

TECBERG digital

MODULAR SOFTWARE PLATFORM AND SERVICES FOR THE
PROCESS AND PLANT OPTIMIZATION OF
SHAFT HOISTING TECHNOLOGY IN THE MINING INDUSTRY

SHAFT HOISTING 4.0

TECBERG

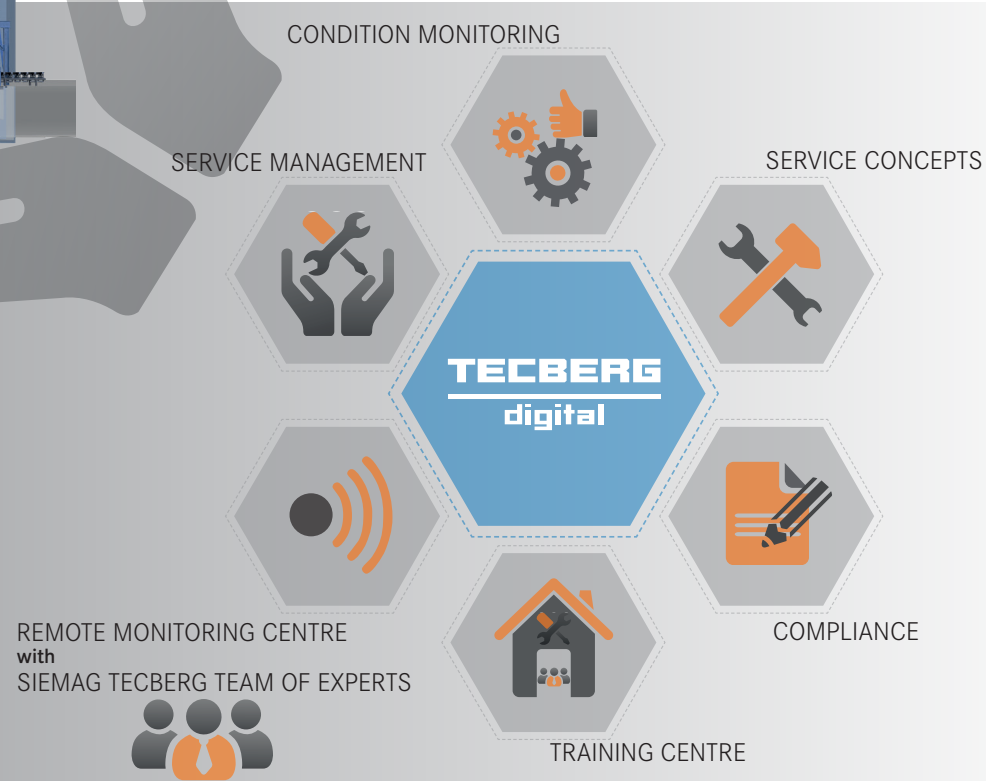
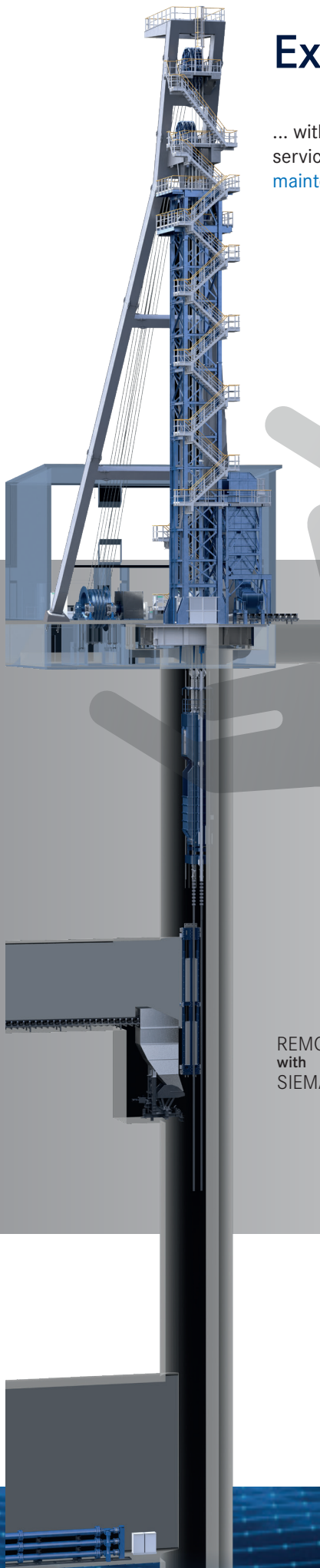
digital

WWW.TECBERG-DIGITAL.COM

Experience Shaft Hoisting 4.0

... with TECBERG digital. Our complete package of modular software platform and analysis services directly from experts optimally supports plant operators in **plant diagnosis** and **maintenance management**:

- Verifiable support for the operator in reducing maintenance costs and minimizing downtime and malfunctions. The online retrieval of defined key figures and reports shows trends at a glance and provides the transparency required for continuous company and cost optimisation.
- Current assessment of the condition of the plant at any time, taking into account the load factors acting on it. The detection of weak points enables the initiation of targeted measures to reduce technical malfunctions and thus increase the availability, reliability and safety of the plant.



The modular component matrix of TECBERG digital

- Maximum plant availability
- Maximum system performance
- Highest possible personal and plant safety

CONDITION MONITORING

TO AVOID DOWNTIMES, INFORMATION ON WEAR RESERVES AND EARLY DETECTION OF DAMAGE TO PLANT COMPONENTS ARE ELEMENTARY!

WITH „CONDITION MONITORING“ FROM TECBERG DIGITAL, YOU HAVE ALL THE RELEVANT DATA AT YOUR FINGERTIPS - ALWAYS UP-TO-DATE, ANYTIME AND ANYWHERE.



With the „Condition Monitoring“ module, TECBERG digital provides you with a **compact overview of the wear reserves and impending damage to plant components**. In addition to the sensor data, selected process data is also processed on site or transmitted to the SIEMAG TECBERG Monitoring Center via a secure VPN connection and subjected to database-driven and self-learning trend analysis.

If defined limit values are violated, an automatic alarm message is sent via e-mail or SMS to previously defined recipients in addition to the component-related desktop visualisation. In this way, maintenance work can be scheduled specifically for production-free periods and necessary resources can be scheduled early on.

■ The special:

In addition to visualisation, alarm messages and reporting, TECBERG digital offers automatic feedback to your service management. The system triggers concrete maintenance proposals with recommendations for action, which can be conveniently and efficiently integrated into maintenance planning in the Service Management module.

■ Data security:

Your data is transmitted via a secure VPN connection. The interfaces are protected by passwords and firewalls both on the system side and in the SIEMAG TECBERG Monitoring Center. Thus, your data is completely isolated from the public internet, access is only permitted to authorized personnel and is strictly monitored.



Advantages for you:

- Component-related trend analysis
- Alarm message via e-mail or SMS to specified recipients
- Transparency through online reporting
- Concrete recommendations for action
- Integrated service interface



SERVICE MANAGEMENT

EFFICIENT PLANNING, CONTROL AND MONITORING OF ALL MAINTENANCE MEASURES INCLUDING THE NECESSARY RESOURCES AS WELL AS REPORTING ON MAINTENANCE ACTIVITIES AND PLANT HISTORY.

The TECBERG digital service management software demonstrably **supports the plant operator in ensuring the availability of his plants, machines and tools and reducing maintenance costs.** Both maintenance-relevant components and recurring maintenance measures are stored in the system with clear master data sheets. Dynamic deadline monitoring provides timely information on upcoming maintenance activities and automatically takes into account planned times and resources.

Based on an individually adapted system matrix and work schedules, the service management software guides the user through inspections, maintenance and repair.

Using interfaces, inventories can also be compared directly with your ERP system and an order request automatically triggered when minimum inventories are reached. The integrated reporting tool creates a complete history and supports information on all maintenance measures with detailed logs. Extensive analyses provide clear information on costs, maintenance intensity and spare parts requirements.

ADVANTAGES FOR THE PLANT OPERATOR

- Increased security and availability or documentation
- Increased efficiency
- Integration of further systems
- Support of modern maintenance strategies (e.g. load-dependent, condition-oriented)
- Documentation of all service activities and asset management decisions
- Visibility and evaluation of the correlations between plant history, loads and costs

ADVANTAGES FOR PLANT SERVICE

- Evaluation and improvement of the economic efficiency of the service strategy
- Faster troubleshooting and fault detection in the event of a fault
- Optimal use of resources
- Continuous refinement of maintenance and servicing strategies
- Development of a knowledge database about the plant
- Optimum spare parts inventory due to precise consumption statistics

OFFICIAL REGULATIONS AND LAWS, PLANT MANUFACTURERS AS WELL AS THE OPERATOR'S OWN IN-HOUSE DOCUMENTATION

PROVIDE **COMPLETE DOCUMENTATION** OF ALL MAINTENANCE ACTIVITIES. BY THE SOFTWARE-SUPPORTED CREATION OF FORMS FOR CHECKLISTS AND REPORTS AS WELL AS THE LATER FILLING OUT BY MEANS OF TABLET (ONLINE OR OFFLINE) THE ADMINISTRATIVE EFFORT IS CONSIDERABLY REDUCED.

Safety for man and machine has always been a top priority in mining. Safety regulations and their observance are therefore regulated, monitored and enforced by governments or organisations. Companies in all industries must comply with the safety regulations that are relevant to them. Increased awareness of the environment, health and safety, and the understanding of their relationship to cost reduction and reporting, has led many companies to develop clearly defined safety programmes, with maintenance playing an important role in their implementation.

COMPLIANCE



Checklists

- Road-map“ for service technicians
- Basis for the proof of implementation of the prescribed maintenance activities
- Meaningful inspection findings (drop-down evaluation list, individual selection of typical findings)
- Can be retrieved and edited with tablet (also offline), synchronization via WLAN interface

Reports

- Extensively generated from checklists, editable
- Verification of actually used times and materials (easy to evaluate thanks to structured recording and export in .xls format)

Documentation

- Proof for the operating log
- Seamless traceability

Accelerated administration

- Scanning of the completed documents or transfer of the manual entries according to the checklist to the EDP system is not required. Great time saving compared to conventional working methods.

Know-how Sharing

- In the interest of operators & SIEMAG TECBERG. Service information is an important basis for the further development of products, services, documentation, process descriptions and service concepts.

- Traceability of the entire maintenance process thanks to a history secured by the system
- Structurally documented inspection, maintenance and repair activities enable precise and component-specific evaluation
- Digital maintenance book



MAXIMIZING PRODUCTIVITY WHILE
INCREASING SAFETY - THIS IS THE

SERVICE CONCEPTS

MOST IMPORTANT EXPECTATION OF A MAINTENANCE CONCEPT. THE KEY TO SUCCESS IS THEREFORE TO MAINTAIN A HIGH LEVEL OF OPERATIONAL EFFICIENCY AND MATERIAL HANDLING CAPACITY WHILE REDUCING THE POTENTIAL HAZARDS TO WORKERS AND EQUIPMENT.

SIEMAG TECBERG offers maintenance concepts individually adapted to the respective plant in order to provide you with optimum and verifiable support in the maintenance of your plants and the reduction of costs. In addition to tools, operating materials and spare parts, SIEMAG TECBERG also provides the specialist personnel required for project implementation. Through the qualified deployment of our experienced service staff, we guarantee an efficient, safe and fast execution of your elementary plant maintenance. Let your staff participate and benefit from the knowledge of our experts. The service concepts cover the following assemblies and processes:



- Brakes and hydraulics
- Sliding and rolling bearings
- Cable sheaves, cable lining, traction sheave lining
- Ropes
- Rope handling, rope handling equipment
- Rope harnesses and rope load measuring devices
- Mobile shaft winches
- Annual inspections
- Individual concepts

- High productivity due to fast and safe maintenance
- Individual adaptation of standardized maintenance processes
- Holistic consideration of official specifications, manufacturer regulations and in-house regulations
- Long-term planning of personnel and material costs and reduction of downtimes
- Uniform document basis: standardised checklists and reports make it easier for you to comply with official documents

TECBERG digital supplements the classic use of effective and proven procedures for the maintenance of complex plants with smart service management software and self-learning condition monitoring..

TRAINING CENTRE „COLD OAK“

A DECISIVE ASPECT FOR THE EFFICIENT START AND FURTHER OPERATION OF NEW CONVEYOR SYSTEMS IS THE **EARLY TRAINING OF PERSONNEL** IN THE OPERATING AREA, SERVICES AND MAINTENANCE.



In 2011, the company's own training and education centre with a worldwide unique hoisting machine simulator was opened on the premises of SIEMAG TECBERG Headquarters (TECBERG park).

The „COLD OAK“ technical centre is an innovative training and education centre integrated into the winding tower, which is visible from afar, and has a simulator for controlling a winding machine that is unique in the world. With these state-of-the-art test and training opportunities, we offer our customers for example training and education of hoisting machine operators, maintenance and service personnel.



In an inspiring atmosphere, your employees will learn how to fully master all essential operational plant conditions for the safe and effective operation of your hoisting systems via widely optimized Human-Machine Interfaces (HMI). Not only all standard machine operations can be practiced under virtually real conditions, but also more specific procedures such as restarting the hoisting technology after a standstill.

In this way, we create together the prerequisites for smooth commissioning and trouble-free operation of our hoisting systems at a later date.

- Comprehensive training and instruction of your employees already before commissioning
- Maximum plant operation on site directly from the start of your hoisting system on the basis of safety integrity level 3 of the plant control system
- Safe and efficient conveying operation based on advanced human-machine interfaces
- Efficient use of maintenance personnel
- Complete and clear training material / documentation



REMOTE MONITORING CENTRE

THE ADVANCING DIGITISATION OF PLANTS WITH SENSOR TECHNOLOGY ALLOWS AN EXPERT EVALUATION OF ESSENTIAL KEY FIGURES OF YOUR PRODUCTION PLANTS ON THE BASIS OF A COMPREHENSIVE DATA ANALYSIS. THE RESULT IS A QUARTERLY REPORT WRITTEN BY SPECIALISTS WITH THE MOST EXTENSIVE OPERATIONAL EXPERIENCE, WITH INDICATIONS OF POTENTIAL IMPROVEMENTS AND CONCRETE RECOMMENDATIONS FOR ACTION FOR YOUR MAINTENANCE STRATEGIES.

SIEMAG TECBERG offers [expert evaluation that goes beyond automated data analysis](#) as part of a Remote Monitoring Centre at the German headquarters in Haiger. The data transmitted to SIEMAG TECBERG via VPN connections and firewalls on the process and status of the production facilities are additionally analysed and evaluated quarterly by our experts - in-house or, if required, by subcontractors. Together with the automatically generated evaluations, you as the operator receive a quarterly report which shows improvement potentials with regard to the maintenance strategies as well as further recommendations for action.

As part of the Remote Monitoring Centre, SIEMAG TECBERG offers, in addition to data analysis to clarify „acute“ queries, various models of a service hotline with different reachabilities (on weekdays, weekdays and weekends, 24/7 around the clock).

As an extension of this service hotline, it is possible to set up real-time online access via secure VPN tunnels directly to the plant control system of the production plants if required. This allows our experts to directly diagnose your plant control system from the company's headquarters as part of our [Remote Live Diagnostics](#) model - right up to real interventions and suggestions, for example for solving any process faults that may have occurred.



Your advantages:

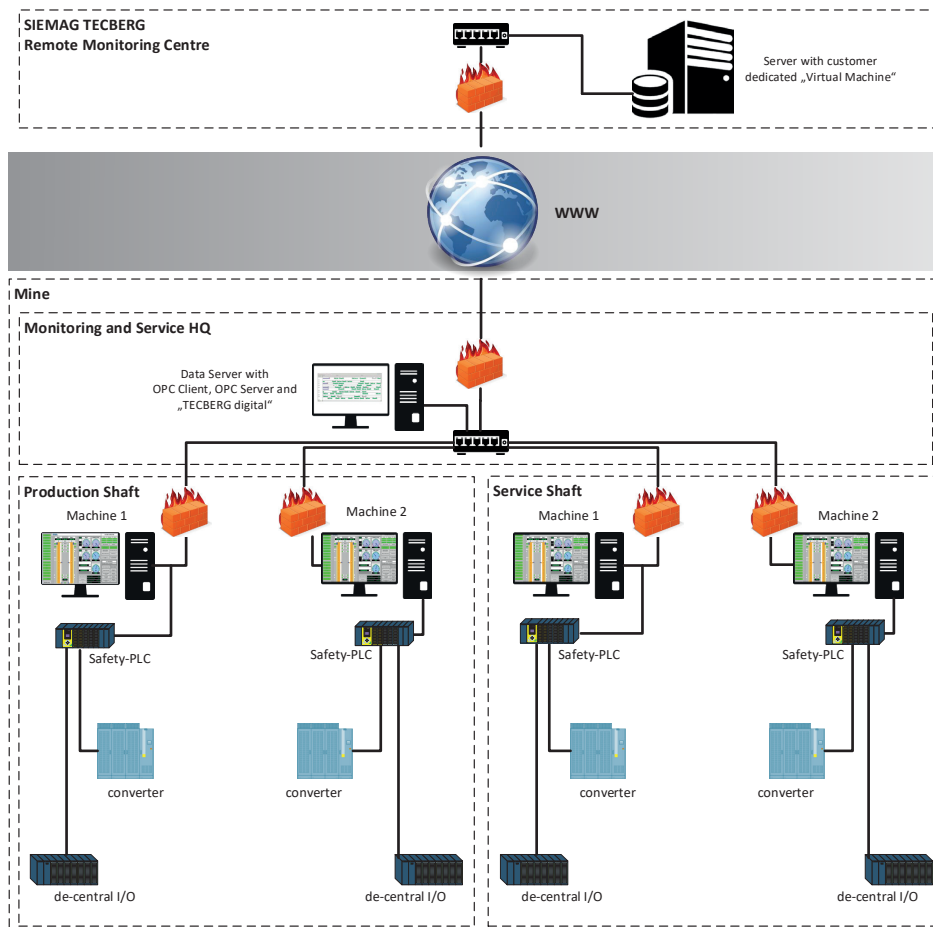
- Expertise directly from the „source“ (engineers, designers, project managers)
- Data-supported process and status analysis for your maintenance offers real and precise optimization directly from experts - if required even in real time
- Service hotline for a comprehensive all-round service up to the permanent availability of contact persons in our company

24/7



MAXIMUM DATA SECURITY

TECBERG digital uses the latest, most secure and advanced IT technologies to protect your data. Closed and encrypted data connections (VPN) and port-regulating firewalls, virtual machines decoupled and encapsulated from the rest of the Internet with their own system environment only for your customer data on our servers, as well as 2-factor authentication for the access of authorized specialists on our site offer you the greatest possible protection of your data.





WE'VE AROUSED YOUR INTEREST?

The SIEMAG TECBERG product expert will be happy to assist you:

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