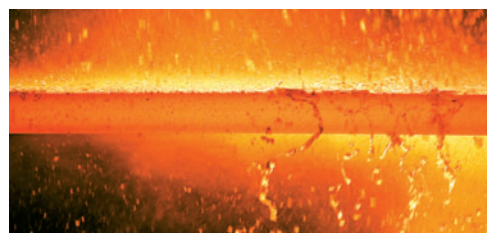
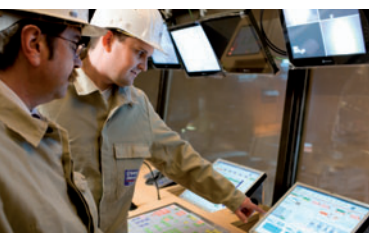
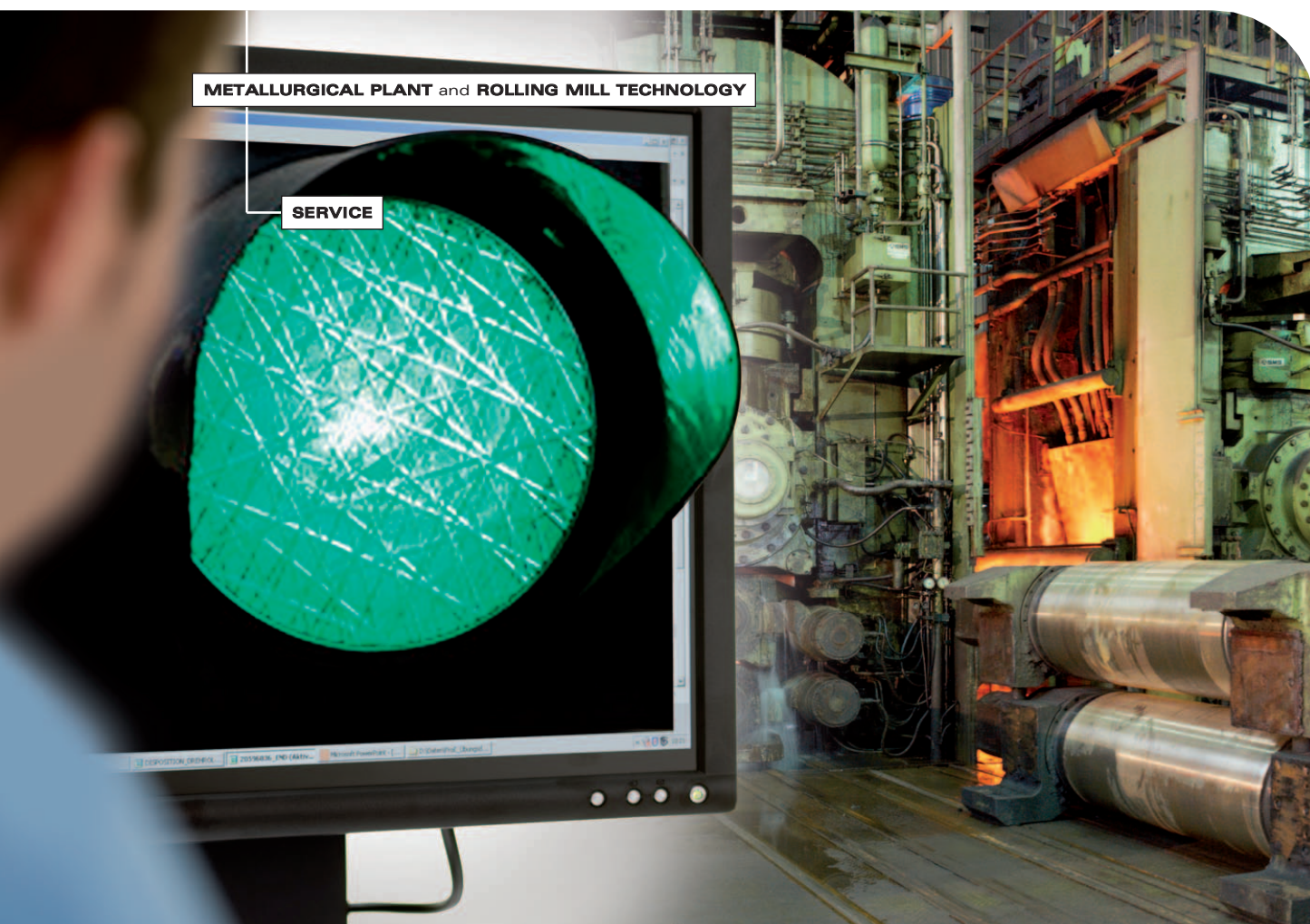


GENIUS CONDITION MONITORING SYSTEM – early warning against downtimes



DETECTING defects EARLY - AVOIDING DOWNTIMES

Ideal for these tasks is our **Genius Condition Monitoring (CM)** – a modular online monitoring system geared to your plant. It examines and documents the current condition of plant parts at risk of malfunctioning and wear.

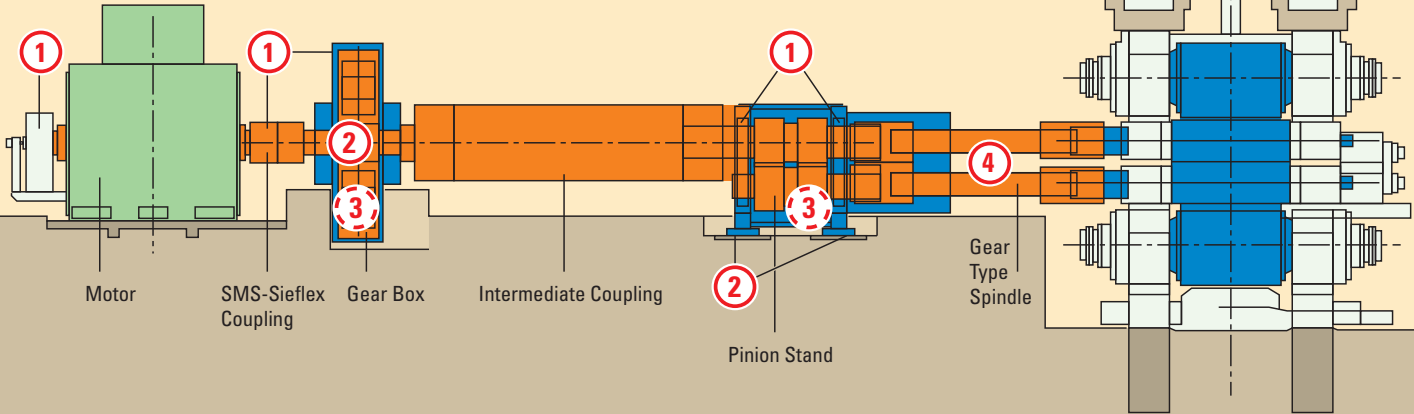
Imagine the benefit over conventional inspection and maintenance methods: ongoing monitoring of your plant components. You are constantly in the picture about current conditions and warned of critical situations as they happen.

That's how **Genius CM** opens up a whole new dimension of quality optimization and plant availability.



Genius CM torque measurement with the Torque Analysis System (TAS)

- ① **Gear Defects**
Diagnostic Vibration Analysis
- ② **Bearing Defects**
Temperature Monitoring
- ③ **Gear Lubrication Defects**
Lubrication Monitoring
- ④ **Torsional Vibration, Torque**
TAS Torque Analysis System
- ⑤ **Roll Stand Vibration**
MiDaS Mill Diagnosis System



Genius CM Drive Module monitors the entire chain of drive strand components

How GENIUS CM WORKS

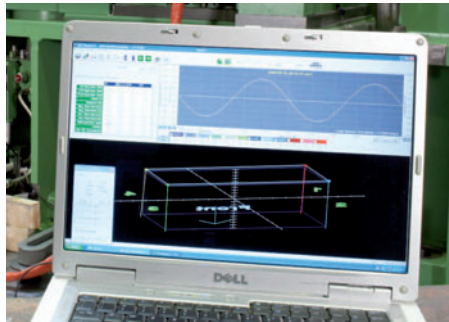
VITAL PLANT FUNCTIONS ALWAYS UNDER CONTROL

To put the system in place, we install sensors on all neuralgic plant parts. These sensors constantly communicate data to **Genius CM**, including:

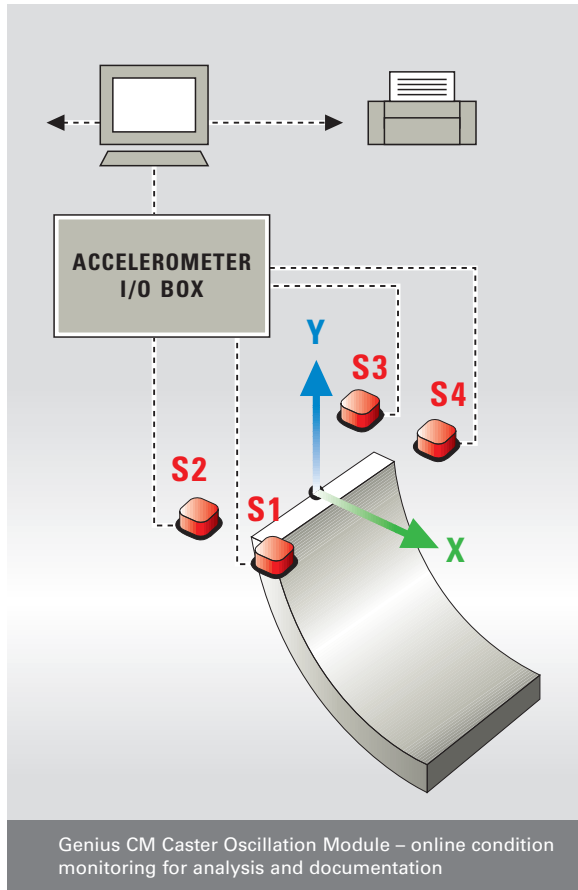
- Torque
- Vibration
- Temperature
- Power
- Oil flow, particles and viscosity
- Motion
- Wear

What if a measured value exceeds the tolerances entered in **Genius CM**? The system automatically transmits an alarm. That prevents serious damage due to overloading, and incalculable consequent damage, before it happens.

How? **Genius CM** evaluates the sensor signals on the basis of process status. It even recognizes more than 350 process signals in some plants. Normal iba hardware integrates the solution into your automation system.



Genius CM Oscillation Module



Genius CM Caster Oscillation Module – online condition monitoring for analysis and documentation

SMS Siemag Genius Condition Monitoring System

- Connection of equipment condition together with process data for in depth online analysis
- Data evaluation based on OEM design data
- Online analysis with > 350 process signals
- Ring buffer to capture failure footprint

A Monitoring System designed from metallurgical experts for metallurgical experts

IMPROVING PLANT MAINTENANCE AND UTILIZATION

Genius CM records the process data from your plant. What you get here is chronological information that is combined with the measured data for an analysis of the actual equipment condition. That produces a process-related cause-and-effect evaluation.

Furthermore, it is possible to generate collective load figures of the spindle or other components. Applying this data, our system precisely calculates the fatigue load on components so you can plan effective maintenance intervals.

Yet that's not all. The **Genius CM** analysis tools help you optimize roll pass schedules so you successively increase plant utilization. All this without overloading critical parts or risking defects.

A MODULAR PLATFORM

Modular in structure, **Genius CM** can be customized exactly to your requirements. Plus there are intelligent field units that ensure online data collection and processing on your site. That makes the system scalable and easy to expand whenever you want.

Genius CM is designed to monitor a large number of critical or high-risk components simultaneously.

The drawback of conventional condition monitoring systems is their stand-alone character. Many are impossible to integrate into whole-plant monitoring, or only at considerable outlay. Contrast this with **Genius CM** that monitors entire plants and process lines.

This system from SMS Siemag breaks the mold with its fundamental capability for integration. You can add individual modules – at any time – to extend or adapt the platform.

Genius CM is ideal for:

- Drive components
- Casters/Oscillation
- Vibrations (e.g. humming)
- Hydraulics/gear lubrication
- Morgoil® bearings
- Converters

The ENTIRE SPECTRUM of SMS SIEMAG KNOW-HOW

FROM PLANT EXPERTS FOR PLANT EXPERTS

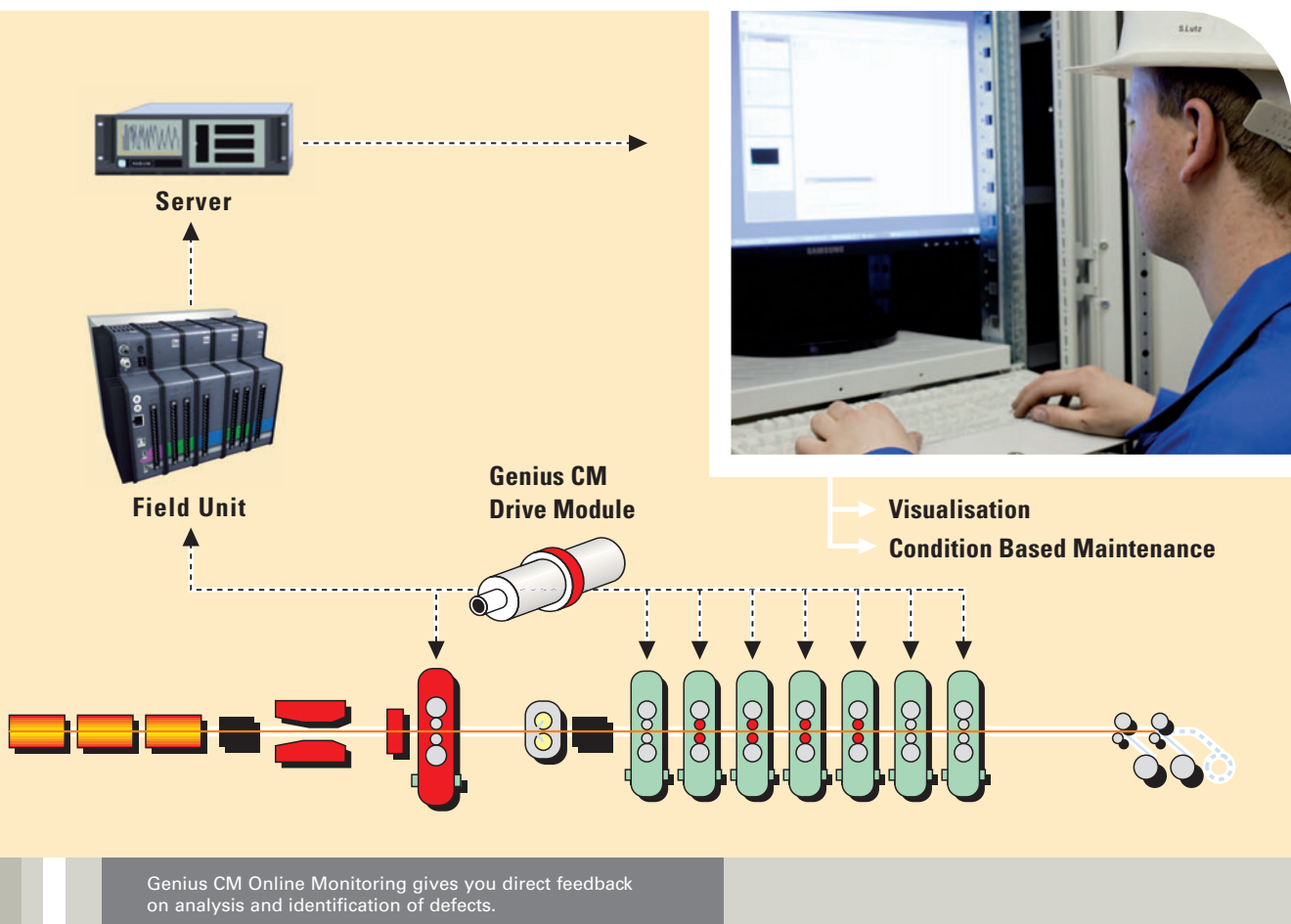
Here, in this online monitoring system, is all the expertise that SMS Siemag brings to bear as a plant manufacturer.

Genius CM operates in synch with the automation and control systems of your plant. That means, for analysis, fault diagnosis and evaluation of alarm events, **Genius CM** uses stored models as well as the signal data collected. This data is evaluated for

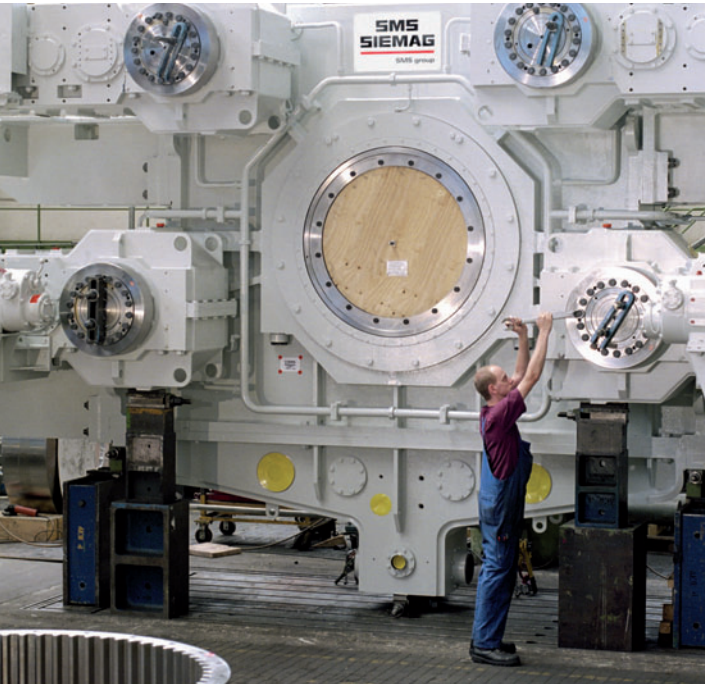
trend analyses. As soon as defects arise, **Genius CM** supplies the required support tailored to the web software you use in your entire enterprise network at the personal work places.

Moreover, the system gives you the option of heuristic methods of fault analysis. And you can call on an optional teleservice for direct support from our specialists in:

- Preventive diagnosis
- Defect identification/-interpretation
- Troubleshooting

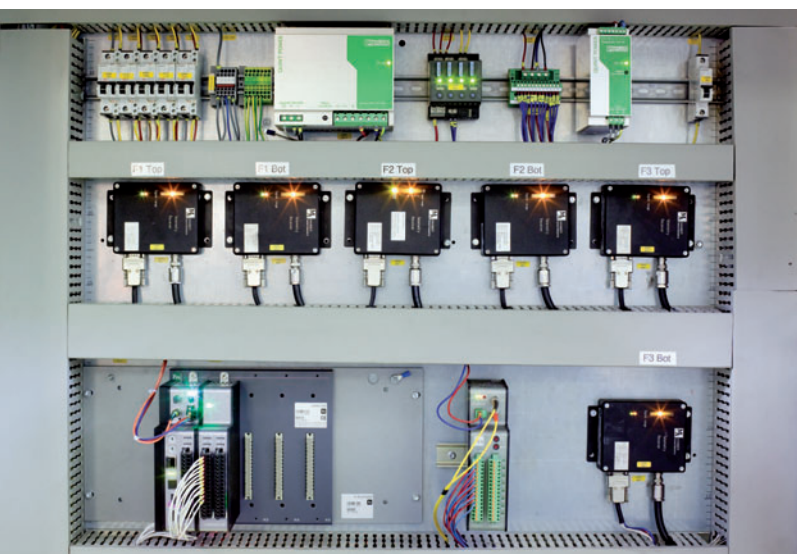
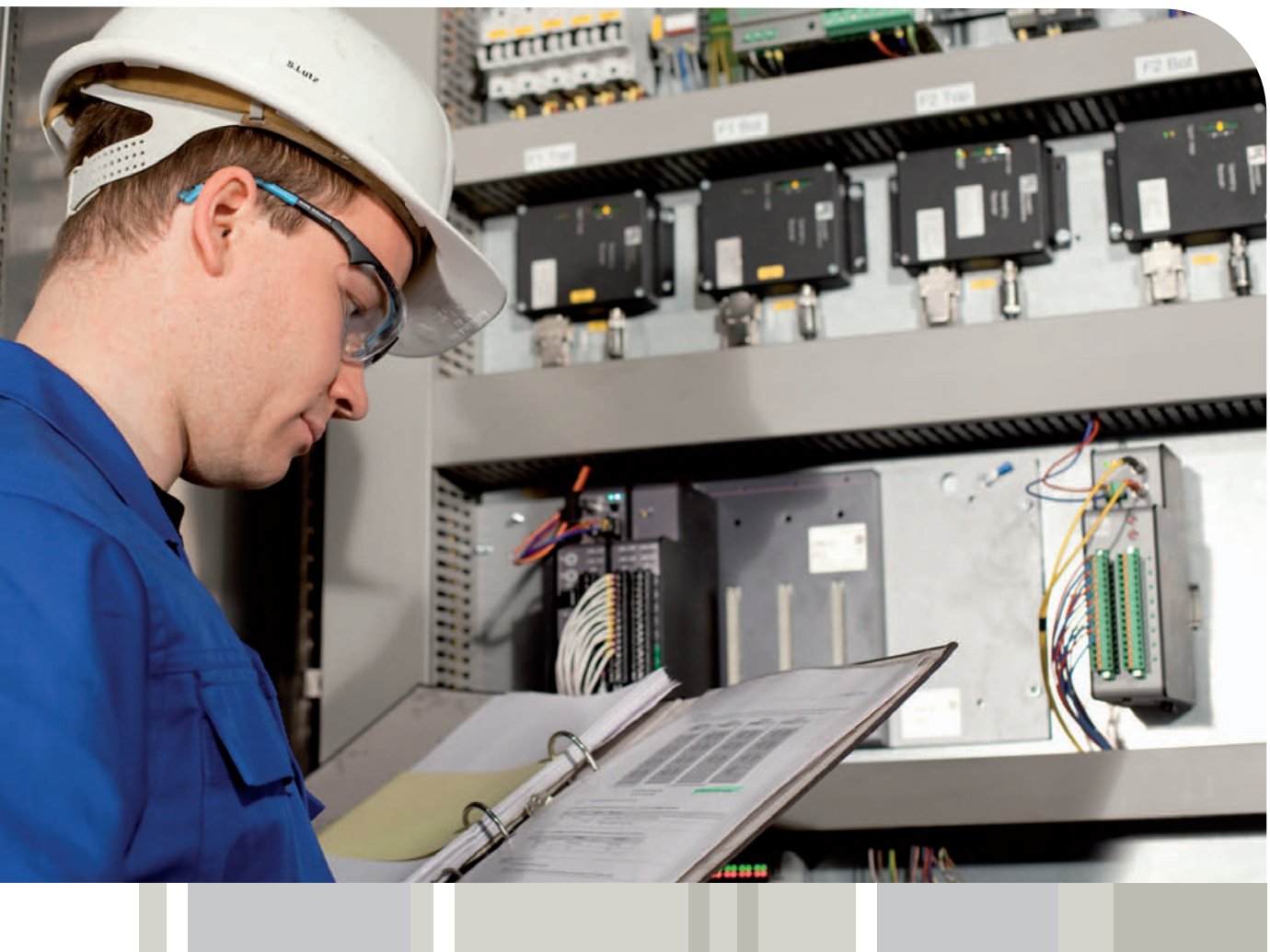


The **BENEFITS** of **GENIUS CM** at **A GLANCE**



- No downtimes and follow-up damage to key drive components, e.g. spindles
- High plant efficiency
- Reduction of downtimes due to fast diagnosis und remote maintenance service
- Utilization of the full component service life, therefore lower operating and maintenance costs
- Increase/guarantee of product quality with special process optimization tools
- Cost savings from elimination of unnecessary or over-frequent maintenance
- Improvement in general reliability, with the prospect of lower insurance premiums







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MEETING your **EXPECTATIONS**