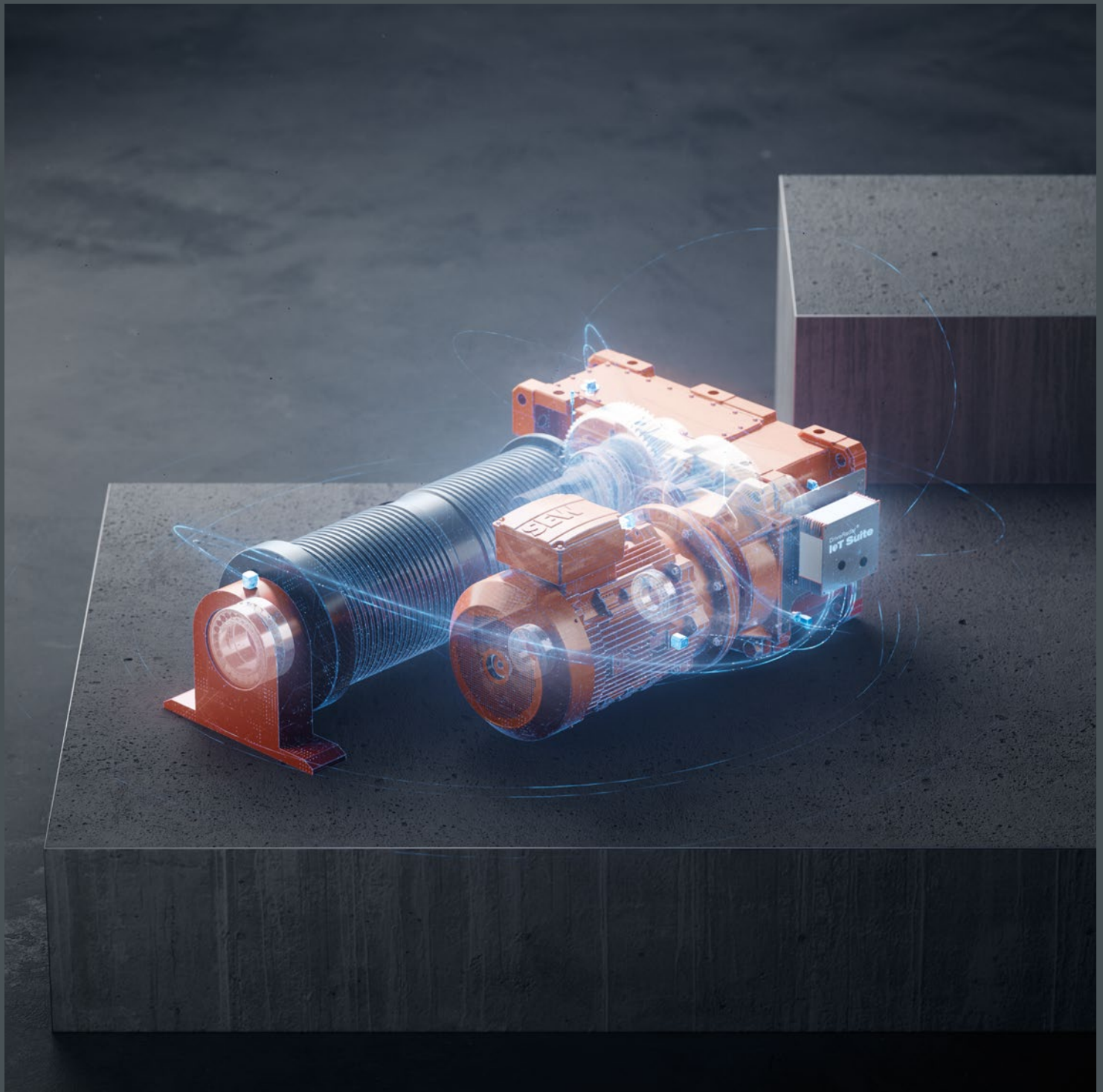


# DriveRadar® IoT Suite for industrial gear units

Straightforward maintenance with condition monitoring  
for the entire drive train



# A clear view ahead

Ask a machine or system operator, and you'll always get the same answer:

When it comes to preserving or even increasing a system's value, the top priorities are excellent system availability and improved productivity. Digitalization can help reduce manual work and optimize the use of resources.

This means less strain on maintenance budgets, better worker safety, and greater machine reliability.

Wouldn't you like to stop flying blind? Time to clear your view of the way ahead.



Take a proactive approach with the DriveRadar® IoT Suite

Our DriveRadar® IoT Suite keeps working for you 24/7. The digitalized condition monitoring system automatically monitors your drive system, so you have reliable, detailed information about the state of your components at your fingertips at all times.

If there are any relevant changes in condition, the system will notify you and provide you with initial recommendations for action, so you can take steps at an early stage and prevent downtime.

## → Early warning

Thanks to automated condition monitoring, you receive prompt notification of any critical changes to the condition of your industrial gear unit and any abnormal operating behavior.

## → Recognize trends

Continuous monitoring and a clear, intelligent display mean you can proactively plan ahead, knowing how long your gear unit will continue working without faults.

## → Prevent downtimes

Thanks to greater transparency regarding the condition and operating behavior of your industrial gear units, you can vastly increase your level of protection against unplanned downtimes.

## → Operate efficiently

The forecasts calculated by the system mean you can plan service and maintenance activities preventively. What's more, you can control the length of your maintenance cycles as needed.

## → Save resources

You can make full and optimum use of your drive components' service life, thanks to the condition-based recommendations for action.

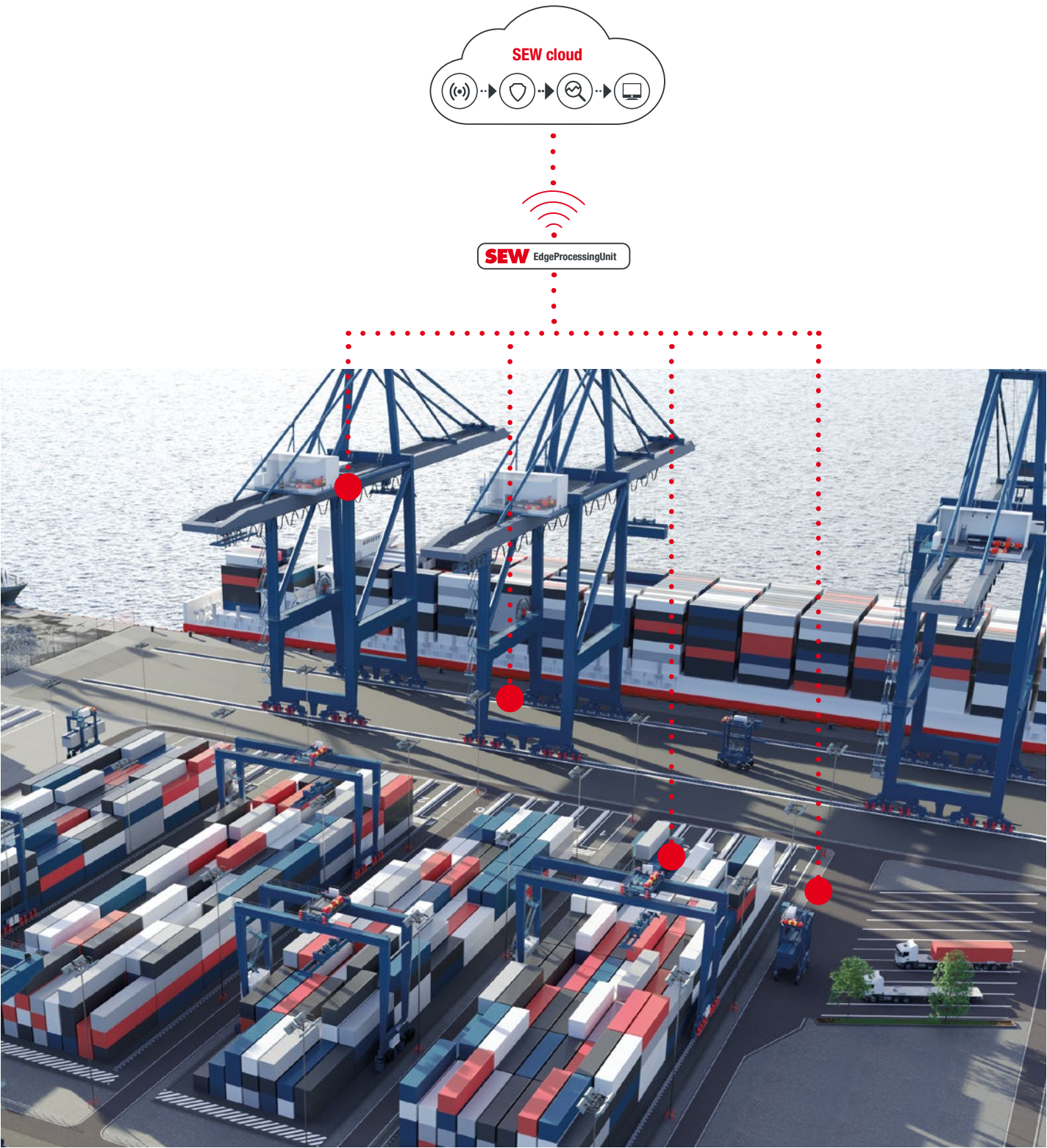
## → Use directly

The hardware is pre-assembled, fully parameterized, and ready to use ex works, so you can simply connect and start up your DriveRadar® system straight away.



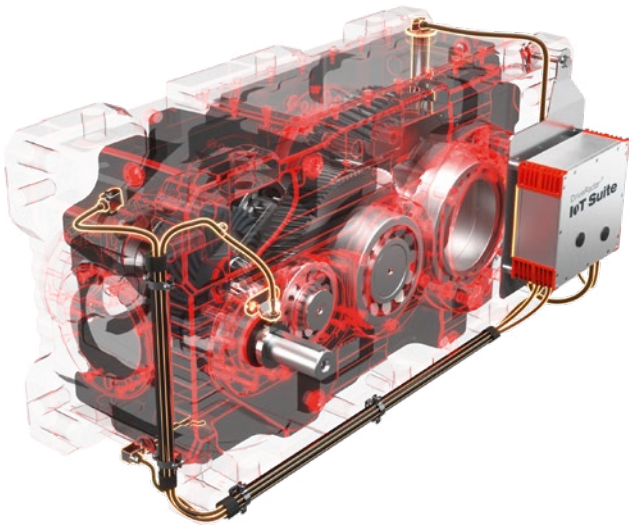
# Our package at a glance

The DriveRadar® IoT Suite is available for all helical and bevel-helical gear units – regardless of whether these are new or already in use.



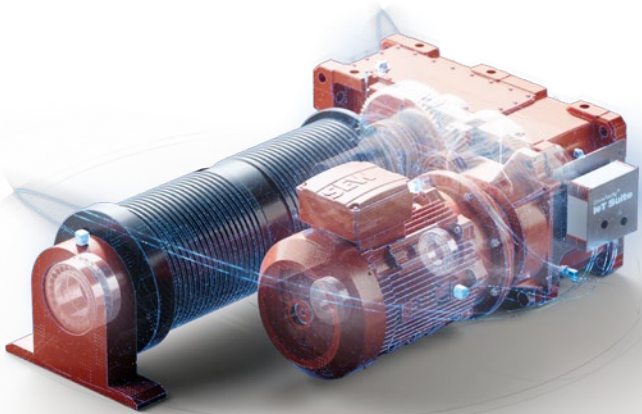
## Gear unit monitoring

- Components**
- 2 × acceleration sensors
  - 1 × oil temperature sensor
  - 1 × ultrasound sensor
  - 1 × speed sensor
  - 1 × DriveRadar® EdgeProcessingUnit
  - Optional incorporation of further measured variables



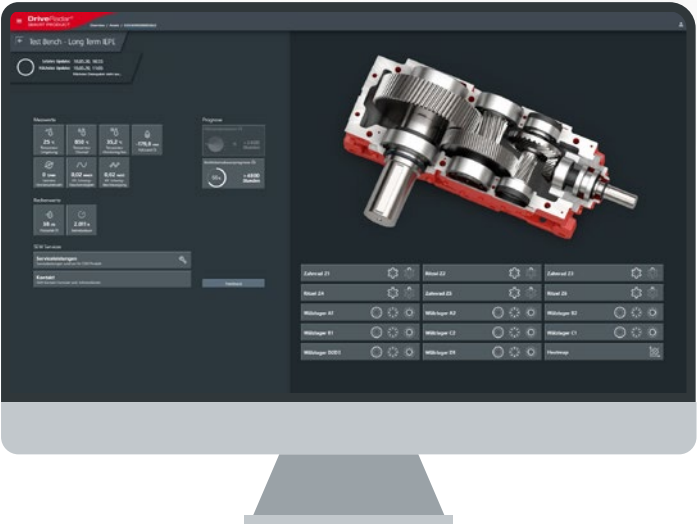
## System monitoring

- Components**
- DriveRadar® DUV40A
  - Optional oil temperature measurement



## Repair and maintenance cockpit

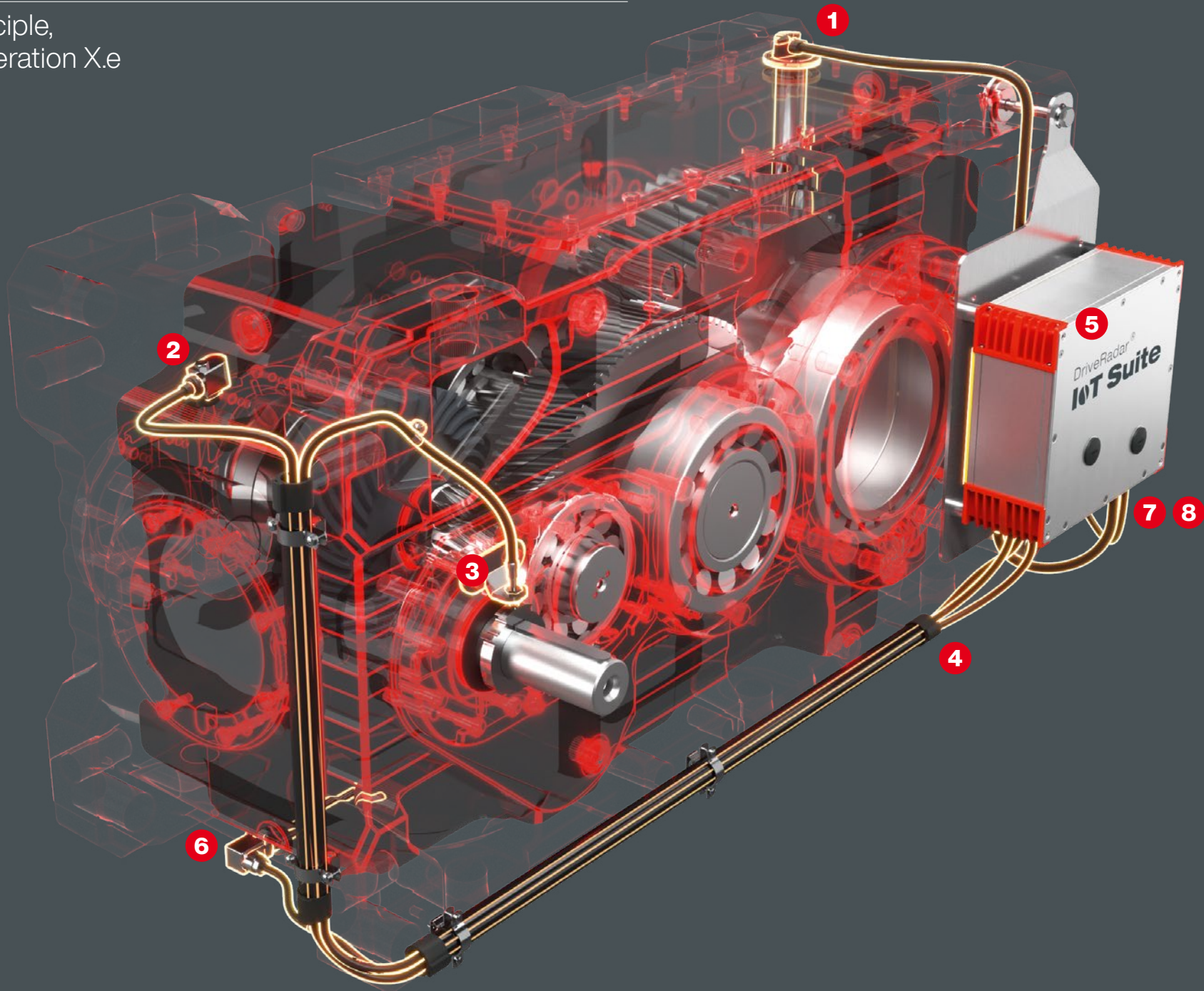
- Elements**
- Access to the DriveRadar® IoT Suite web application
  - App for mobile devices included
  - Data tariff for mobile service included
  - Automatic notification of errors and warnings





# Gear unit monitoring at a glance

The DriveRadar® operating principle, based on the example of a Generation X.e bevel-helical gear unit



## Data acquisition

A specially prepared and coordinated set of sensors records the industrial gear unit's parameters and passes these on to the EdgeProcessingUnit.

## Data connection and analysis

The EdgeProcessingUnit records the sensor data, encrypts this, and transmits it to the data center, where the collated raw data is analyzed, interpreted, and processed.

## Data linking

Using an OPC UA interface as standard enables measured values and condition data to be seamlessly incorporated into your system. A status display showing the overall condition lets you know when you should take a look at the DriveRadar® IoT Suite.

## Other measured values

By incorporating up to three analog signals, you can also monitor other condition parameters such as the torque or other signals from the inverter.

Oil level sensor



Vibration sensors



Inductive speed sensor



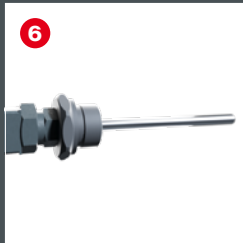
Cabling



EdgeProcessingUnit



Oil temperature sensor



Ambient temperature sensor



Optional: other measured values

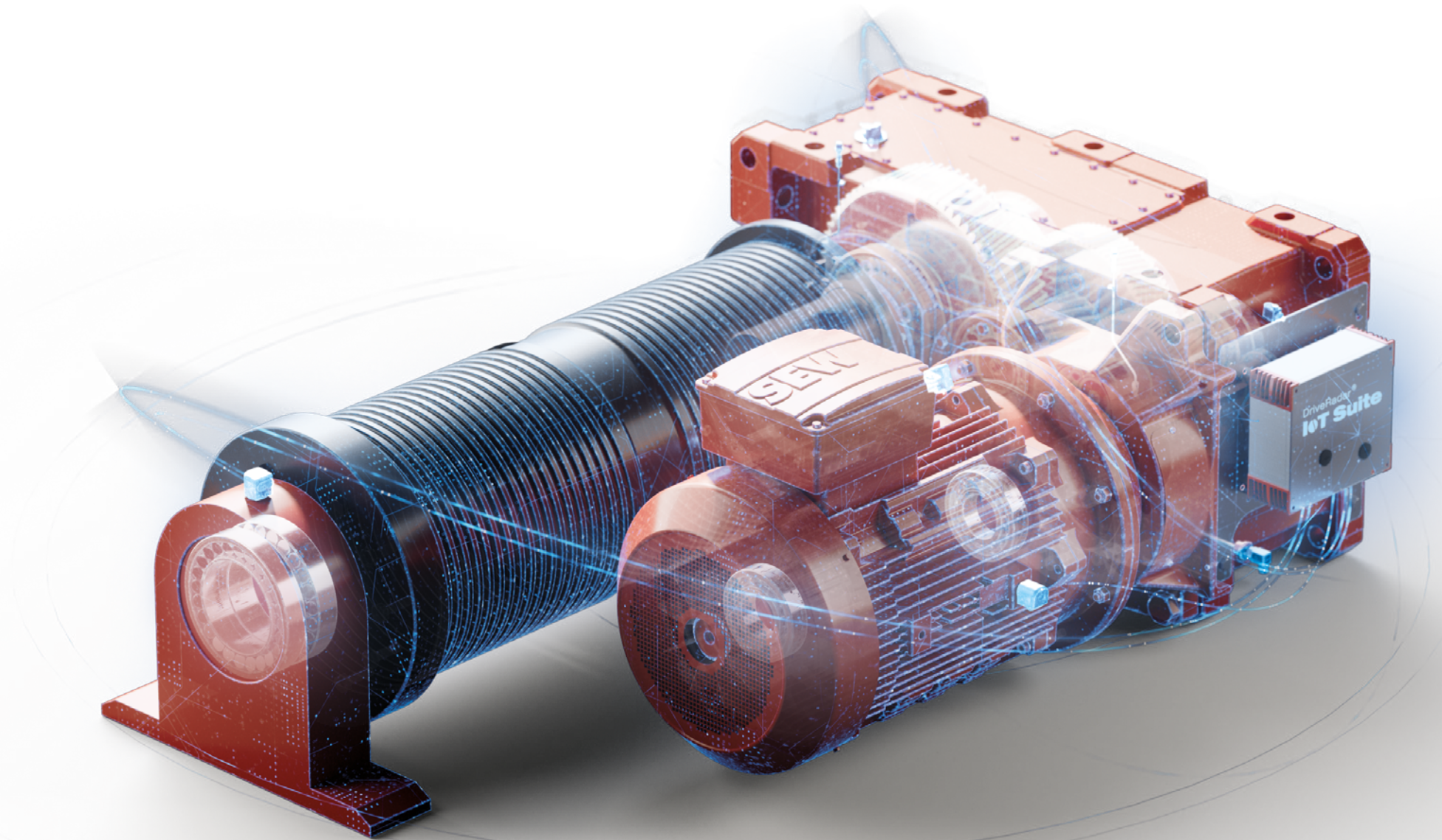




# System monitoring at a glance

Take things another step further!

You can use DriveRadar® DUV40A to extend system transparency to your entire drive train, monitoring all other system components in addition to your industrial gear unit. The predictive analysis of operating data ensures defective bearings and other irregularities are identified at an early stage and displayed in the DriveRadar® IoT Suite.



## True flexibility

Whether you are equipping a new system or looking to upgrade your existing system, the solution can easily be extended to enable the seamless integration and monitoring of additional devices.

## Maximum transparency

Gain comprehensive insights into the entire drive train, including detection of anomalies and access to all history data.

## Reliable productivity

Ensure continuous operating efficiency by detecting maintenance requirements at an early stage and minimizing production downtimes.

## Automated condition monitoring

Permanent (24/7) monitoring of all devices and components to detect deviations from normal operation – as a result of bearing wear, for instance – always keeps you in the picture about the condition of your system.



# Your new repair and maintenance cockpit

The DriveRadar® IoT Suite provides you with a fast, online overview of the condition of your gear unit and all the components, enabling you to initiate maintenance and repair activities early on and preventively.

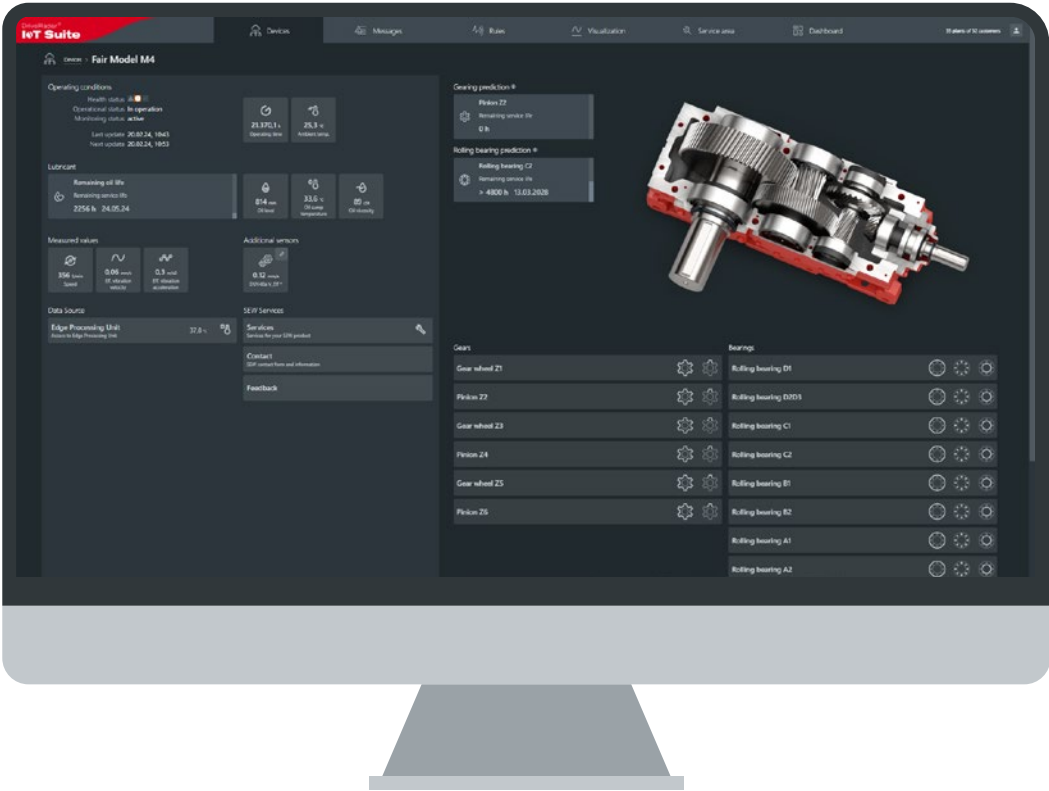
The **device overview** gives you a rapid overview of the condition of your industrial gear unit and all associated components.

A **traffic light system** is used as a simple and easy-to-understand way of showing whether a critical operating state is approaching or has already been reached. The next level – the detailed view – shows you the measured values recorded by the sensors as well as the results of calculations and forecasts. This means you can initiate maintenance and repair activities early on and preventively.

The **DriveRadar® IoT app** also provides you with optimum monitoring and predictive maintenance support for your drive system, and is the ideal addition to the tried-and-tested DriveRadar IoT Suite. What's more, the DriveRadar® IoT app helps you with everything from installation and startup to maintenance and fault diagnostics.

Discover our innovative solution – now available in the App Store and the Google Play Store!

Download the DriveRadar® IoT app



## Smartphone app for iOS and Android

- Immediate push notifications if the condition of a component changes
- Instant identification of the device components that require attention
- Product-specific device data about the mechanical and electrical systems and PDF documentation

## Notifications and services

- Notifications by e-mail or app
- Initial recommendations for action to speed up fault elimination
- Tried-and-tested SEW-EURODRIVE services directly from the DriveRadar® IoT Suite

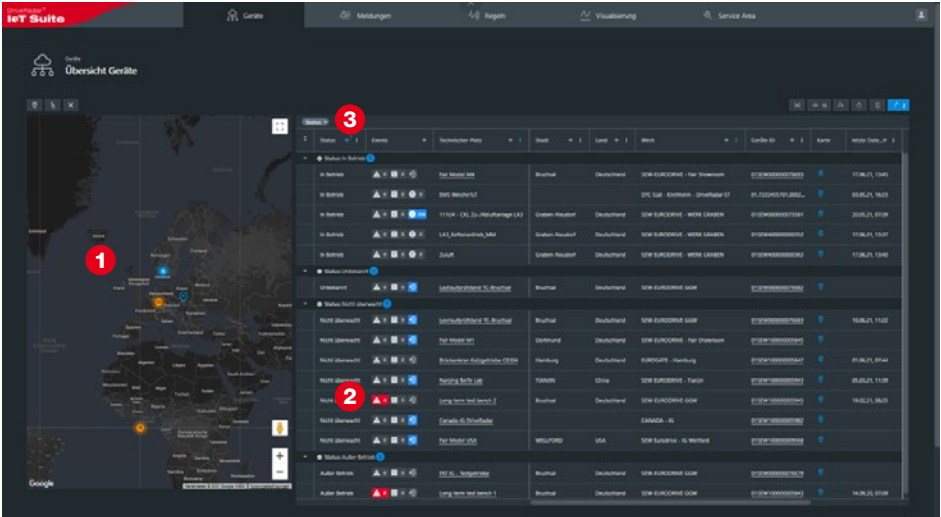
# The web application at a glance

All measured values are collated and visualized in the DriveRadar® IoT Suite.

The DriveRadar® IoT Suite provides you with a fast, online overview of the condition of your gear unit and all the components, enabling you to initiate maintenance and repair activities early on and preventively.

## Device list

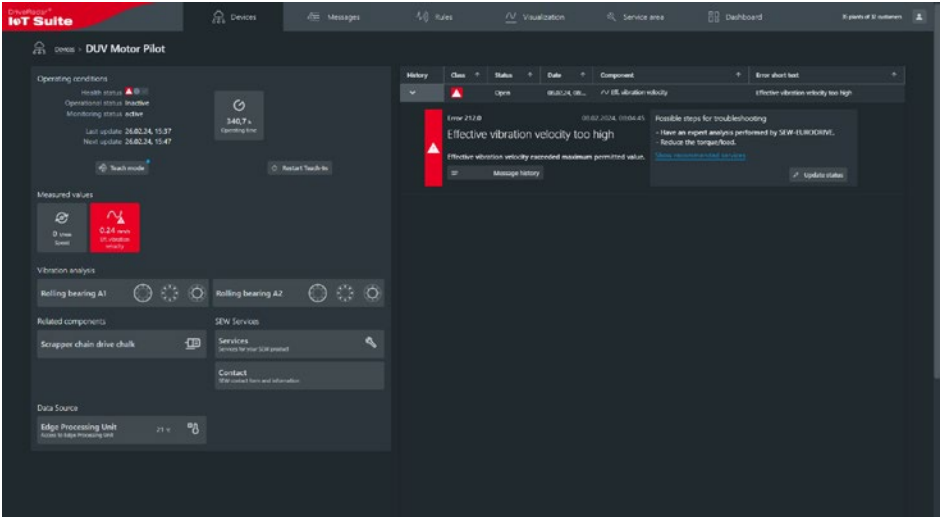
- 1 Gear unit location shown on the map
- 2 Overview of the overall condition of all monitored gear units
- 3 Filter and grouping functions



The device list provides you with an overview of your monitored units. A traffic light system simplifies continuous monitoring and ensures the user has the necessary device condition transparency at all times and in an easy-to-understand way.

## Monitoring other drive components

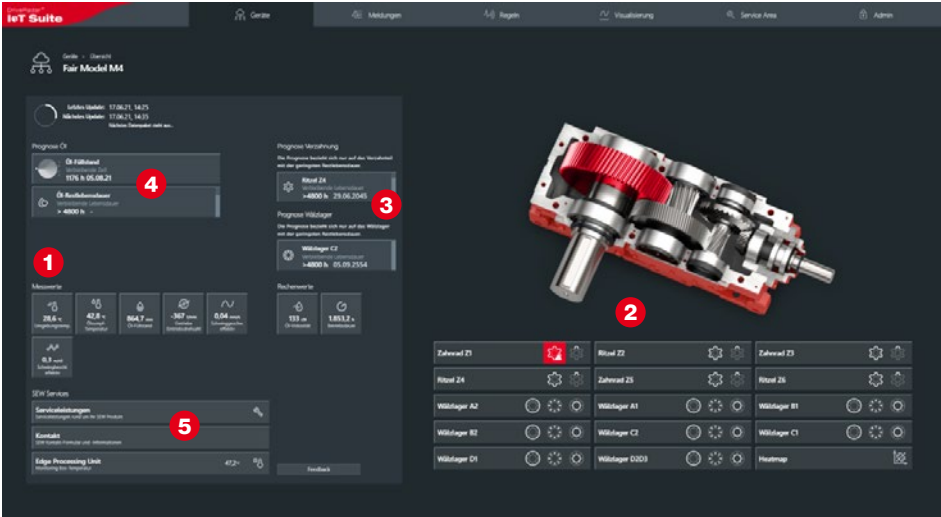
- 1 List of errors for monitored components
- 2 Visualization of all available measured values



All available measured values are displayed in the overview. The integrated list of errors simplifies the direct implementation of recommended actions to eliminate faults.

## Overview of measured values and forecasts

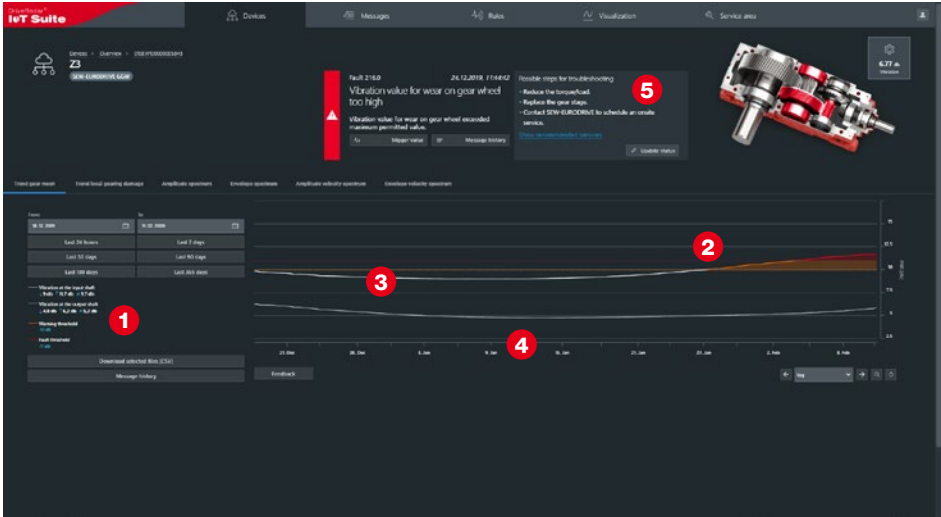
- 1 Compact overview of all relevant measured variables
- 2 Bearing and gearing monitoring and localization
- 3 Failure probability forecast for rolling bearings and gearing
- 4 Oil level and oil change forecast
- 5 Rapid access to contact and services



Thanks to the visualization of the condition and forecast values in the device overview, you can see all the current values at a glance and find out which measured values are OK and whether there are any faults.

## Trend information about various damage patterns

- 1 Limit values calculated automatically from teach-in mode
- 2 Example of incipient gearing damage
- 3 Range of run-in phase and good condition
- 4 Direct localization in the timeline
- 5 Recommended services and option of making a direct inquiry



Example of an error identified by vibration analysis at variable speed: The diagram visualizes all historical measured values over adjustable time ranges and the future trend of the values.

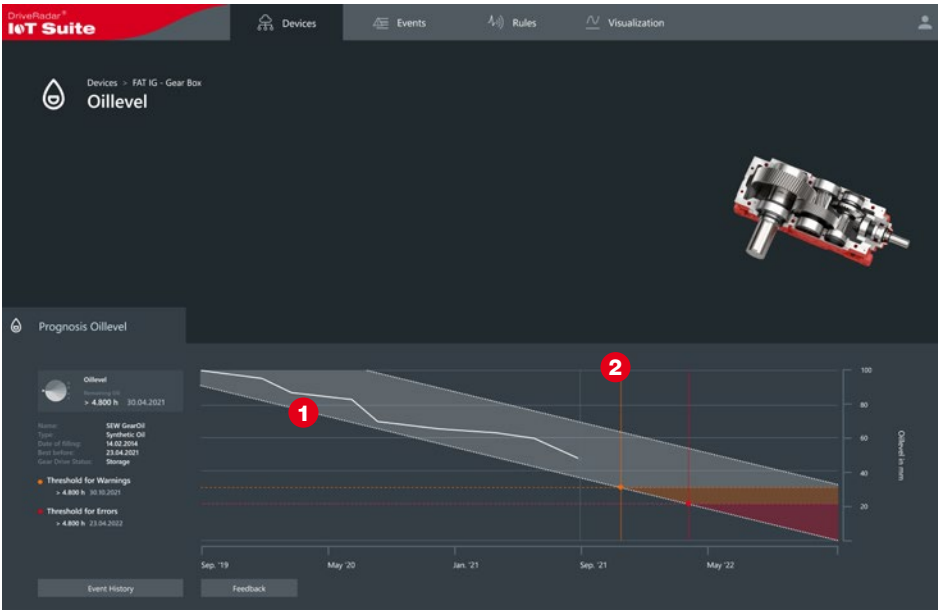
# Forecasts

Reliable predictions in uncertain times

SEW-EURODRIVE is the only gear unit manufacturer in the world that provides forecasts to enable you to react early to events – by planning maintenance or ordering spare parts, for example. In this way, you can significantly boost the availability and reliability of your system.

## Example: Oil level forecast

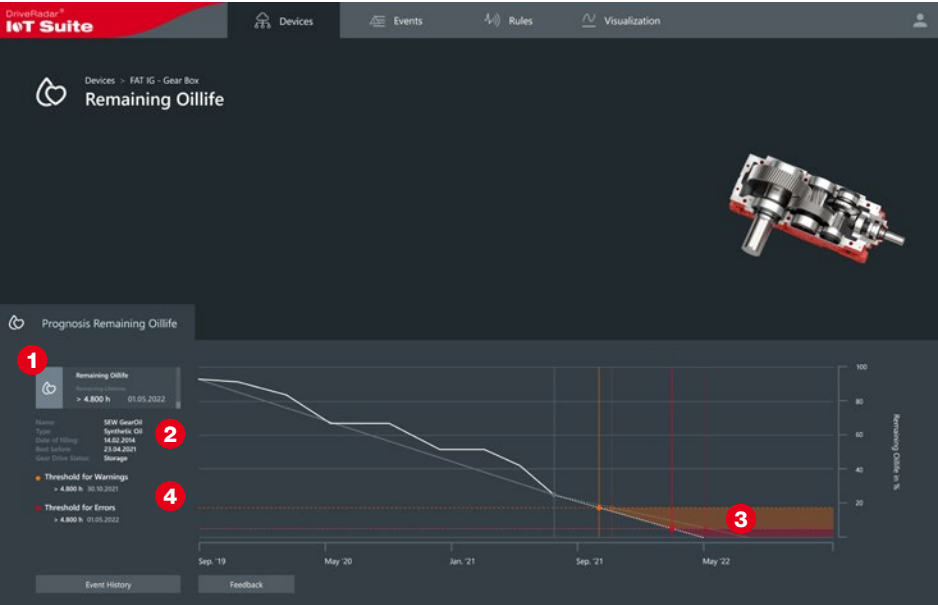
- 1 Operating points through clustering processes
- 2 Calculation that predicts when the permitted oil level lower limit will be reached



- Cutting-edge clustering algorithms for recognizing similarity structures and corresponding operating state analysis
- Additional influential factors such as input speed and oil temperature taken into account
- Self-learning system that gets better and better at recording the operating state as the database grows
- Precise calculation of the forecast through linear regression and extra-polation of the oil level

## Example: Remaining oil life and oil change forecast

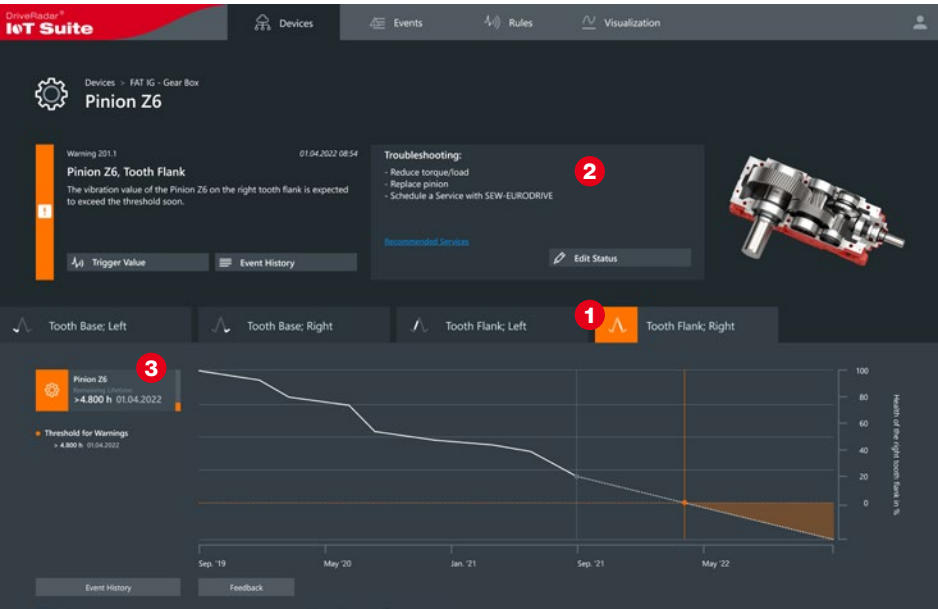
- 1 Remaining oil life display
- 2 Information about the gear oil and storage period
- 3 Calculated oil life end date area of the diagram
- 4 Display of the limit values stored in the system



- Display and monitoring of the remaining oil life, expressed both in hours and as a percentage
- Gear oil information taken into account
- Maximum oil storage period calculation
- Operationally relevant factors taken into account

## Example: Forecast for rolling bearings and gearing components

- 1 Distinction by foot or left or right edge using the example of gearing components. In the case of bearings, the distinction is made by inner ring, outer ring, and rolling elements.
- 2 Error message with recommendation for action
- 3 Display of remaining service life



- Service life is compared against the existing operating conditions during operation
- Analytical calculation model enables long-term forecasts for the respective components
- Optimum utilization of the component's service life through simultaneous monitoring by means of vibration analysis



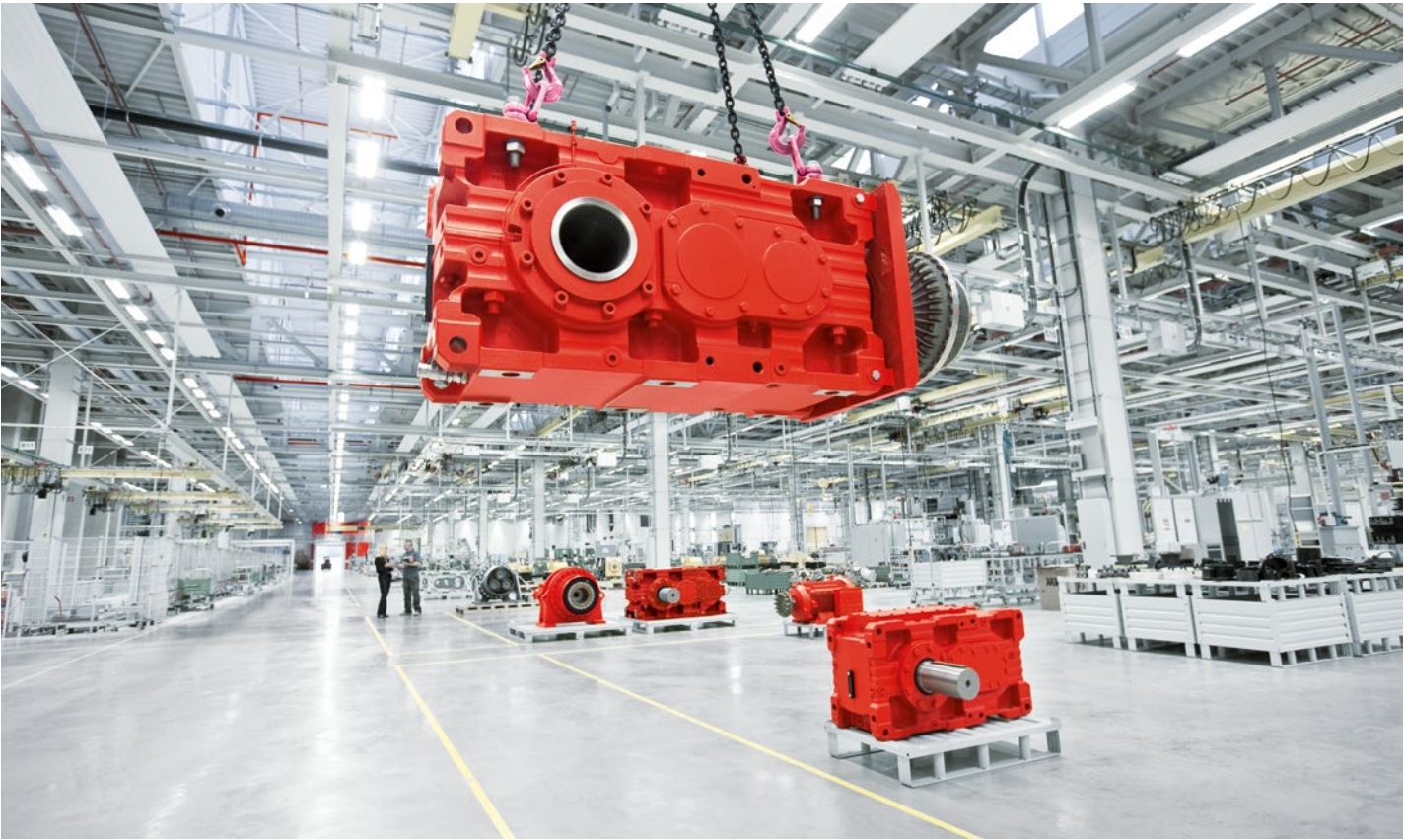
# Your optional warranty package

When you purchase an industrial gear unit from SEW-EURODRIVE, you are opting for superlative quality and reliability.

- **Enjoy peace of mind**  
Protect your industrial gear unit with a warranty lasting up to 48 months

→ **Plan maintenance**  
Avoid unanticipated repair costs
- **Enjoy the benefits of quality**  
GearOil by SEW-EURODRIVE lasts up to 50% longer

→ **Protect your investment**  
Preserve the value of your system



## Your +24 smart package

If your gear unit isn't taken into operation until after the statutory warranty has expired or if, for example, you want to have the ability to pass on a customer's warranty claim to the supplier, our new +24 warranty packages give you a further 24 months of warranty for the industrial gear unit. This provides you with a complete, hassle-free service.

The +24 smart extended warranty combines our tried-and-tested Generation X.e industrial gear units with the premium lubricant GearOil by SEW-EURODRIVE and the DriveRadar® IoT Suite – our innovative gear unit condition monitoring solution.

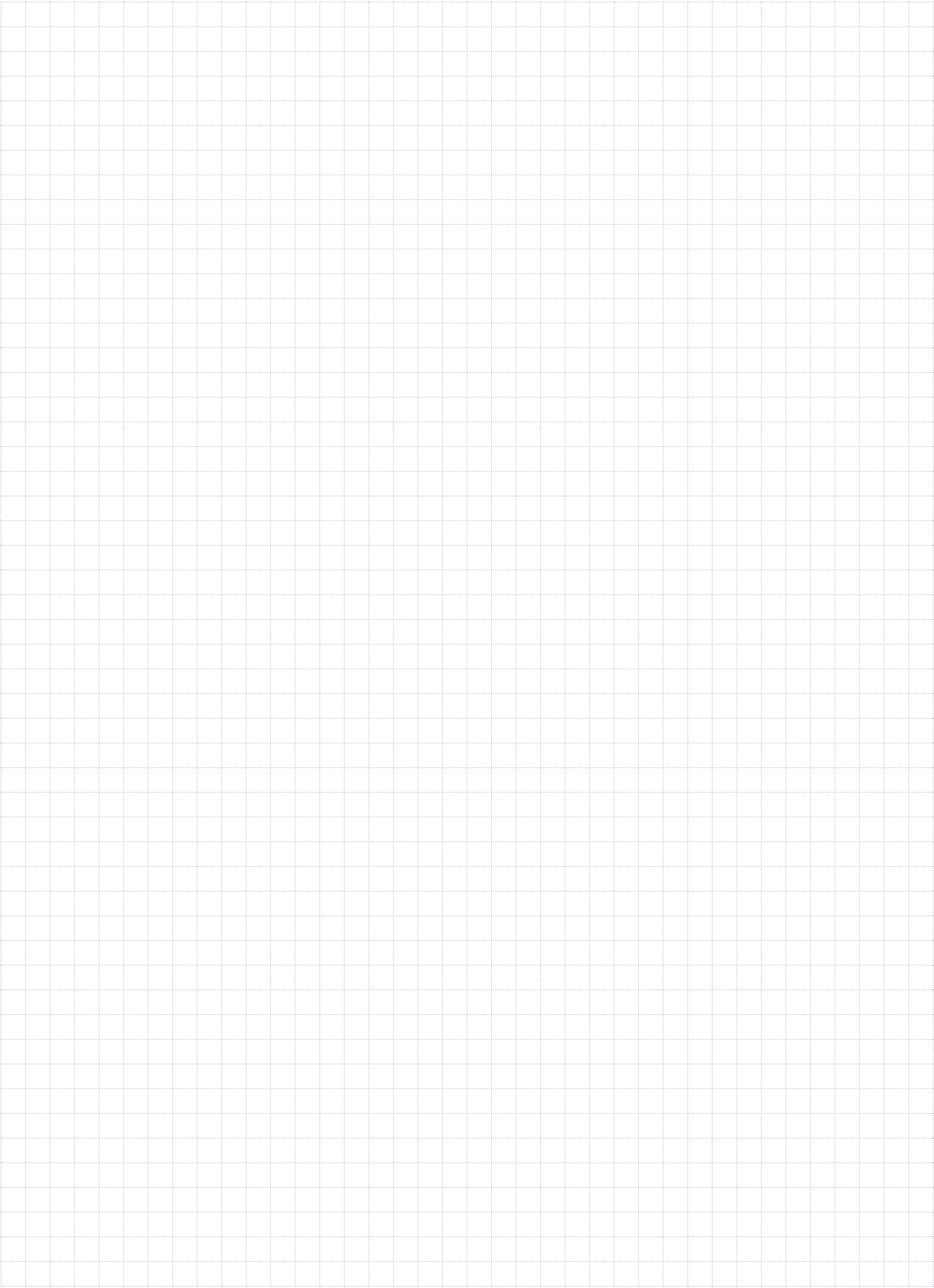
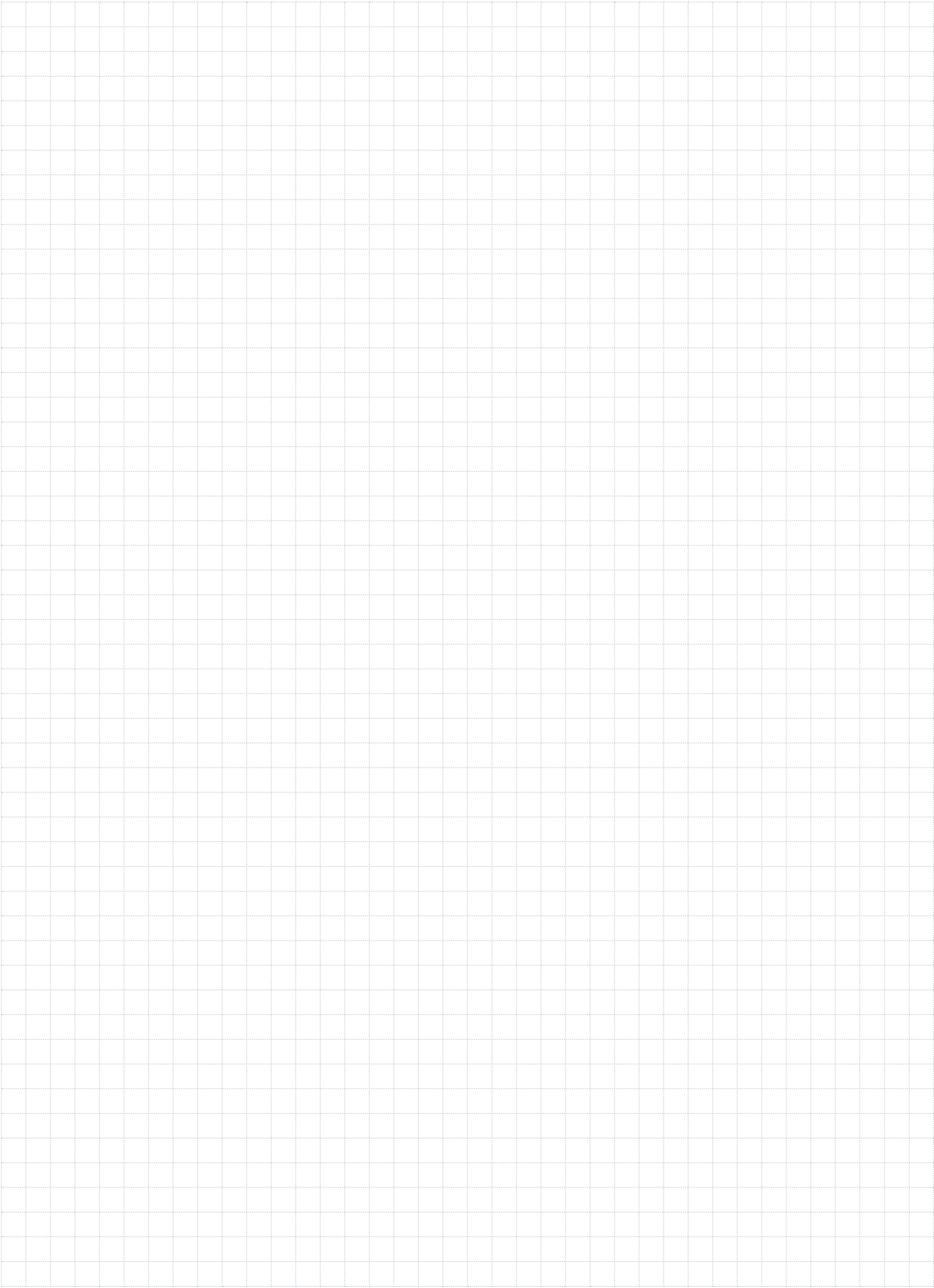
With this package, you benefit from an extra 24 months of warranty for your industrial gear unit free of charge – and that's not all. You will also save yourself the need for the first oil change after 500 operating hours and benefit from attractive discounts for both the oil fill ex works and the DriveRadar® hardware<sup>1)</sup>.

Once correct installation has been verified, the DriveRadar® IoT Suite will continuously monitor the condition of the gear unit.

<sup>1)</sup> Requirement outside Europe: A local SIM card must be supplied.



Find out more about our "extended warranty"





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Other topics that might be of interest to you

**Industrial gear units**

**Extended warranty for industrial gear units**

**Delivery time program – industrial gear units to go**

**GearOil by SEW-EURODRIVE and Grease by SEW-EURODRIVE**



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