

ZOLLERN

Solid metals. Fine solutions.

Drive Technology

ZOLLERN- Drive Guard

Condition
Monitoring
and Predictive
Maintenance



The ZOLLERN-Group

With first-class products and customized solutions in the sectors drive technology, investment casting, sand casting and forging as well as steel profiles we are one of the leading manufacturers – worldwide.

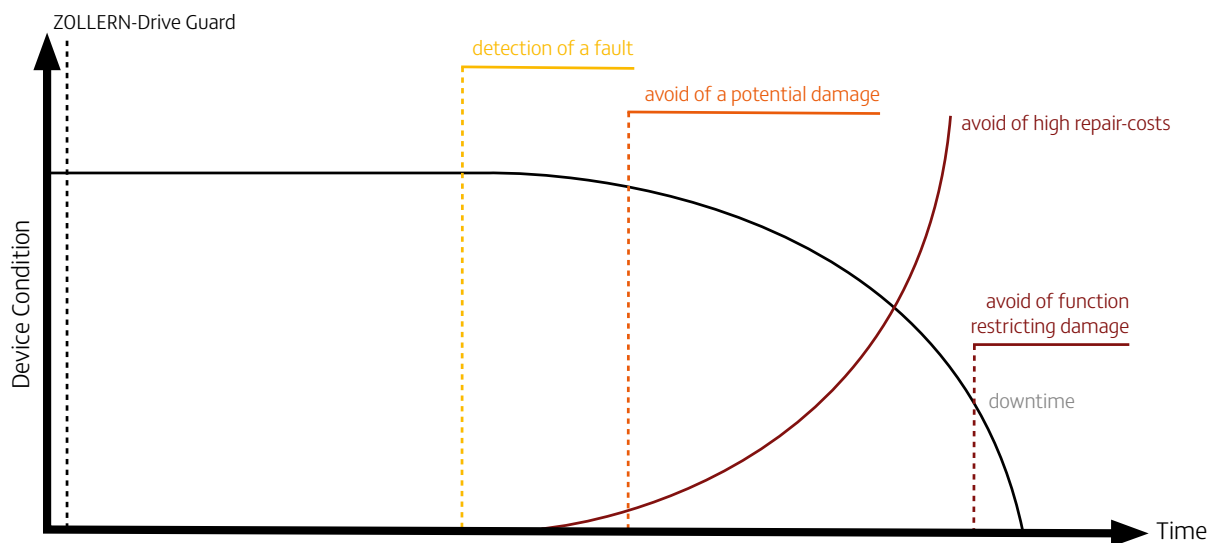
As one of the oldest family-run businesses in Germany we are proud to look back on an impressive 300-year history during which we have merged tradition with innovation. Our main focus is on excellent quality and service.

Welcome to the world of ZOLLERN, where experience and progress go hand in hand to offer our customers the best solutions and products for their requirements in various industrial sectors.

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ZOLLERN-Drive Guard

Condition monitoring and predictive maintenance



Based on the permanent data acquisition and automated condition monitoring by the ZOLLERN-Drive Guard, necessary maintenance and possible faults can be detected and responded at an early stage.

Automatically keep an eye on the condition of the system. At any time and in any place.

The ZOLLERN-Drive Guard enables the condition of ZOLLERN products to be monitored at any time from anywhere in the world. Data is recorded in real time. On this basis, necessary maintenance can be planned in advance and high system availability can be ensured. Downtimes and standstill times are reduced to a minimum and possible damage is detected early to avoid consequential damage.

The ZOLLERN-Drive Guard can be connected to:

- ZOLLERN gearboxes
- ZOLLERN winches
- ZOLLERN direct drives
- ZOLLERN hydrostatic bearing systems
- ZOLLERN rotary table systems
- ZOLLERN automation solutions



Features and advantages of the ZOLLERN-Drive Guard

Predictive Maintenance

- Early detection of damage, minimisation of consequential damage
- Reduction of unplanned downtimes and standstill times
- Data-based remaining service life calculation
- Maintenance and service recommendations based on actual data and accurate to the point in time

Monitoring and Support

- Consultation and support from ZOLLERN Service
- Data-based process optimisation possible in daily use

Condition Monitoring

- Monitoring and visualisation of condition data in real time

Cost Advantages

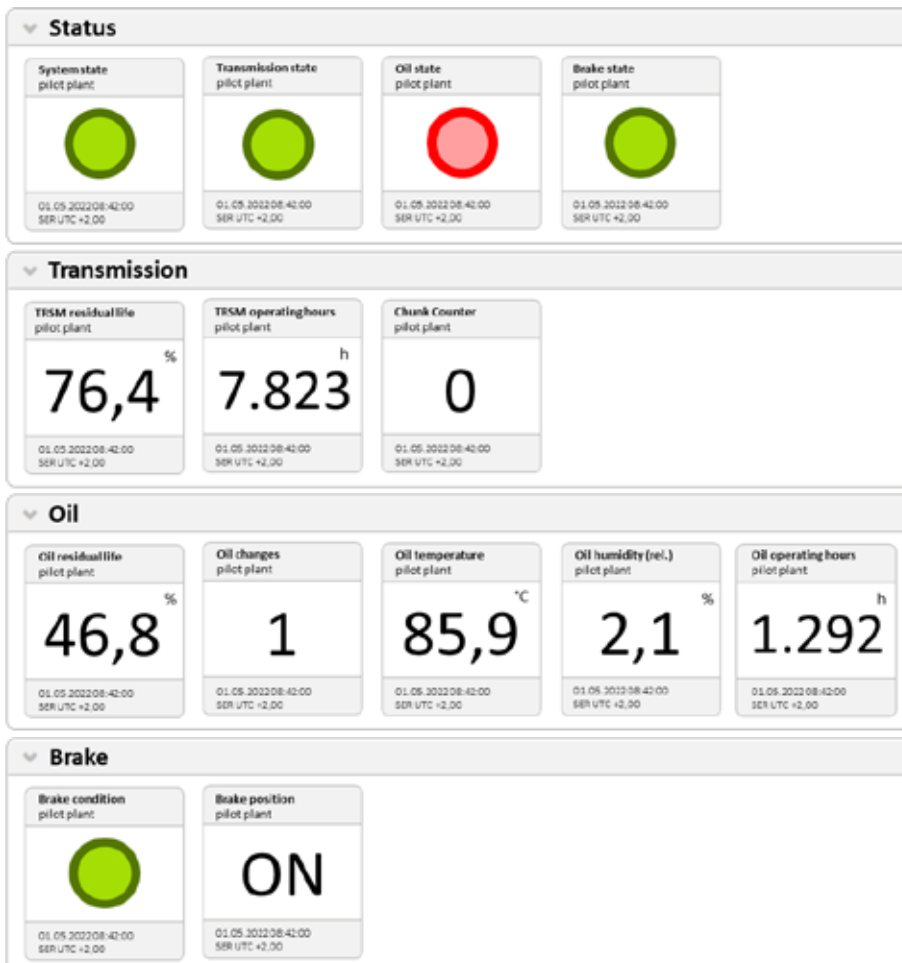
- Calculable and plannable maintenance costs - Total Costs of Ownership
- Minimisation of repair and additional costs
- Attractive package prices for wear and spare parts

Online portal of the ZOLLERN-Drive Guard

The cloud-based ZOLLERN-Drive Guard online portal enables location-independent monitoring of condition and operating data in real time. States and analysis results, such as the individually calculated remaining service life or a wide variety of sensor values, can be determined and displayed for different components of a system or machine. The cloud-based online portal

is always up to date and can be adapted to changing circumstances as quickly as possible.

Data security is ensured and is certified according to ISO/SAE 21434:2020.



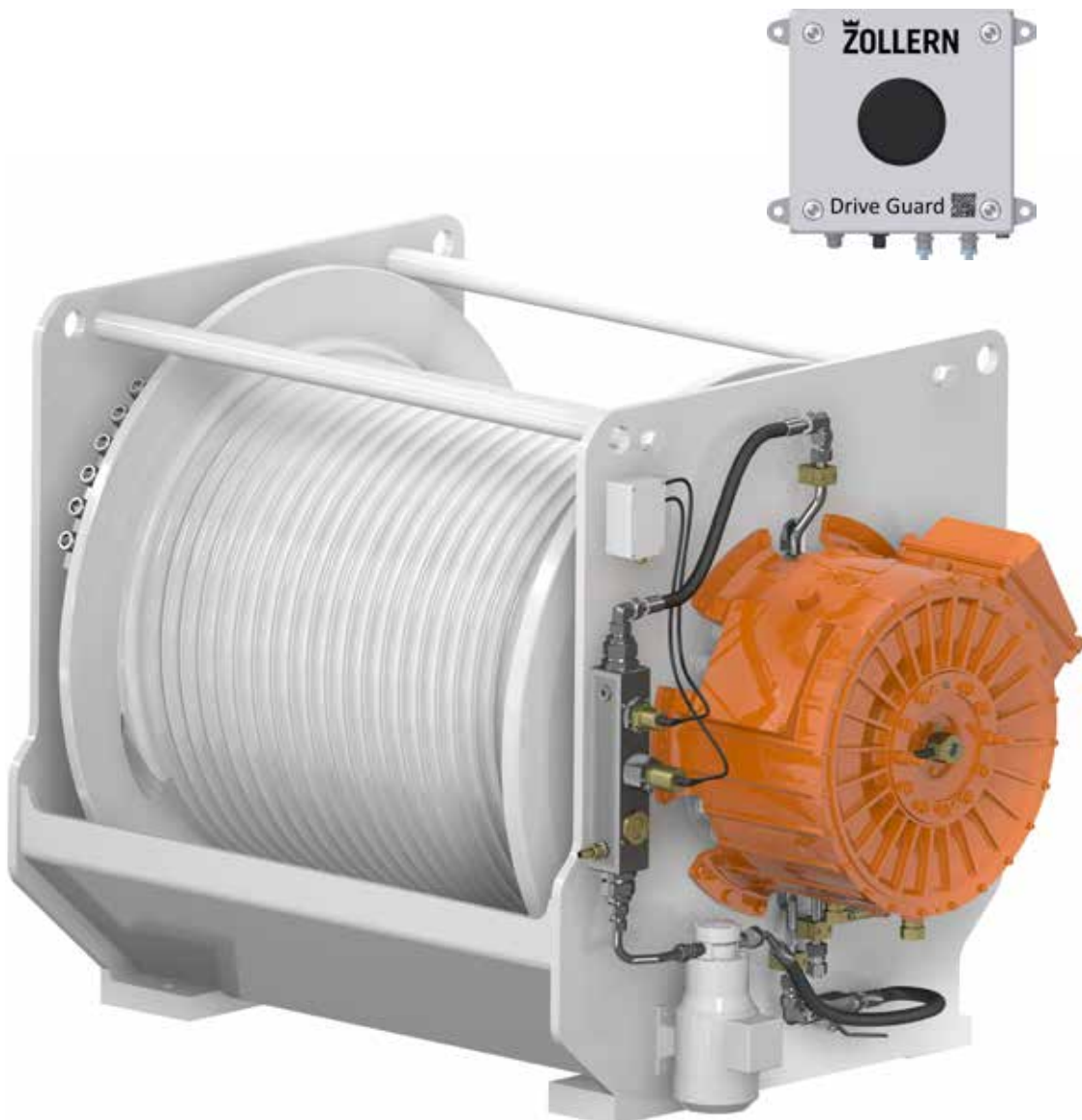
Status displays and real-time data visualisation in the ZOLLERN-Drive Guard online portal

Hardware of the ZOLLERN-Drive Guard

Through the customised and product-specific configuration of various sensors, device and status data can be generated and monitored as required. The computing unit developed by ZOLLERN offers a variety of interfaces for connecting different sensors and systems. The pre-processing of the information takes place within this computing unit. The data is then transmitted to the ZOLLERN-Drive Guard online portal. The machine and condition data can be retrieved and evaluated here.

Sensor configuration

- Operating hours counter (digital sensor)
- Oil temperature sensor
- Oil analysis sensor
- Ferromagnetic foreign particle counter
- Load data recording
- Displacement sensors (brake wear measurement)
- Vibration sensors
- More



Service Packages for the ZOLLERN-Drive Guard

The ZOLLERN-Drive Guard service packages optimally complement the advantages of the Drive Guard. The scope of services in the individual package levels can be adapted to individual requirements.

Contract terms

The contract period of a service package is at least 36 months.

In principle, the contract term should be based on the calculated maintenance schedule. This is determined individually for each customer and product.

This may result in different contract periods depending on the application.

Warranty extension

- Drive Guard Basic
No warranty extension
- Drive Guard Smart
Warranty extension: to 36 months
- Drive Guard Advanced
Warranty extension: to 48 months
- Drive Guard Professional
Warranty extension: to 60 months

// ZOLLERN-Drive Guard - Service Packages

	Service Level 1	Service Level 2	Service Level 3	Full maintenance
	Basic	Smart	Advanced	Professional
Access ZOLLERN-Drive Guard online portal	•	•	•	•
Automated service recommendations • Email • Short message (SMS)	•	•	•	•
Automated fault messages • Email • Short message (SMS)		•	•	•
Consultation and technical support	•	•	•	•
Monitoring and reporting by ZOLLERN Service • Proactive intervention by ZOLLERN Service			•	•
Condition reporting by ZOLLERN Service		•	•	•
Original spare and wear parts as part of the package				•
Pre-defined spare parts packages according to the maintenance plan as a package component				•
Inspection and service by ZOLLERN Service			• Based on service checklists by customer personnel	•
Warranty extension		• possible for up to 36 months	• possible for up to 48 months	• 60 months package component



Basic - Service Package 1 of the ZOLLERN-Drive Guard

ZOLLERN-Drive Guard Basic offers an introduction to condition monitoring and predictive maintenance of ZOLLERN products.

The sensor equipment in the Basic package is limited to

- Operating hour meter
- Oil temperature sensor

The main component of this service package is the automated specification of maintenance dates and service recommendations. These are created on the basis of customer-specific and product-specific maintenance plans, based on the service life calculation, the operating conditions and many years of experience.

Advantages:



Cloud-based data
visualisation



Consultation from
ZOLLERN Service



Automated service
recommendations

// Basic

ZOLLERN-Drive Guard online portal

Sensor equipment

- Operating hour meter
- Oil temperature sensor (optional)

Visualisation / monitoring of sensor data

Automated service recommendation

- via email
- via short message (SMS)

Consultation

- Technical support
- Spare parts / service, etc.

Smart - Service Package 2 of the ZOLLERN-Drive Guard

The ZOLLERN-Drive Guard Smart package is the entry-level package into targeted condition monitoring.

The multitude of possible sensor configurations allows optimal detection and analysis of the operating status. The recorded sensor and status data are clearly displayed in the ZOLLERN-Drive Guard online portal.

Automated fault reporting

Automated fault reporting by email or short message enables immediate fault and problem rectification. Downtimes and additional costs for service and maintenance are avoided or reduced to a minimum.

Advantages:



Fault reports



Unlimited sensor configuration



Possible warranty extension

// Smart

ZOLLERN-Drive Guard online portal

Individual sensor configuration

Visualisation / monitoring of sensor data

Automated service recommendation

- via e-mail
- via short message (SMS)

Consultation

- Technical support
- Spare parts / service, etc.

Automated fault reporting

Warranty extension

- possible for up to 36 months

Advanced - Service Package 3 of the ZOLLERN-Drive Guard

As an extension to ZOLLERN-Drive Guard Smart, the Advanced package offers monitoring by a ZOLLERN service engineer. Fault messages are sent to ZOLLERN and to the system operator. This enables fast and proactive intervention by ZOLLERN Service.

Furthermore, the system operator receives service checklists for the visual inspection of the system, which must be carried out at defined intervals in order to determine the overall condition of the equipment.

On request, condition and inspection reports can be requested at intervals to be defined, which provide the system operator with a clear and foresighted picture of the system's condition.

Advantages:



Proactive support through
ZOLLERN service



Service checklists
for inspection



Possible warranty extension

// Advanced

ZOLLERN-Drive Guard online portal

Individual sensor configuration

Monitoring and reporting by ZOLLERN

Automated service recommendation

- via e-mail
- via short message (SMS)

Consultation

- Technical support
- Spare parts / service, etc.

Automated fault reporting

Warranty extension

- possible for up to 48 months

Service checklists for inspection

Inspection report by ZOLLERN

Professional - Full maintenance of the ZOLLERN-Drive Guard

ZOLLERN-Drive Guard Professional is a full maintenance contract in conjunction with condition monitoring and predictive maintenance. As with the Advanced package, a ZOLLERN service engineer proactively handles fault reports, technical support and the implementation of maintenance cycles.

In addition, ZOLLERN-Drive Guard Professional includes all predefined spare parts packages according to the maintenance plan, which are replaced and exchanged at the exact time according to the condition data. All on-site services, such as the annual inspection or the replacement of spare parts, are carried out by ZOLLERN Service on site. Furthermore, the package includes all additional wear and spare parts required during the contract period.

ZOLLERN-Drive Guard Professional includes

- Automated order processing
- Service calls
- Wear and spare parts
- Spare parts packages according to the maintenance plan
- Replacement of wear and spare parts
- Repairs
- Inspections and reporting
- Planning of annual service visits by ZOLLERN Service

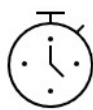
Advantages:



Services and spare parts included



Proactive support through ZOLLERN service



Precise maintenance



Warranty extension to 60 months

Full maintenance

// Professional

ZOLLERN-Drive Guard online portal

Individual sensor configuration

Monitoring and reporting by ZOLLERN

Service components

- Repair by ZOLLERN
- Service by ZOLLERN-Service
- Spare parts
- etc.

Automated fault reporting

Warranty extension

- 48 / 60 months package component

Inspection by ZOLLERN Service

Inspection report by ZOLLERN

ZOLLERN Group

Product areas

Metals and shaping

// Investment casting parts



- Turbine components
 - Vanes / Blades / Shrouds / Heat Shields
- Structural Castings
 - Gas Turbines / Aero / Engines Defense / Medical / Industrial Components
- Automotive
 - Turbine Wheels / Waste gates / Vanes / Pins / Planet carriers
- Implants
 - Knees (Femur, Tibia) / Hipps
- Alloys
 - Super alloys / Cobalt Chrome alloys

// Sand casting parts



- Sand casting
- Croningguss / Maskenguss
- Ceramic casting
- Continuous casting
- Centrifugal casting

// Forgings



- Forgings made of pure copper and copper alloys
- Semi-finished products, open die forged, flat bars, round bar
- Drop forged parts
- Rings, seamlessly rolled
- Bushings, seamlessly forged
- Individual pieces, small series, large series

// Special profiles and finished parts



- Special profiles, coils, bars
- Customer-specific finished parts
- Profile types hot-rolled, cold-rolled, cold-drawn, induction-hardened

Drive technology and automation

// Gearboxes



- Travel drives
- Slewing gearboxes
- Winch gearboxes
- Industrial gear units
- Gearboxes for tunnel boring machines
- Sugar mill gearboxes
- Electric drive systems
- Condition Monitoring and Predictive Maintenance

// Winches



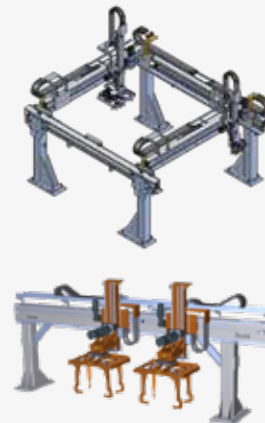
- Hoisting winches
- Free fall winches
- Pull winches
- Rescue boat winches
- Winch systems
- Winch gearboxes

// Electric motors



- Torque motors kits
- Synchronous motor kits
- Synchronous motor modules

// Automation, special systems



- Linear units, linear modules, gantry axes, portal units
- Telescoping axes
- Rotary modules, rotary tables
- Line gantries, area gantries
- Robot traverse axes, jig axes
- Storey lifter and lifting columns
- Fast conveyor
- Framing tenter handling / overhead systems
- Storage systems
- Complete systems with steel construction and control
- Special solutions
- Gripper

// Hydrostatic systems



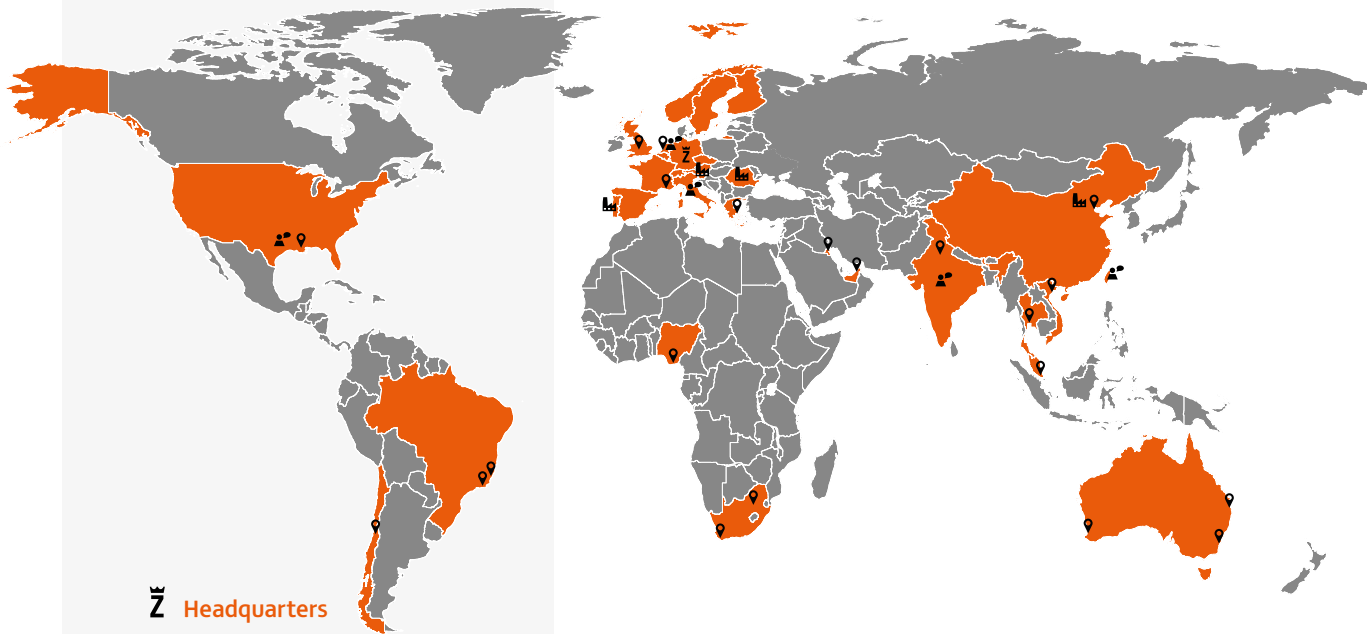
- Hydrostatic spindle units
- Hydrostatic rotary tables
- Aerostatic rotary tables
- Hydrostatic linear guides
- Hydrostatic center drive spindles
- Hydrostatic bearing components
- Hydrostatic special applications and test benches

// Rotary tables systems



- Roller bearing rotary tables
- Hydrostatic rotary tables
- Automatic pallet changing systems and linear axes
- Swiveling tables
- After sales service for products of ZOLLERN, Rückle and Eimeldingen

ZOLLERN



Headquarters

Subsidiaries

Italy and southern Europe
Netherlands and Northern Europe
USA
India and Southeast Asia
Taiwan, China

Factories

Germany
Portugal
Romania
Slovenia
China

Service partner

Australia
Brazil
Chile
Greece
Great Britain
Kuwait
Singapore
South Africa
Thailand
Dubai
USA
Vietnam



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