AMS250.. (IEC) and AMS280.. (IEC)
- Mounting of sizes 63 to 280 for IEC motors, and 56 to 364/365 for NEMA motors
- A new basic flange (LIA105) for combination with even small helical gear units (R..07 and R..17) and the new W..19 SPIROPLAN® gear unit
- Optional condensation drain hole /DH and reinforced bearings
- Optional reinforced bearings for even longer bearing life

FIND OUT MORE ABOUT THE ADAPTERS HERE!

www.sew-eurodrive.de/en/adapter/

THINGS TO KNOW

The new adapter couplings alllow higher permissible torques in both series, which means greater safety reserves – even in the event of overloading. The high permissible input speeds can also boost machine productivity.

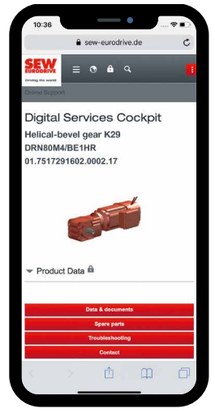
up to date

DIGITAL SERVICES

DIGITAL SERVICES FOR YOUR PRODUCT

Direct to your smartphone by scanning a QR code

DIRECT TO YOUR SMARTPHONE BY SCANNING A QR CODE



80%

of our products are already being delivered with the new product label.

It couldn't be quicker, simpler or more direct.

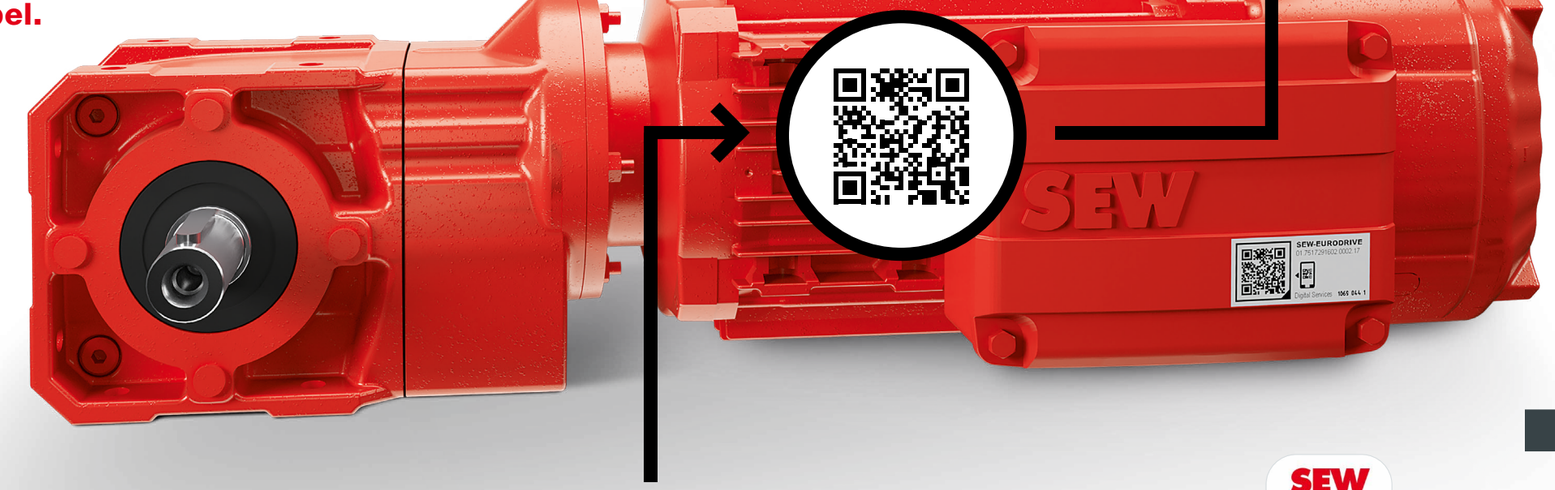
Whether you're looking to start up your system complete with its drive technology or need rapid access to information to deal with a fault, we can help. Customers using our Online Support tool know they will quickly be able to find and access all the necessary details for their product.

What's more, our new product label will save you even more time from now on. A customized adhesive label incorporating a QR code ensures super-fast, mobile access to our Online Support tool's Digital Services. You can scan this code directly from the label on your product at its location of use. The unique code is identified and all the key information you need is then instantly available at the touch of a button.

This rules out the possibility of mistakes when copying the 18-digit serial number from the nameplate. There's no need to print out information material from your PC, either.

That's because the QR code already includes the serial number – it couldn't be quicker, simpler or more direct. Over 80 percent of our products are already being delivered with the new product label, and this proportion is increasing all the time.

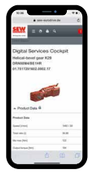
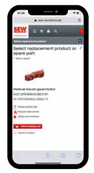
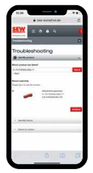
Incidentally, you can scan in the code using either the standard function on your smartphone or our SEW "Product ID plus" app. If you use the standard reading function on your mobile device, it opens SEW-EURODRIVE's clear, user-friendly Digital Services Cockpit. If, on the other hand, you call up the QR code via the SEW "Product ID plus" app, it recognizes the serial number in the URL and you instantly obtain access to all product-specific details and functions from your normal app environment.



SEW Product ID plus app can be found in the Apple App Store or Google Play Store.

YOUR BENEFITS – AT A GLANCE

THE ADDED VALUE FOR YOU

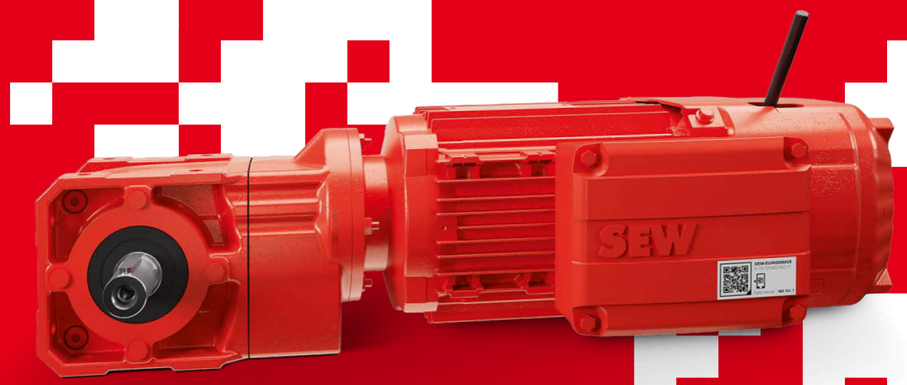
Preview	Product data	Documentation	Spare parts	Troubleshooting	Contact
					
Immediate recognition of the product, complete with image, product designation, type code and serial number	Rapid access to all technical data for your product	Quick access to product-specific documentation and manuals	Help with selecting spare parts through access to the spare parts drawing and parts list, plus the option of making a direct service request or ordering spare parts direct from your mobile device – around the clock	Rapid assistance in the event of faults thanks to digital fault analysis, with no need to spend time looking in operating instructions	Immediate connection to SEW-EURODRIVE's 24 hour service

ARE YOU READY FOR THE FUTURE?

We certainly are! We're already preparing further services for you: Predictive maintenance, condition monitoring and startup assistance functions will soon also be available in your Digital Services Cockpit.

YOU HAVE ANY QUESTIONS ABOUT DIGITAL SERVICES?

Phone: +49 7251 75-3232
E-mail: online-support@sew-eurodrive.de

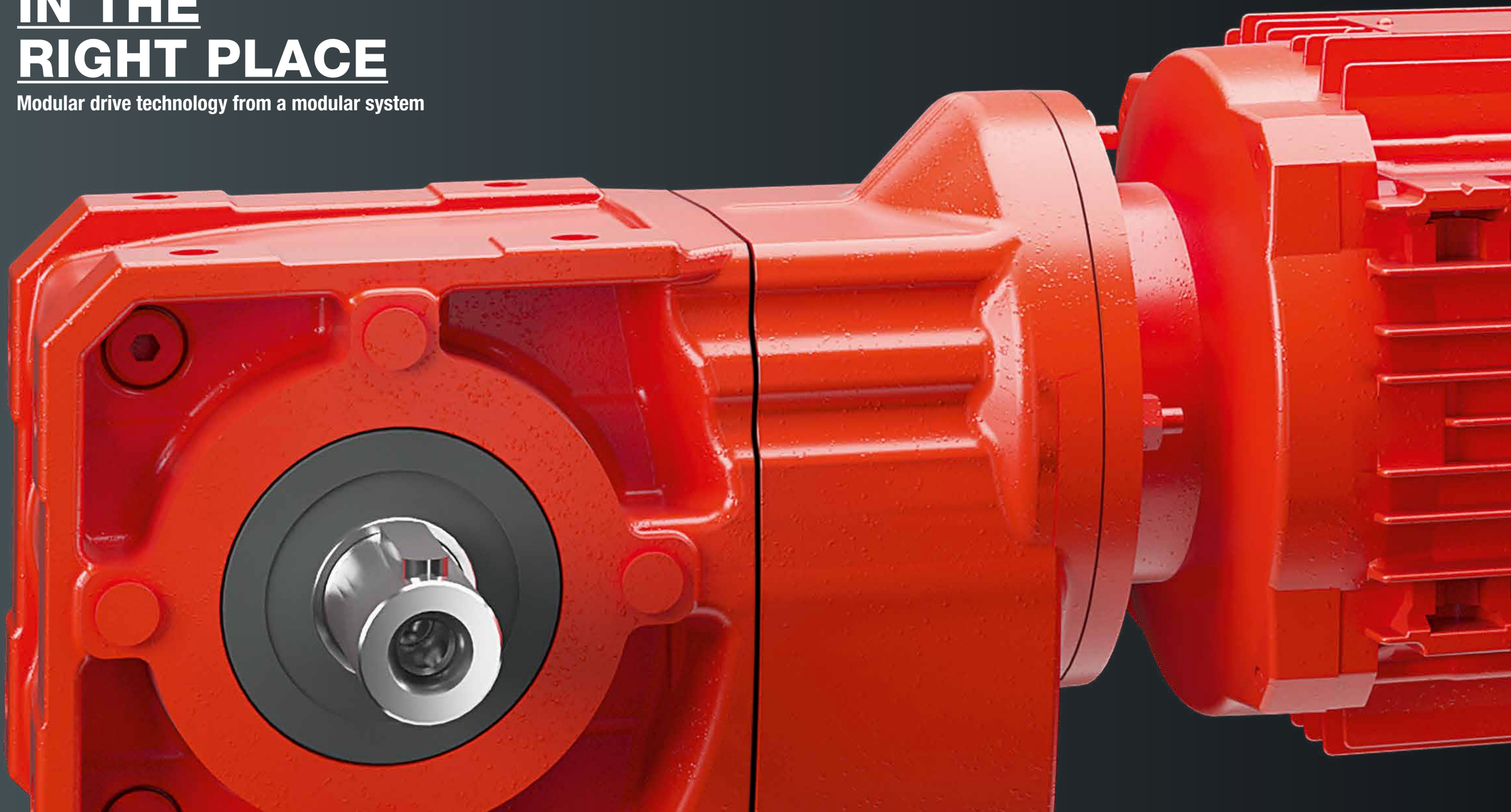


up to date

MEANINGFULLY COMBINABLE

THE RIGHT PARTS IN THE RIGHT PLACE

Modular drive technology from a modular system



MODULAR DRIVE TECHNOLOGY FROM A MODULAR SYSTEM

The aim of a modular system is to make it possible to combine all components with each other in such a way as to create the largest possible number of optimized solutions. We're all familiar with those colorful little building blocks that can be put together to create houses, cars, airplanes or anything else imaginable. Again and again, the parts take on a new purpose to fit the user's creativity.

Gearmotors are widely used as drives in almost all areas of industrial production, manufacturing and transport. In many applications, these compact units combining a gear unit and electric motor are the perfect option for drive engineering tasks. The possibilities are virtually limitless, with uses ranging from simple conveyor belts and packaging machines to fairground rides.

Due to the range of applications, it makes little sense to manufacture gearmotors as custom-made single parts. In the vast majority of cases, this would be far too expensive and would also often involve long delivery times. This is why we have adopted a modular concept, so that the separate components such as the motor and gear unit can be selected and combined to create a gearmotor that suits the customer's needs.

LIA is a description of the flange design

Modular system
The modular principle to gearmotors means motors, gear units and other components such as adapters and input shaft assemblies of different types and sizes can all be combined with each other.

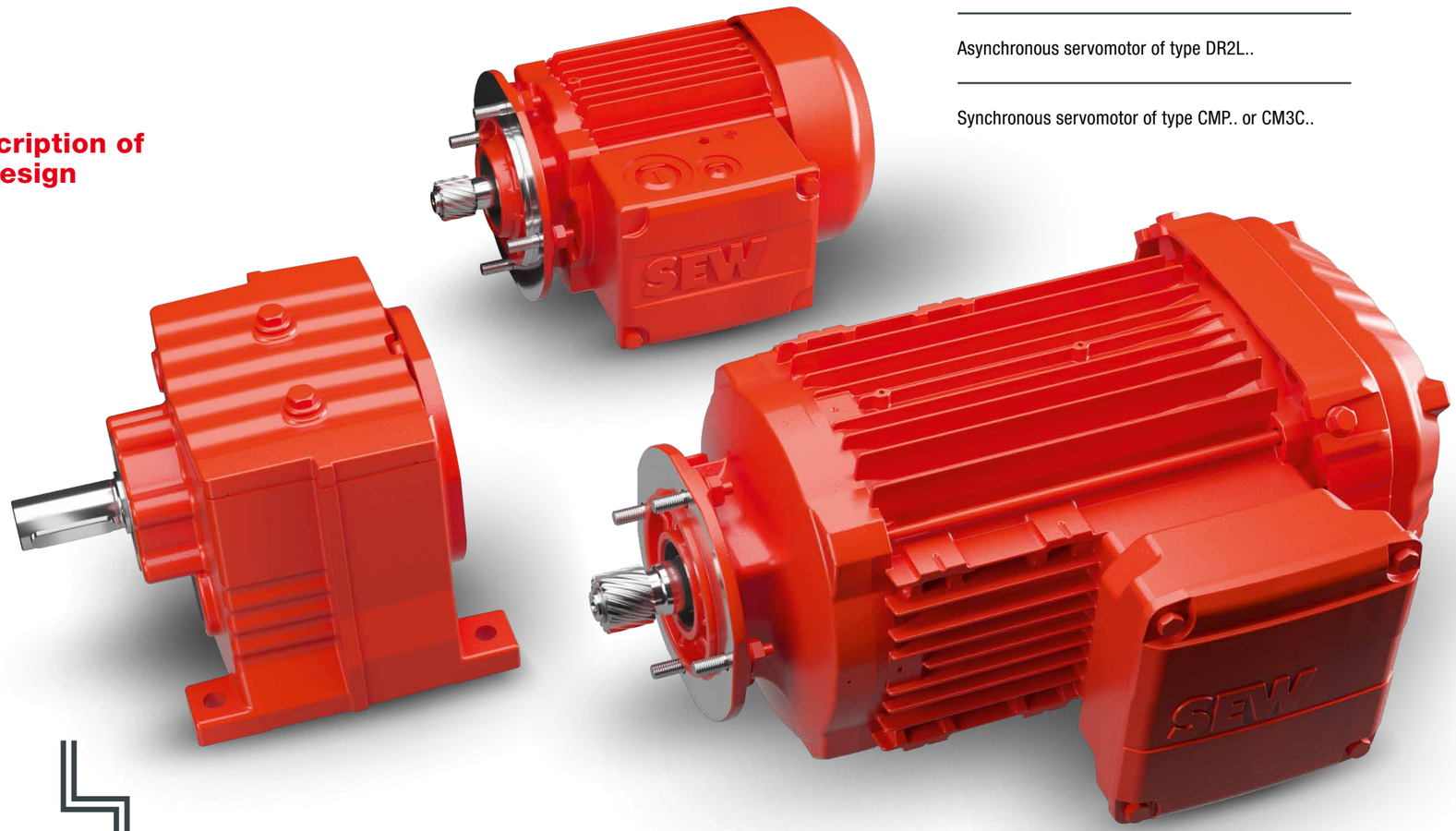
We call the flange connection we have designed for this the LIA interface. "LIA" is a description of the flange design – "Lochkreis im Achskreuz" (hole circle in axis cross).

Thanks to the LIA interface, different sizes of motor and gear unit can be combined with each other across different diameters. This interface was recently also introduced with the new diameter 105 mm for the smallest helical gear units – the R..07, with an M_{amax} of up to 50 Nm, and the R..17, with an M_{amax} of up to 85 Nm. This means that the full range of the modular system is now open to even the smallest helical gear units with the new LIA 105.

+ The perfect option for drive engineering tasks

MOTOR DESIGNS

- IE1 AC asynchronous motor of type DR2S..
- IE3 AC asynchronous motor of type DRN..
- Explosion-protected AC asynchronous motor of type EDRN..
- Torque motor of type DR2M..
- Asynchronous servomotor of type DR2L..
- Synchronous servomotor of type CMP.. or CM3C..



+ Can be sensibly combined with four to six different motor sizes

+ Can also be combined with various adapters using the LIA interface

+ Full range of the modular system

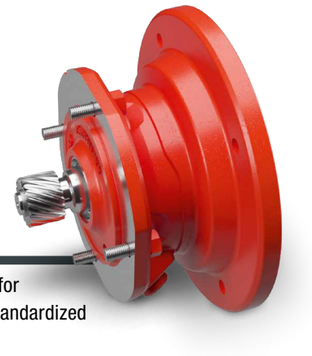
These combinations are “classic” gear-motors for direct mounting. This has the advantage of a short length, low weight and optimal coordination of the motor shaft, flange and bearing in terms of the expected load.

There are also requirements where an adapter needs to be installed between the gear unit and motor so that the motor can be unscrewed for servicing purposes without opening the gear unit, for example. In these applications, the modular system ensures that the gear units can also be combined with various adapters using the LIA interface.

In theory, gearmotors can be assembled from all available motors and gear units. In practice however, we try to use the performance of the gearmotor to optimum effect. This means the range of combina-tions is slightly restricted.

For example
- Combining an excessively large motor with a small gear unit overloads the gear unit.
- Combining an excessively small motor with a large gear unit does not utilize the full capability of the gear unit.

Gear units in any one size can be sensibly combined with four to six different motor sizes. For example four motor sizes with up to eight power ratings in the 0.09 kW to 1.1 kW range are suitable for mounting on the R..07 and R..17 gear units.



ADAPTERS

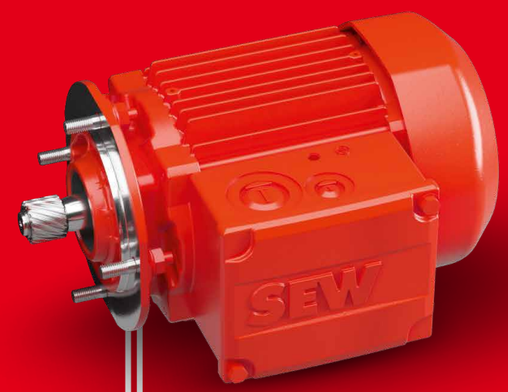
Adapters of the **type AMS.. (IEC)** for mounting asynchronous motors standardized to IEC.

Adapters of the **type AMS.. (NEMA)** for mounting asynchronous motors standardized to NEMA.

Adapters of the **type AQSA..** for mounting market-standard synchronous servomotors with a motor shaft with key.

Adapters of **type AQSH..** for mounting market-standard synchronous servomotors with a smooth motor shaft.

+ Has the advantage of a short length, low weight and optimal coordination of the motor shaft, flange and bearing in terms of the expected load

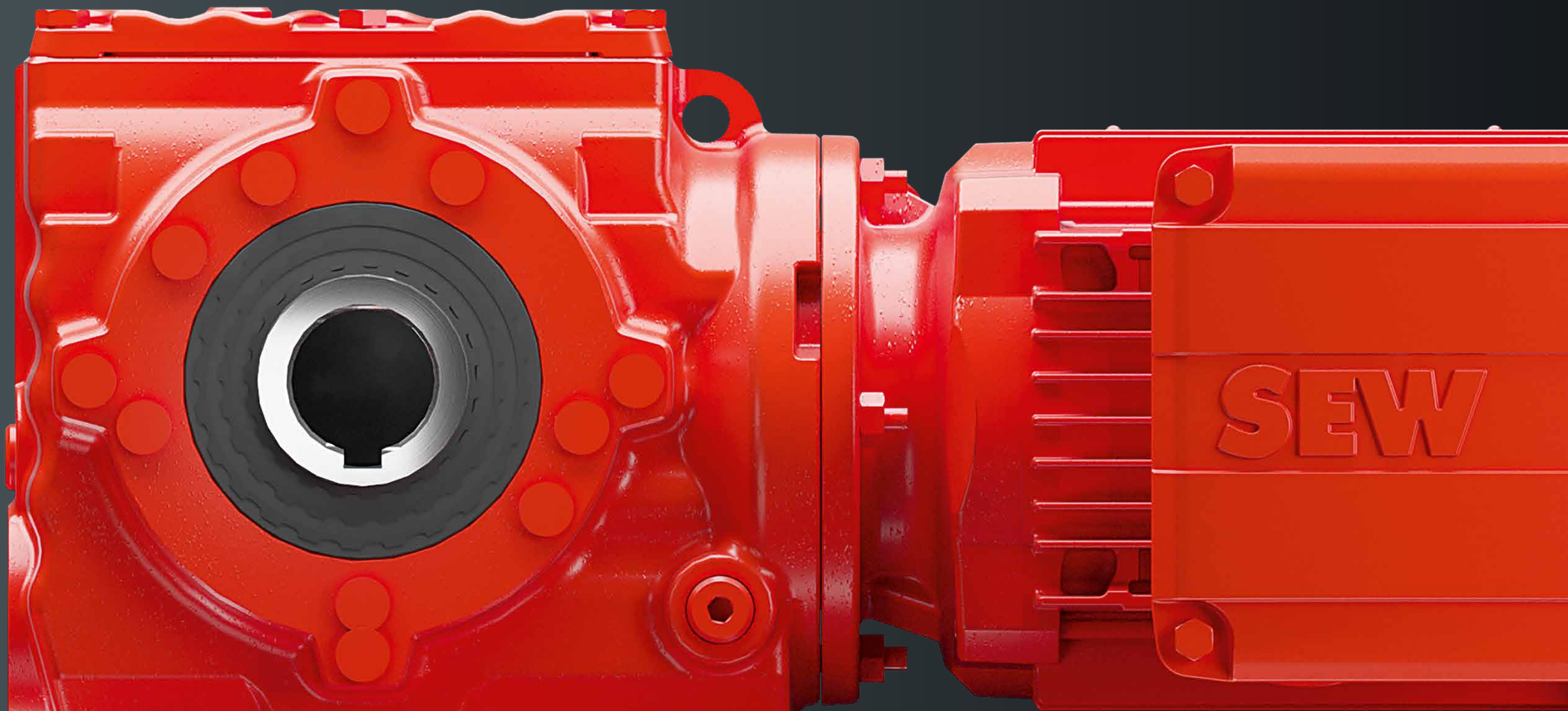


up to date

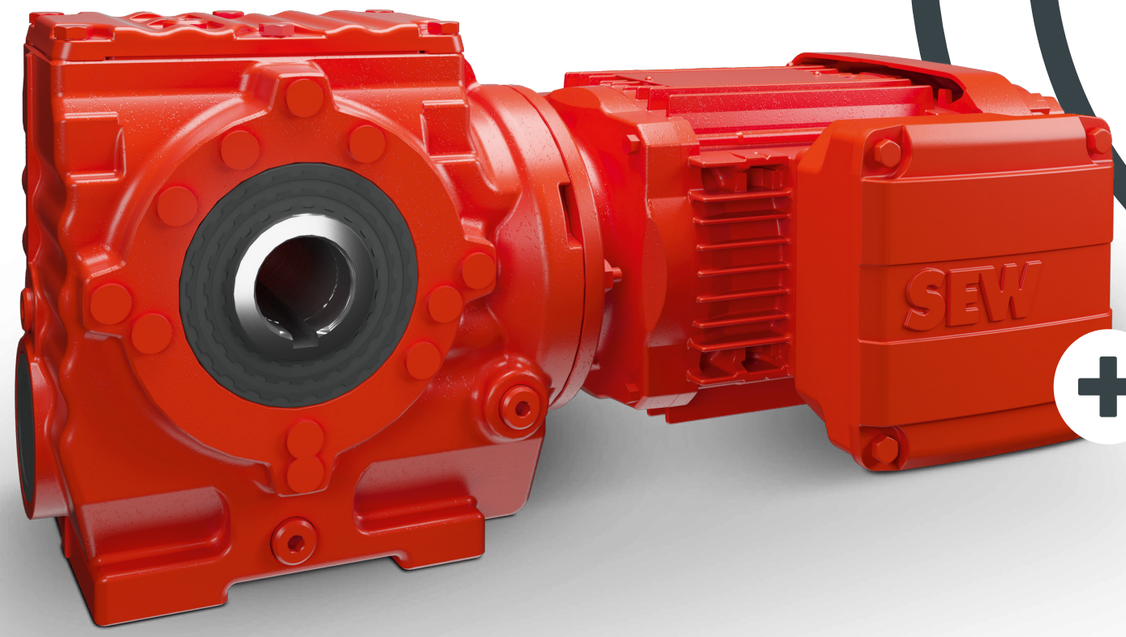
MORE TORQUE

POWERFUL WORM GEAR UNITS

The new S..7p helical-worm gear units



SPACE-SAVING, COST-EFFECTIVE ENDURANCE RUNNERS.



65%
Up to higher torque

Use of GearOil Poly by SEW-EURODRIVE

Their cost-effectiveness comes from their simple design. Thanks to the special coordination of torque and speed, our helical-worm gear units enable you to make the most of the space that is available for their installation. Our new S..7p (p for power) series offers even higher torque in all seven sizes, thus also delivering a higher power density. Torque on the S..7p series is up to 65% higher than on standard S..7 helical-worm gear units.

The increased maximum permissible torques (M_{amax}) result in higher service factors (f_B) and therefore provide greater safety when using the gear units as part of a system. When planning a brand-new project, it may also be possible to use a smaller gear unit size. The higher f_B factors also result in some new permissible gear unit-motor combinations.

Lubrication
Besides lubricating the gearing, gear unit oils also play a significant role in dissipating heat in gear units. Our new lubricant GearOil Poly by SEW-EURODRIVE boosts the performance of the helical-worm gear units, in particular by reducing friction in the gearing. GearOil Poly by SEW-EURODRIVE reduces heating by up to 25 °C compared with mineral lubricants and by up to 7 °C compared with other conventional poly-glycol oils on the market. As a result, the S..7p helical-worm gear units can be pushed to a higher torque. GearOil Poly by SEW-EURODRIVE forms a highly effective lubrication film, which increases the service life of both the lubricant itself and wear parts such as sealing rings and bearings. GearOil Poly by SEW-EURODRIVE also improves the efficiency of the helical-worm gear units.

YOUR BENEFITS

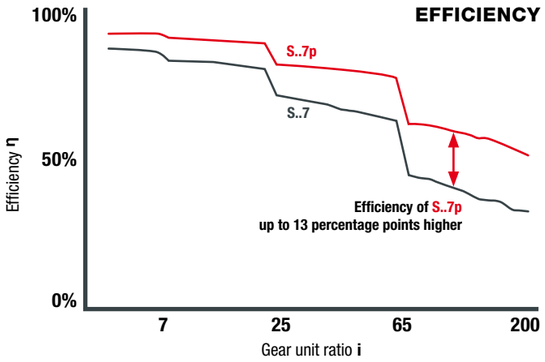
- Up to 65% higher torque
- More safety in use
- Your technology remains up to date
- New projects with smaller gears possible
- GearOil Poly by SEW-EURODRIVE increases performance
- Reduced heating by up to 25 °C
- Reduced energy costs

SIZE	GEAR UNIT RATIO (i)	M_{amax}*	TORQUE INCREASE COMPARED WITH S..7 UP TO*
S..37p	3.97 – 157.43	105 Nm	+ 60%
S..47p	4.00 – 201.00	200 Nm	+ 55%
S..57p	4.00 – 201.00	370 Nm	+ 62%
S..67p	7.56 – 217.41	720 Nm	+ 50%
S..77p	8.06 – 256.47	1500 Nm	+ 26%
S..87p	7.88 – 288.00	3000 Nm	+ 65%
S..97p	8.26 – 286.40	4300 Nm	+ 27%

* Smaller values possible, depending on the ratio

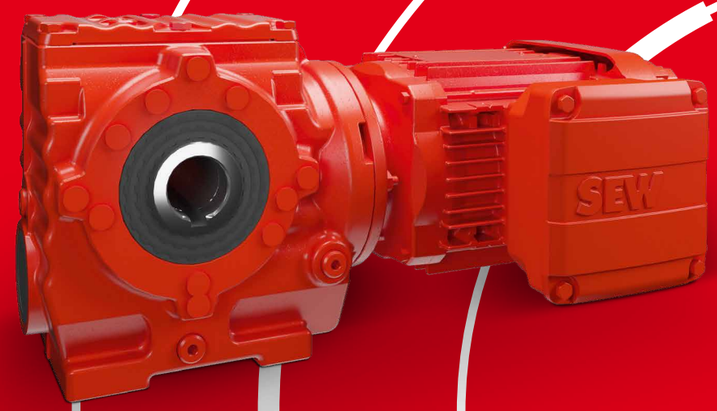
FEATURES

- Helical-worm gear unit series with enhanced performance
- Improved performance thanks to use of premium lubricant GearOil Poly by SEW-EURODRIVE
- Reduced heating
- Enhanced efficiency
- Option to configure smaller gear unit sizes or gear units in the same size but with greater safety/reserves
- Same design variants possible as with standard S..7 helical-worm gear units
- Motor power range: 0.12 – 30 kW



Efficiency
The way power and speed are transmitted in helical-worm gearing generates a high level of sliding friction between the worm and worm gear. Using GearOil Poly by SEW-EURODRIVE ensures outstanding lubrication and optimum heat dissipation at every operating point, which significantly enhances efficiency. As a result, it has been possible to increase the efficiency of S..7p helical-worm gear units by up to 13 percentage points. This effect is particularly noticeable on the large gear ratios and is hugely beneficial. This enhanced efficiency immediately gives you a higher usable output torque for the same motor power. If this higher output torque is not taken off, the consumption is reduced at the same speed and you save energy and benefit from reduced energy costs.

More power or more reserves
The increased torques mean that, in the best-case scenarios, you can select the next size down, as you can now take off higher torques in a smaller space or, if you cannot vary the gear unit size, you gain greater safety/reserves in your drive.

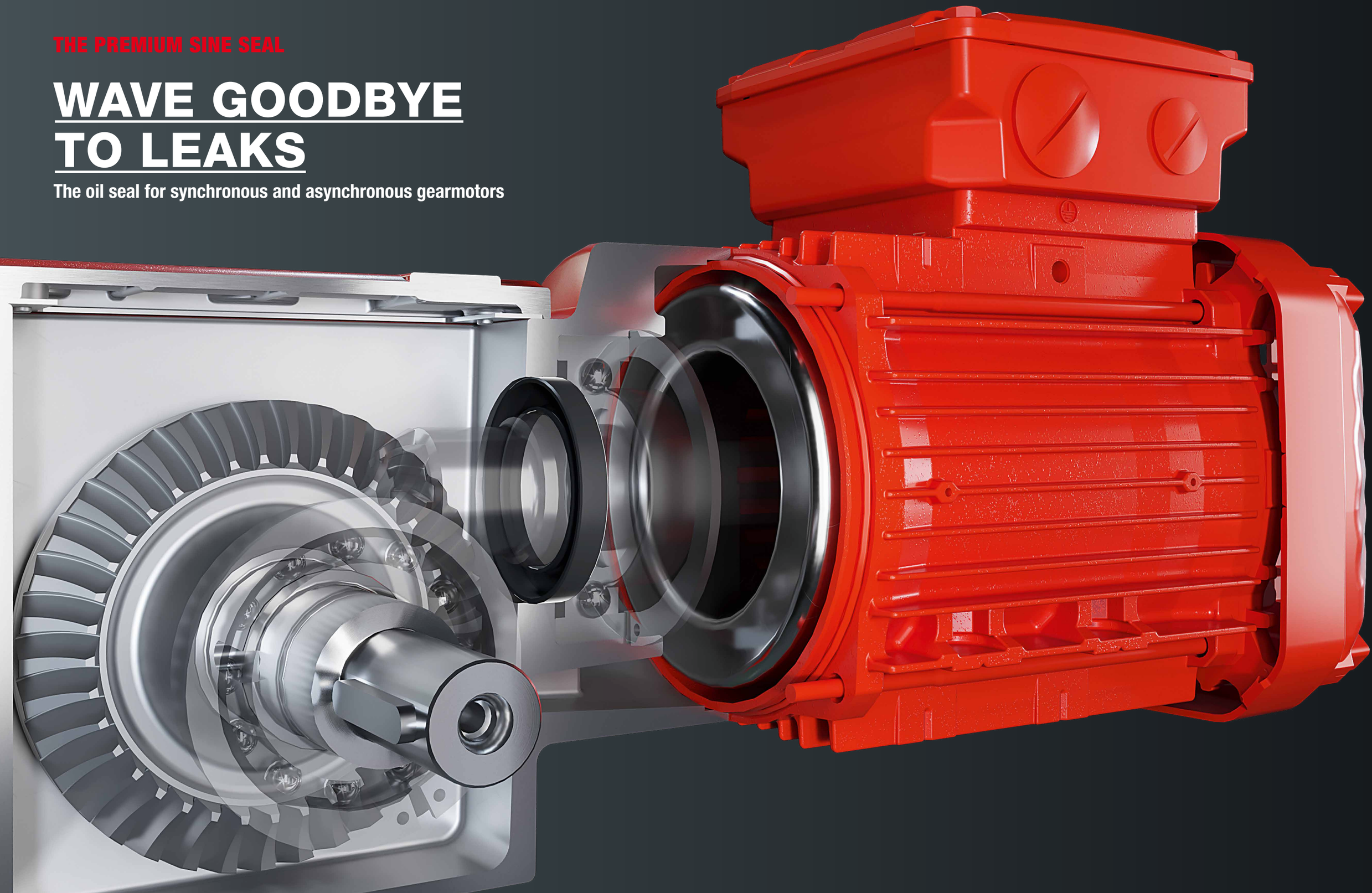


up to date

THE PREMIUM SINE SEAL

WAVE GOODBYE TO LEAKS

The oil seal for synchronous and asynchronous gearmotors



A WAVE THAT SEALS

Premium Sine Seal oil seal

↗ Service life extended by up to +

100%

↗ Increased protection against leaks

↘ No grooving on the shaft

↗ Greater system availability

↘ Wear reduced by up to

-50%

Oil seals have been around for a long time. They seal a rotating shaft against two environments. Oil seals are standardized to DIN 3760 and are state-of-the-art. So why have we designed a new oil seal – the Premium Sine Seal – and how does it differ from other oil seals?

Let's start by making it clear that our Premium Sine Seal oil seal is still circular. It is securely installed on the motor side and seals the motor to prevent gear unit oil from entering. The sealing lip runs over the surface of the rotor shaft, on which the pinion is located, which directly drives the gear unit.

But what is different about our Premium Sine Seal?
Adjustable speeds, continuous duty and varying ambient temperatures are conditions that today's drive systems are exposed to. The gear unit's internal pressure also varies depending on these conditions and the capacity utilization. If the pressure and temperature acting on the sealing lip are high, the wear of the oil seal and the risk of a leak increase. The new Premium Sine Seal sealing systems provide optimum protection against oil leaks for systems and mounted motors. In conjunction with the experts from Freudenberg Sealing Technologies, we have developed a sealing ring that has been specially optimized for the conditions in which gearmotors are used. What makes this sealing ring special is that the sealing lip has been designed to suit the rotating shaft. It is in the shape of a sine wave. This special shape and dispensing with the otherwise usual lock washer increases the sealing system's service life by up to 100% compared to conventional oil seals. This sinusoidal sealing lip in combination with lubricants approved by SEW-EURODRIVE also prevents grooving on the shaft. This means that a new oil seal can be placed in the same location during servicing. The special shape makes the contact surface with the rotating shaft larger, which improves heat dissipation, increases the transfer of lubricant at the sealing surface and thus significantly reduces wear on the sealing lip and the aging of the material.

Which motors and applications is the Premium Sine Seal intended for?
The benefits of the new oil seal over conventional sealing systems are especially evident in use with extremely high dynamics. That is why we're making the new technology available for PxG® planetary servo gear units, gearmotors with synchronous servomotors from the CMP.. and CM3C.. series and the mechatronic drive systems from the MOVIGEAR® range. However, the new oil seal is also available for DR.., DRN../DR2S.. and DAS.. asynchronous motors in combination with our helical gear units, parallel-shaft helical gear units, helical-bevel gear units, helical-worm gear units and SPIROPLAN® right-angle gear units.

The Premium Sine Seal can typically be used for machinery in the packaging, food and beverage industries, wood processing, baggage handling systems at airports, automobile production, transportation, logistics and many other applications.

PROPERTIES

Reliably protects the motor against oil leaks (input side)
Sinusoidal path of the sealing lip
Reduced heating at the sealing lip
Less wear compared to standard oil seals
Expected service life of approx. 20 000 hours
No grease required

EXPERT VOICE

3 QUESTIONS FOR ...

... head of the Tribology and Sealing Systems technology group
ALEXANDER HÜTTINGER

Why was the sealing ring developed?
The reliability of a system also depends heavily on the reliability of its drive technology. Yet the requirements placed on drive technology are becoming increasingly demanding. In the past, production ran primarily in single-shift operation. Nowadays, however, drives often operate on a three-shift basis, depending on the application. In general, this means 24 hours a day, six days a week, or up to 7000 operating hours a year. Under these conditions, the seal is often the weakest link in a gearmotor.

What is special about the oil seal?
With the Premium Sine Seal, the contact between the input shaft and sealing lip is not straight, but instead follows a sinusoidal path on the shaft. This triples the effective contact surface on the shaft, resulting in significantly better distribution of the heat generated in the sealing gap and reducing thermal strain many times over, which in turn slows the aging of the elastomer.

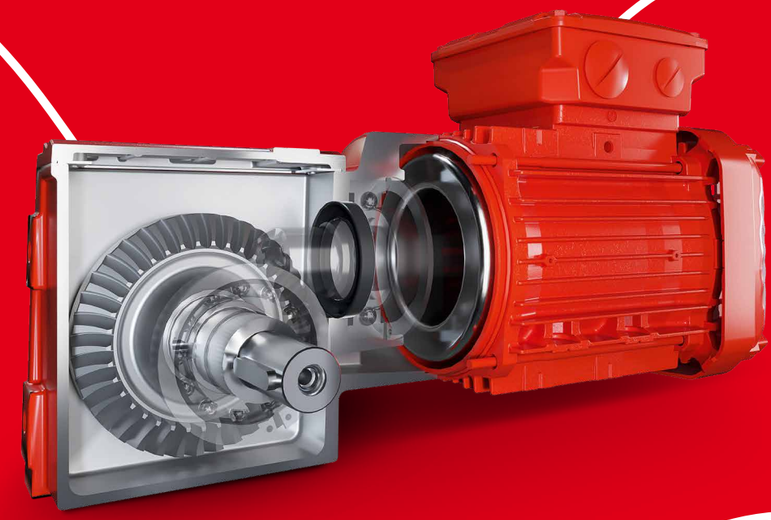
How does a sealing ring age?
That depends entirely on the strains to which the gearmotor is exposed during operation. In addition to mechanical wear due to abrasion, the temperature also has a significant effect. If it increases, the material, that is to say the elastomer from which the sealing ring is made, ages more quickly, becomes hard and loses elasticity. The result is that the sealing ring leaks and oil comes out. This process also varies depending on the lubricant.

GOOD TO KNOW

- Our Premium Sine Seal has won the industry award in the drive and fluid technology category.
- To also reliably protect the gear unit output side against oil leaks, SEW-EURODRIVE has for a number of years been offering the option of a sealing system consisting of two sealing lips. It comprises a conventional sealing lip and an equally optimized sealing lip in the shape of a sinus wave. This double oil seal is particularly recommended for adverse and dirty ambient conditions and when sensitive products need to be given reliable protection against lubricant leaks.

WANT TO GO STRAIGHT TO THE PRODUCT? CLICK HERE!

www.sew-eurodrive.de/oil-seal/

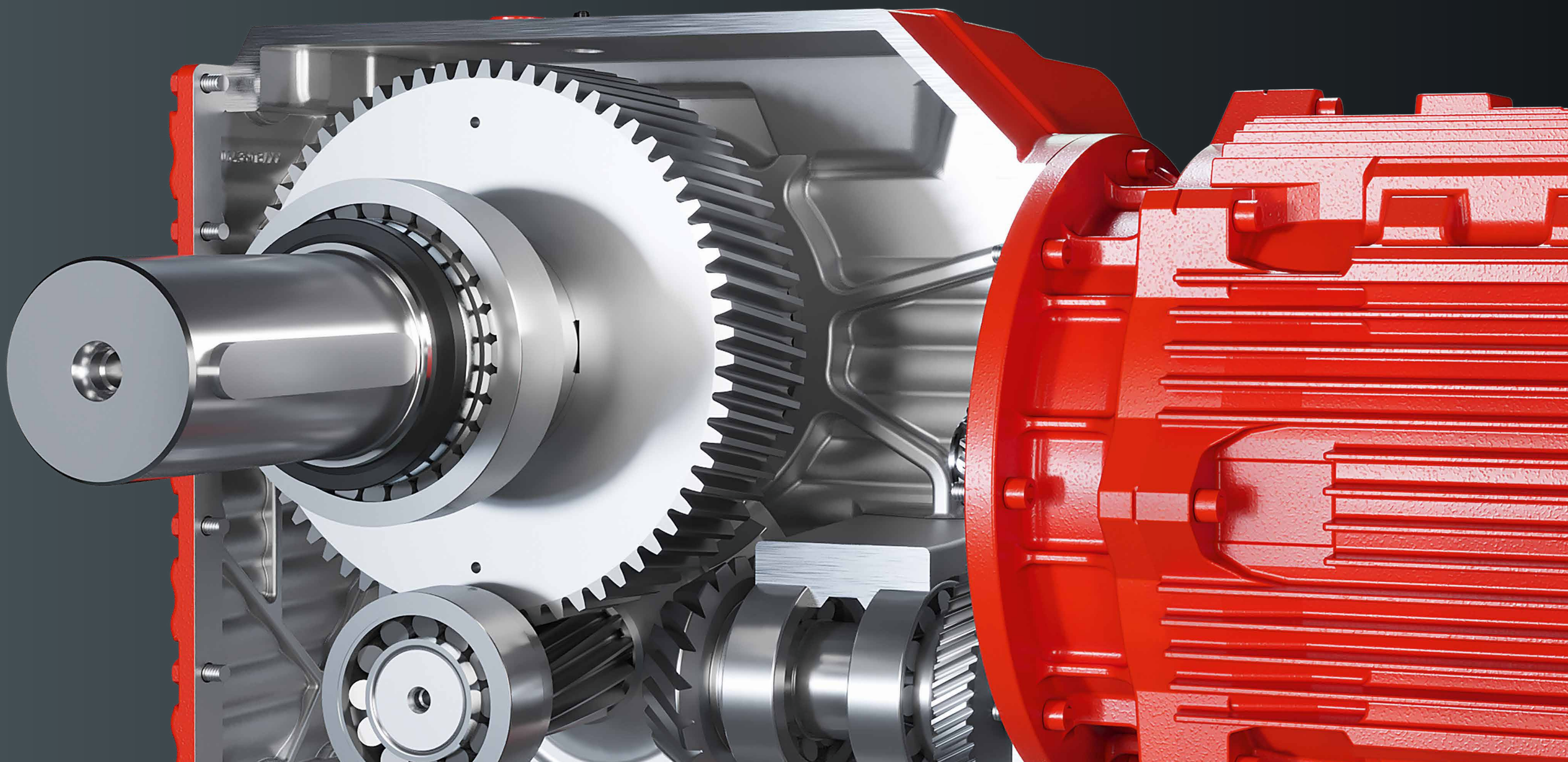


up to date

HIGHER TORQUE

MORE POWER, MORE RESERVES

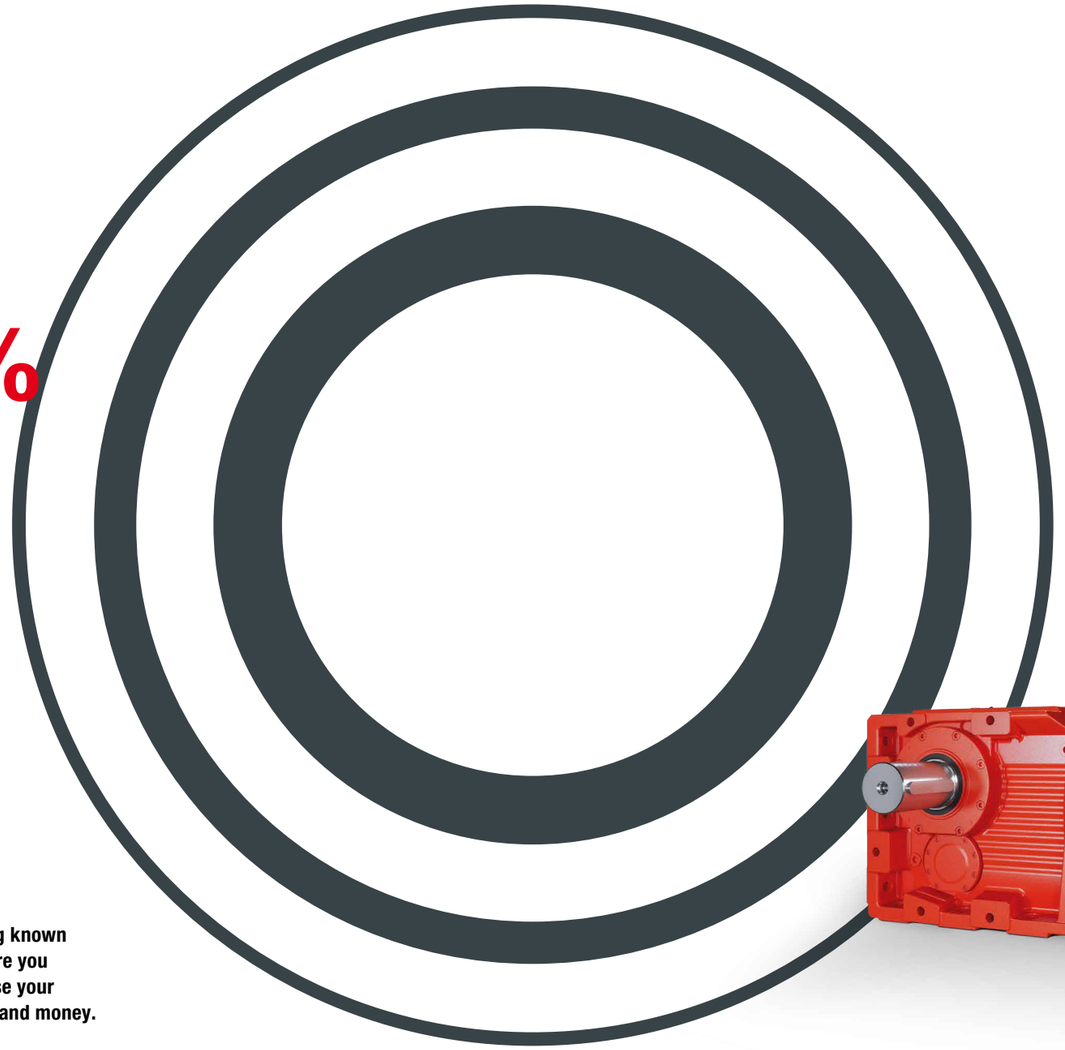
For the large 7-series gear units



MORE TORQUE. MORE POSSIBILITIES.

11%

Up to higher torque



Good news from our development team. By making small-scale optimizations and pushing known boundaries to the max, we have increased the torques for our large 7-series gear units. Are you using one of these gear units? In that case, you can now transport higher loads or increase your reserves for added reliability. If necessary, you can use a smaller size, thus saving space and money. And, best of all, you get increased torque at no extra cost.

Thanks to new FE calculations and optimizations made to a number of components, we can offer you our increased gearmotor torques in combination with F..157, K..167 and K..187. Naturally, our increased torques also comply with all necessary safety requirements. As a result, you benefit from a number of advantages.

Firstly, the increased torques lead to higher service factors (f_B), giving you more operational reliability. Secondly, when planning a new project, you can use a smaller size, if required. In addition to this, the new service factors increase the number of possible gear unit-motor combinations. Our gear units and gearmotors ensure you're always at the cutting edge, without generating extra costs for you.

THE BENEFITS

- **Increase in torque from +6% to +11%**
- **More reliability in use**
- **Your equipment is always at the cutting edge**
- **New project planning possible with smaller gear units**
- **No added costs**
- **Now available for F..157, R..167, K..157, K..167 and K..187**

Old and new torques compared

SIZE	M_{amax}	M_{amax} new	INCREASE
R..167	Up to 18 000 Nm	Up to 20 000 Nm	+11%
F..157	Up to 18 000 Nm	Up to 20 000 Nm	+11%
K..157	Up to 18 000 Nm	Up to 20 000 Nm	+11%
K..167	Up to 32 000 Nm	Up to 35 000 Nm	+9%
K..187	Up to 50 000 Nm	Up to 53 000 Nm	+6%

EXPERT VOICES
THREE QUESTIONS FOR

… the product management team: EIKO FILLER

What is the motivation behind the “up to date” initiative from SEW-EURODRIVE?
Essentially two factors are driving us in this campaign. We’re constantly looking for new ways of anticipating our customers’ needs and giving them made-to-measure solutions. And we’re committed to playing our part in promoting sustainability and the responsible use of resources.

Why should users be interested in increased torque?
Increased torque is of interest to users because they can opt for a smaller size for new systems, which is an easy way of saving space for a number of applications. In pre-existing constructions, the gear units in question can simply be run at a higher torque load, which either gives the user more power or greater reserves for coping with overload.

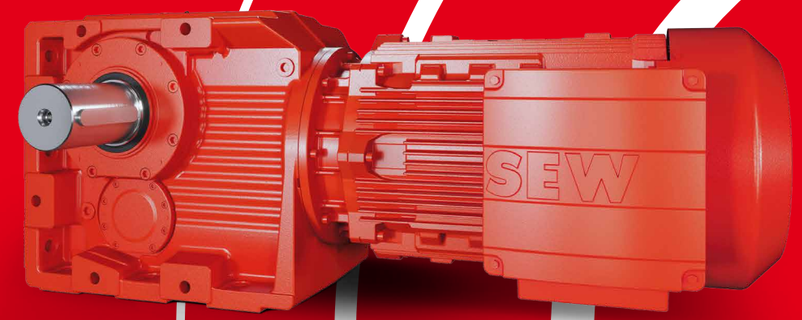
What can I do to achieve increased torque?
New gear units will now be labeled automatically with the higher torque. Gear units for use in existing constructions can therefore be subjected to higher loads and/or offer greater reliability if the load is unchanged. In the case of new systems that have already been configured and calculated, mechanical engineers can update their calculations and, if necessary, select a smaller size.

… the development team: DR. MEINHARD SCHUMACHER

How exactly was this enhancement achieved?
SEW-EURODRIVE doesn’t just continuously develop its products, it also optimizes design and configuration tools, always using the latest scientific findings. These are then also incorporated into existing products – as in this case – to the benefit of our customers.

Is the enhancement just a matter of redoing calculations?
No, not at all. Besides using the latest calculation methods, we’ve also optimized a number of components, such as shafts, bearings and housings, resulting in higher torques for the large 7-series gear units. Naturally, compatibility is maintained in its entirety for customers.

Does a higher torque reduce service life?
The strict design criteria for our gear units have not changed at all with the introduction of the new calculation methods – there are no drawbacks for customers at all. If additional design elements are also incorporated – such as our Premium Sine Seal oil seal and GearOil by SEW-EURODRIVE – we can now even offer a 12-month extended warranty package.

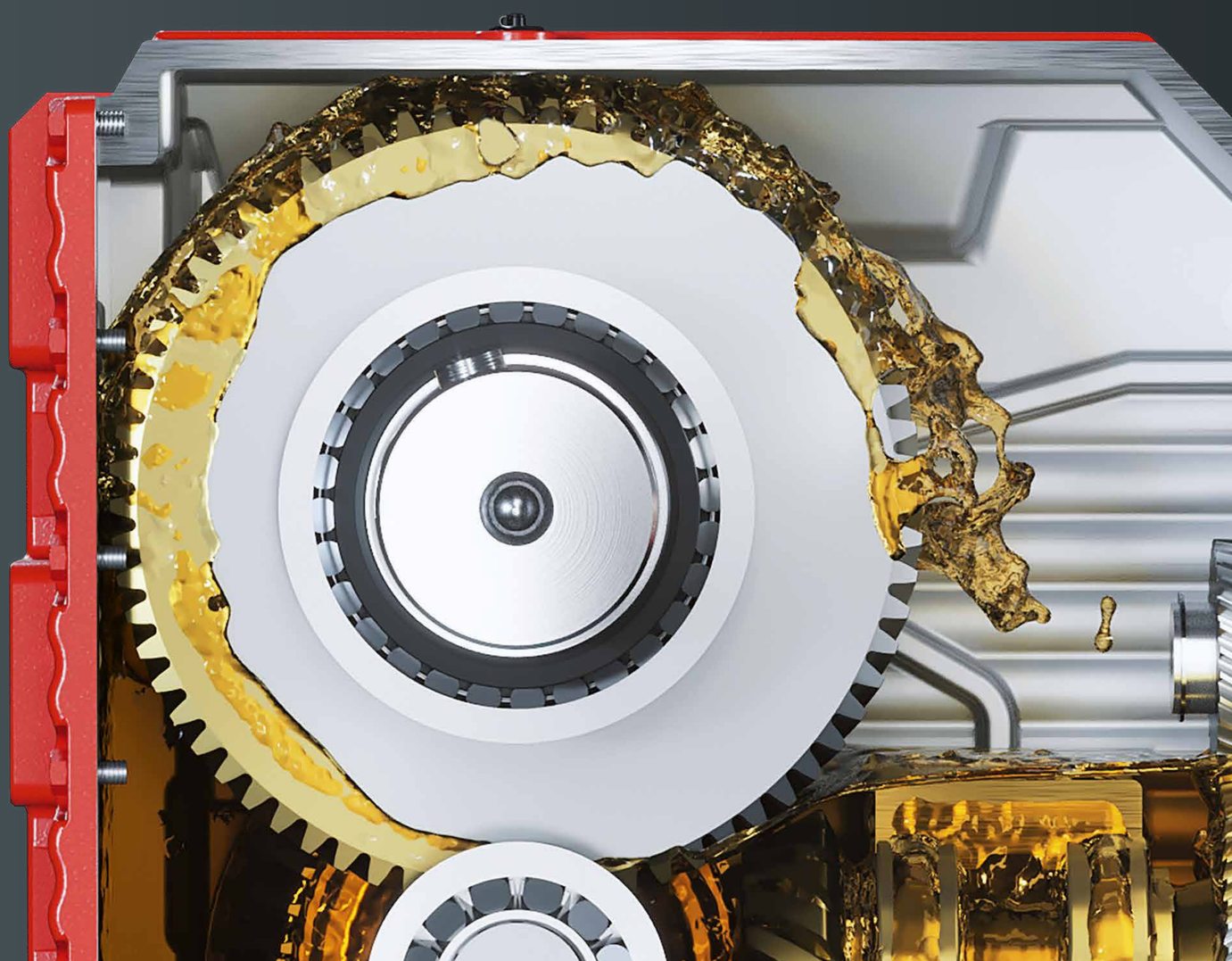


up to date

GEAROIL BY SEW-EURODRIVE PROTECTS

LESS WEAR, LONGER LIFE

For all SEW-EURODRIVE gear units



UPDATED TO EXTEND THE LIFE OF GEAR UNITS.

50%

Increase in oil life and 50% longer service life of the transmission

DID YOU KNOW THAT SEW-EURODRIVE IS ONE OF THE BIGGEST CONSUMERS OF GEAR OILS IN THE DRIVE TECHNOLOGY SECTOR?

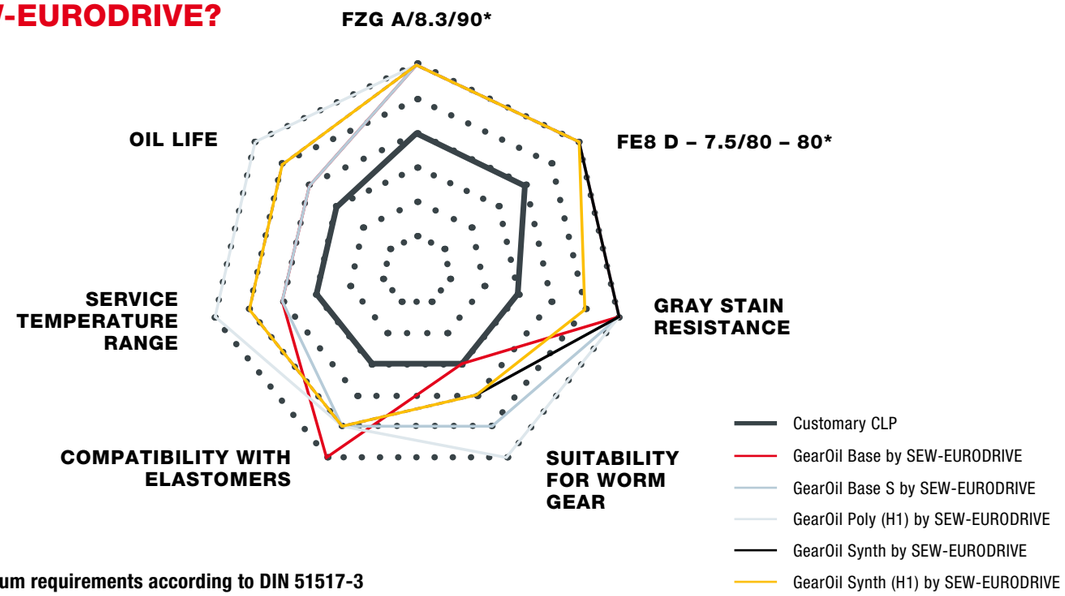
Is the right gear unit oil hard to find? Not at all. SEW now makes GearOil by SEW-EURODRIVE: The perfect lubricant – developed in-house by SEW tribology experts for all our gear units. A premium oil, which will represent a real innovation transfer at your plant. For less gear unit wear and a longer service life.

Whether you use standard, servo, or industrial gear units – GearOil by SEW-EURODRIVE has been 100% developed for your SEW gear unit. Many years of experience and countless test runs have gone into producing this gear oil, which impresses with its special lubricating film. Not only does this extend the lifetime of the oil itself, it also reduces friction between the gear wheels. The lifetime of wear parts, such as sealing rings and bearings, is significantly extended. Furthermore, GearOil by SEW-EURODRIVE protects against corrosion and prevents damage to tooth flanks from scuffing. It also enhances performance and increases efficiency. Your high-quality gear units will be maintained in peak condition for the future, protecting your investment. GearOil by SEW-EURODRIVE is available in various viscosity classes. Either as a CLP mineral gear unit oil or as a synthetic lubricant based on CLP PG (polyglycol) or CLP HC (polyalphaolefin). Special lubricants with H1 certification for the food-processing industry are also available.

THE BENEFITS

- Choosing the right lubricant for optimal overall gear unit performance is simple and easy
- Fewer failures thanks to protection against leaks and the attrition of wear parts
- Up to 50% longer service life than conventional oils
- Longer service life and reduced wear for your gear units and their wear parts
- Long-term protection for your investment
- Shelf life up to six years longer than that of conventional lubricants
- Available worldwide

What are the strengths of the GearOil by SEW-EURODRIVE?

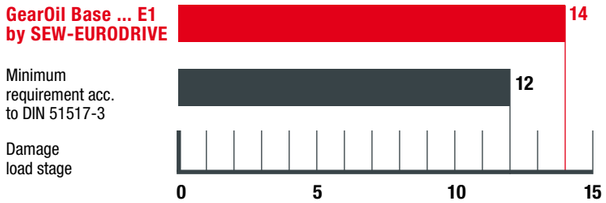


*** Minimum requirements according to DIN 51517-3**

GOOD TO KNOW

WHAT DOES GEAR OIL DO?

- Reduces friction
- Dissipates heat
- Carries impurities to the filter
- Reduces wear
- Protects against corrosion
- Reduces noise
- Minimizes vibrations
- Protects against gearing scuffing



MORE INFORMATION!

www.sew-eurodrive.de/lubricants

REDUCING FRICTION: BUT WHAT KIND EXACTLY?

Boundary friction
Boundary friction is the friction that occurs where two surfaces come into direct contact. In this case, protective layers develop as a result of natural oxidation, adsorption, or a chemical reaction under the influence of pressure and temperature.

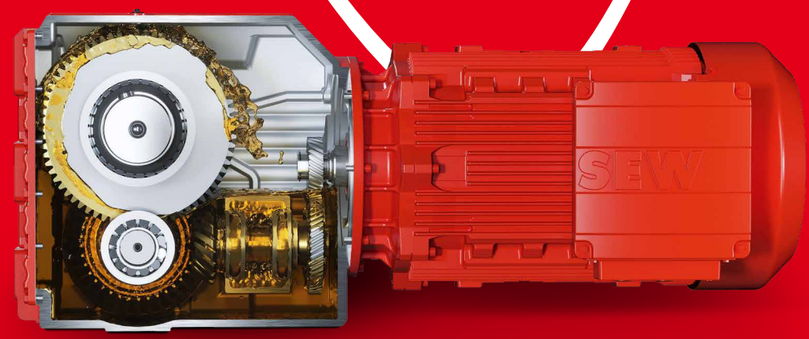
Mixed friction
This occurs when there is not enough oil in the gear unit or the oil is too old. With mixed friction, there are therefore both direct points of contact between the components and points of contact separate from the lubricating film.

Fluid friction
There is no direct contact between the components. The gear oil separates the components and the lubricating film transfers the load that occurs. The better the chemical structure of the lubricating film, the lower the internal friction within it.

Systematically reducing both friction and wear, and optimizing lubrication, therefore extends the service life of the gear unit.

FZG A/8.3/90

The high stage 14 damage load stage provides improved protection against wear to the gearing

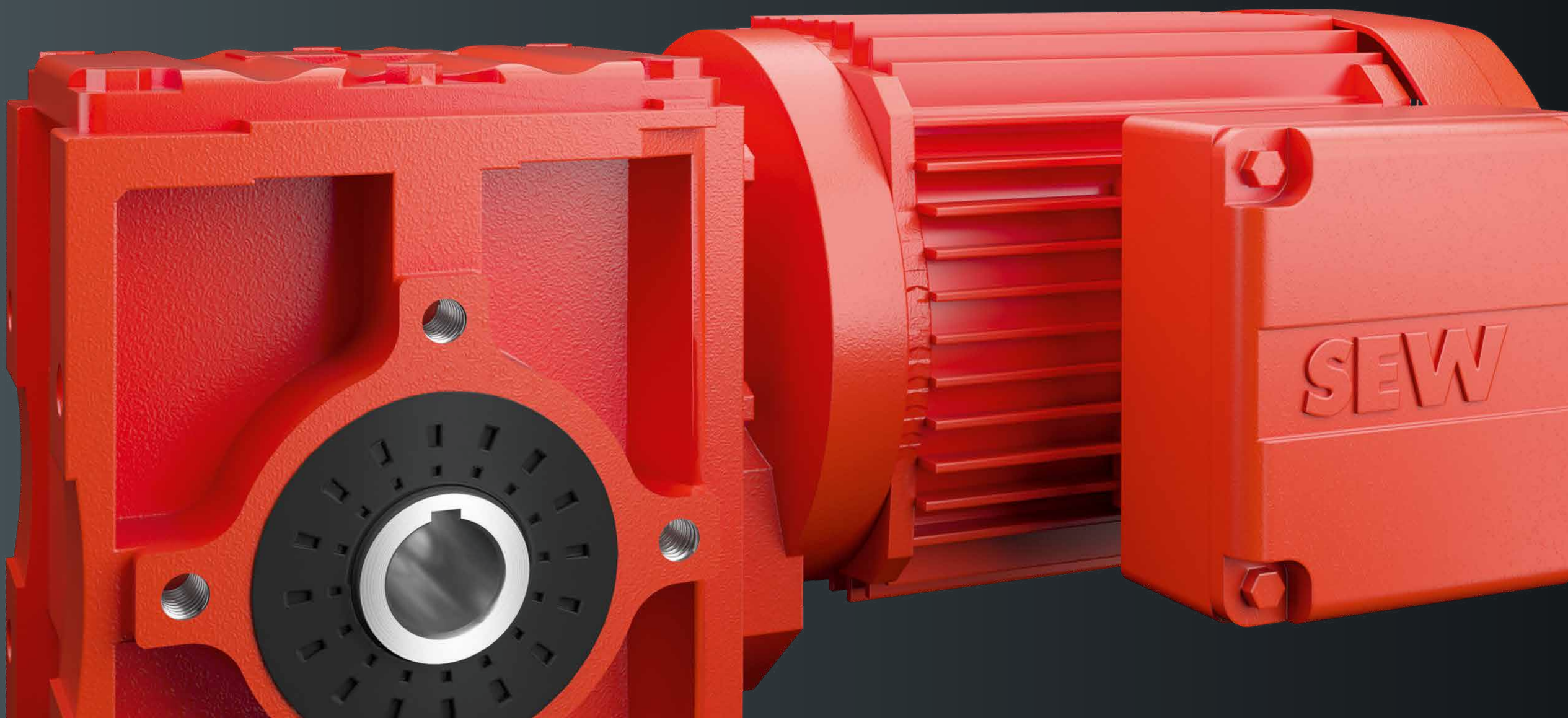


up to date

TORQUE BONUS

UP TO 115% MORE POWER

For SPIROPLAN® right-angle gear units



Using
GearOil by
SEW-EURODRIVE

Up to
higher torque
115%

TURBO BOOST FOR SMALLER GEAR UNITS

So how is it possible to achieve such a rocket-like improvement in the performance of these small right-angle gear units? That's right – by combining expanded calculation options with the potential of SEW's new premium gear oil. At least, this is how the experts in our development department did it. The result is a huge and permanent performance boost for our small SPIROPLAN® gear units.

The small SPIROPLAN® gear units have been very successful on the market for years due to their outstanding characteristics. Our engineers have now taken things to the next level. They have managed to boost the torque of the right-angle gear units by between 4% and – wait for it – a whopping 115%. All this simply by using new calculation methods and GearOil Poly 460 W by SEW-EURODRIVE gear oil.

For you, this means higher service factors (f_B) and therefore greater reliability when using gear units. You have more flexibility in selecting your drives thanks to a wider range of variants. For new projects, it is also possible to consider using a smaller gear unit size. Furthermore, this opens up some new gear unit-motor combinations that we have included in the new catalogs. It is also important that the permitted overhung load on the output end for the gearmotors is not affected by the higher permissible torque. Certain new combinations of the W..10 with the DRN71.. and DR2S71.. motors require new rotor shafts. We have made these from higher-quality material and further hardened them at the shaft shoulder. As a result, these combinations now also meet the safety requirements associated with the higher torques.

W..10 increase (0.09 – 0.55 kW)

Ü (i)*	M_{amax}	DS**
6.57	19 Nm	**+58%**
8.20	23 Nm	**+92%**
10.25	28 Nm	**+115%**
14.33	24 Nm	**+9%**
16.50	27 Nm	**+35%**
19.50	30 Nm	**+20%**
27.50	27 Nm	**+13%**
35.50	28 Nm	**+12%**
39.00	26 Nm	**+4%**

W..20 increase (0.12 – 0.75 kW)

Ü (i)*	M_{amax}	DS**
6.57	24 Nm	**+20%**
8.20	29 Nm	**+45%**
10.25	36 Nm	**+44%**
14.33	45 Nm	**+50%**
16.50	38 Nm	**+27%**
19.50	42 Nm	**+20%**

W..30 increase (0.12 – 1.1 kW)

Ü (i)*	M_{amax}	DS**
6.57	62 Nm	**+55%**
8.20	65 Nm	**+63%**
10.25	63 Nm	**+26%**
14.33	69 Nm	**+15%**
16.33	68 Nm	**+13%**

*** Gear ratio**

**** Torque increase compared to previous maximum permitted torque**

YOUR BENEFITS – AT A GLANCE

SPIROPLAN® right-angle gear units
are impressively reliable and quiet. They deliver output torques up to 70 Nm in the power range from 0.09 to 1.1 kW. At their heart is the unique SPIROPLAN® gearing, which is wear-free, efficient and low-noise. Their compact design and aluminum housing make SPIROPLAN® right-angle gear units real lightweights, and extremely cost-effective, too.

NEW CALCULATION – MORE TORQUE

New calculations make it possible – in combination with our new GearOil by SEW-EURODRIVE, we are now able to offer you higher permissible torques for our small SPIROPLAN® series of right-angle gear units. Our sizes W..10, W..20 and W..30 in particular benefit from this, especially in the small gear ratio range. Moreover, you benefit from a torque boost of up to 115%.

CORRECT LUBRICATION – BETTER HEAT DISSI-PATION

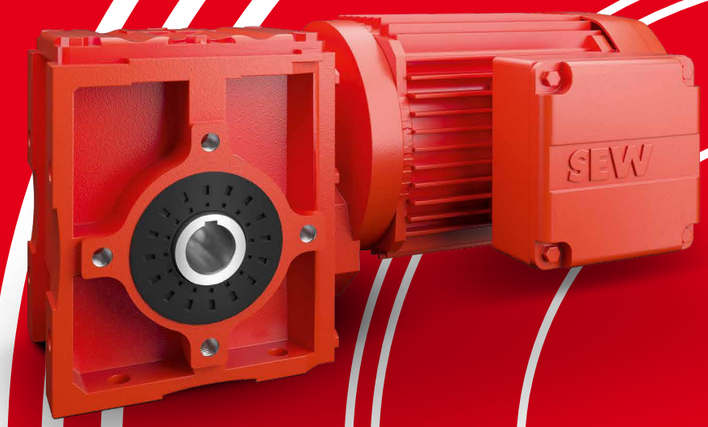
Our new lubricants in the GearOil Poly by SEW-EURODRIVE series increase the performance of the gear units by reducing friction in the gearing and enhancing heat dissipation. GearOil Poly 460 W by SEW-EURODRIVE was developed specifically for SPIROPLAN® gear units. It forms an ideal lubrication film on the gear wheels that increases the service life of both the lubricant and the wear parts such as bearings and sealing rings.

SMALLER SIZES – ADDITIONAL RESERVES

Why not consider downsizing? With the increased torques, you can now accommodate higher torques in a smaller space. Basically, this means you can use smaller sizes for your new projects in the future. Or you now have greater safety reserves in your existing systems.

MORE EFFICIENCY – FEWER COSTS

The torque boost does not negatively impact any of the many other positive factors. Even when applied to gearmotors, the SPIROPLAN® design achieves greater efficiency while continuing to offer the low-noise operation you're familiar with. Combined with our new, small DRN.. motors (DRN63.., DRN71.. and DRN80..), you can achieve energy efficiency class IE3 easily and cost-effectively.



up to date

2267 8891 / 1222

You might also be interested in ...
our gear units that can be used flexibly!

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