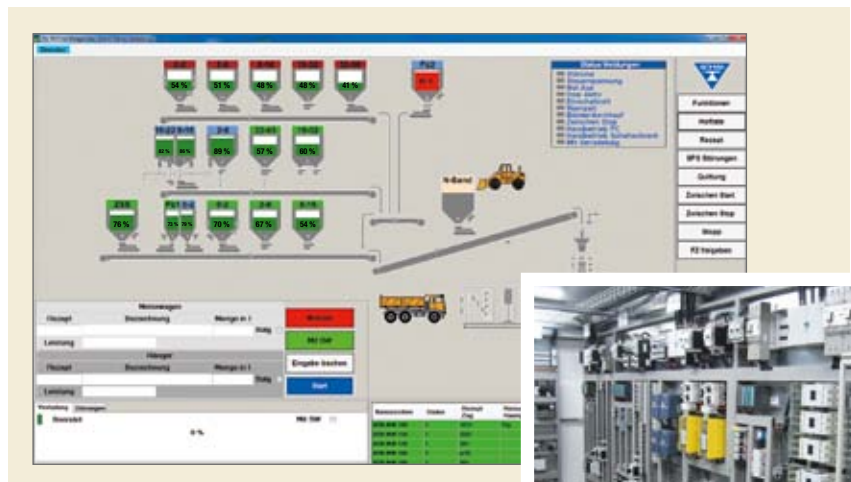




## WOHWA Blending and Loadout System PCS35 for the bulk materials industry

### Features/Benefits

- Investment security
- Accuracy and precision
- Reliability
- One system, one point of contact
- Spare parts provisioning security
- Service guaranteed
- Easy to operate
- Over 50 years of experience





## Investment security with WOHWA blending and loadout systems

For more than 50 years now, WOHWA has been a leading specialist in planning, designing, manufacturing and programming gravimetric and volumetric blending and loadout systems. Thanks to its mature and highly specialized technology and long experience, WOHWA can provide all core components of a volumetric and gravimetric blending and loadout system, such as process visualization, control cabinets, weighing and feeding devices, mixing and loadout devices. There is a one-point contact for accuracy

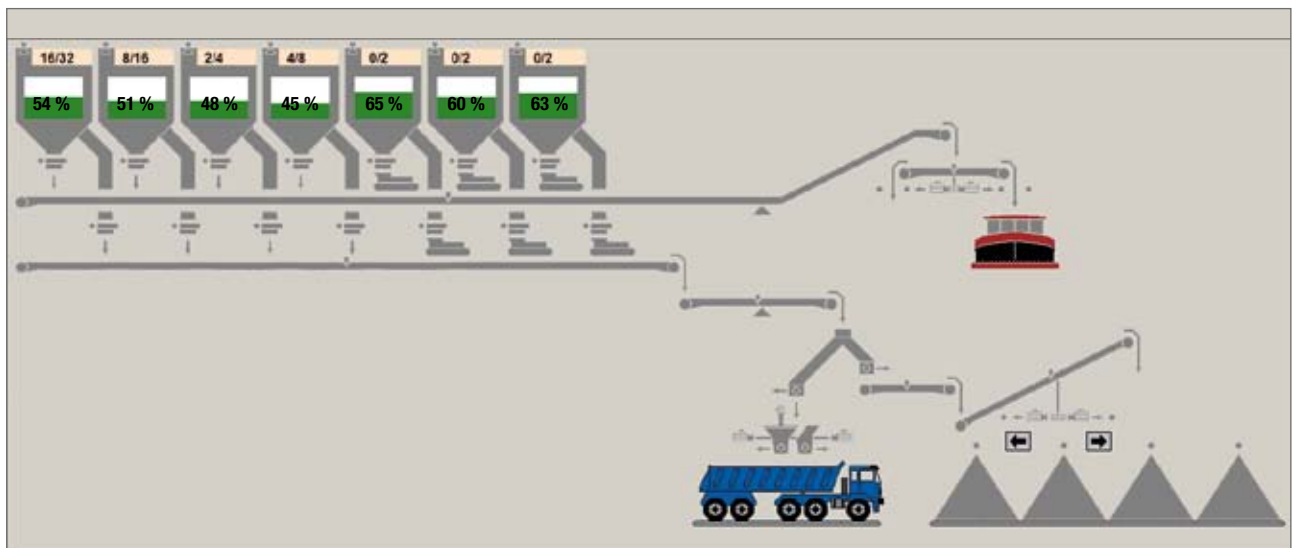
and precision in blending and loadout, and that's WOHWA!

Worldwide, high-grade WOHWA blending and loadout systems PCS 35 control more than 2500 blending and loadout plants for trucks, railcars, ships, and the fully automatic feeding of asphalt and concrete mixing plants. A highly reliable Project and Quality Management System (certified as per DIN ISO 9001) guarantees the professional, reliable and timely project commissioning.

Fast and long-term spare parts provisioning as well as the availability of service engineers provide investment security for all WOHWA customers. To guarantee this, a highly qualified team of engineers develops, programs, updates and maintains in-house the entire software for PLCs (Programmable Logic Controllers) and PCs, with the special requirements of the bulk materials industry in mind. All control system components are selected with a view to obtaining the best solution for each customer.



ORCA ship loading facility, Canada



Flow Sheet for Blending and Loadout System PCS35



Loadout to railcars at a coal-fired power plant in Germany



Fully automatic feeding of concrete and asphalt mixing plants

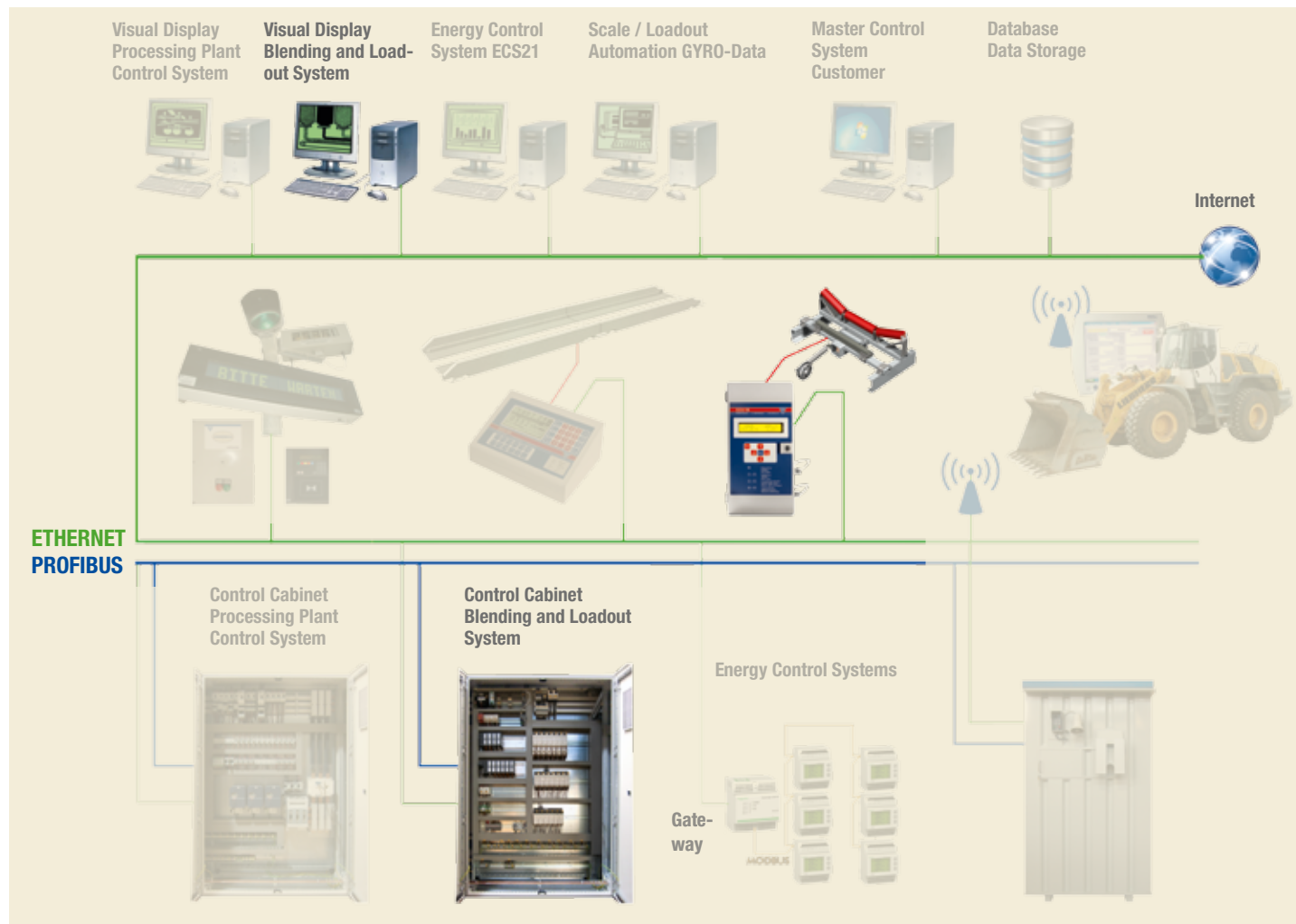
## A cutting-edge system concept – individual and future-proof

The WOHWA control system concept is based on single, completely independent, centrally located or distributed control systems for blending, processing and automation applications. Field bus systems, such as PROFIBUS, can be used for interconnection, if the plant layout makes it necessary. As per customer preference, every single control system can be supplied with a PLC (Programmable Logic Controller) by any of

the following suppliers: Siemens, Schneider, Mitsubishi, or Allen-Bradley.

The Master User Interface for the entire plant in the central control room is operated and visualized on independent off-the-shelf PCs. The various PCs and PLCs are interconnected via Intranet (Ethernet).

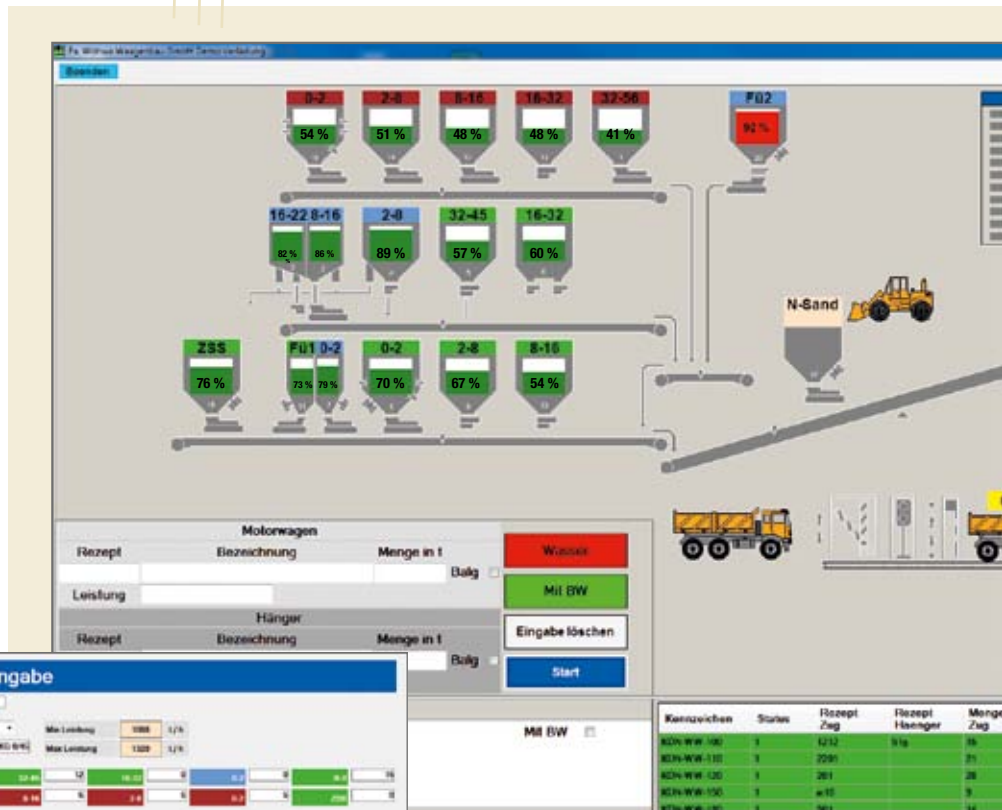
The plant's intranet infrastructure (Ethernet) is used for easy connection of additional system components, such as belt scales, printers, camera systems, and card readers. The site's intranet (Ethernet) including all control systems is linked to the internet, making remote maintenance easy.





## Continuous quality management based on particle-size distribution file and automatic recipe checks

Every recipe can be displayed with its corresponding upper and lower limits of the particle-size distribution curve, showing the operator the quality of the prepared recipe. If required, the recipes can easily be modified. The PCS35's blending software automatically verifies if any MIN or MAX fill levels of the recipe's components will be exceeded after a change in the loadout rate. The particle-size distribution file includes all distribution curves for all products, stored in the system's data base, for processing during blending and loadout. These complex procedures guarantee every user of a WOHWA PCS35 system that it meets the highest demands for accuracy and precision.

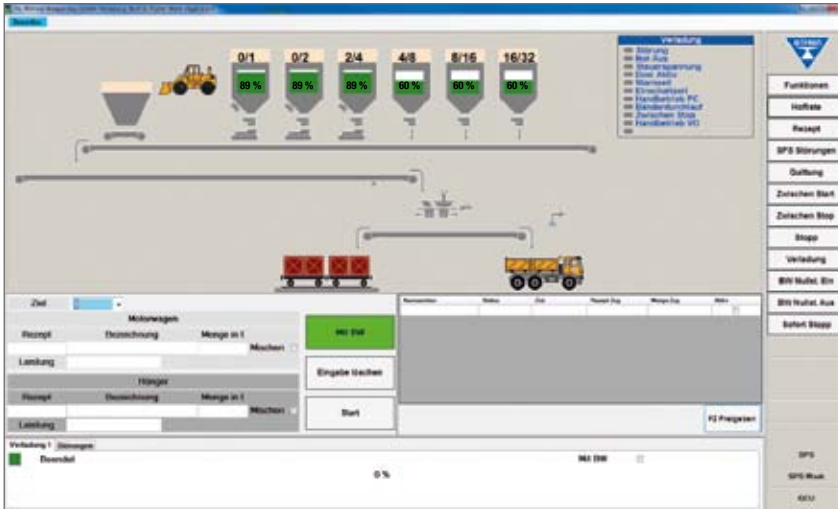


Visual display and data entry mask of PCS35

Recipe screen with lower and upper limits of particle-size distribution curve



Calibration screen



## Easy calibration procedure

An easy calibration procedure allows the operator to re-calibrate the system, after having attended an on-site training course held by WOHWA service engineers.

## Separate particle-size distribution file

All relevant particle-size distribution curves are stored in a separate file for retrieval with the corresponding recipes. If a recipe parameter exceeds the limits of the pre-selected particle-size distribution curve, the operator will be automatically requested to adjust the recipe. This procedure ensures that the recipe complies with the quality standards.

## Automatic water addition by percentage

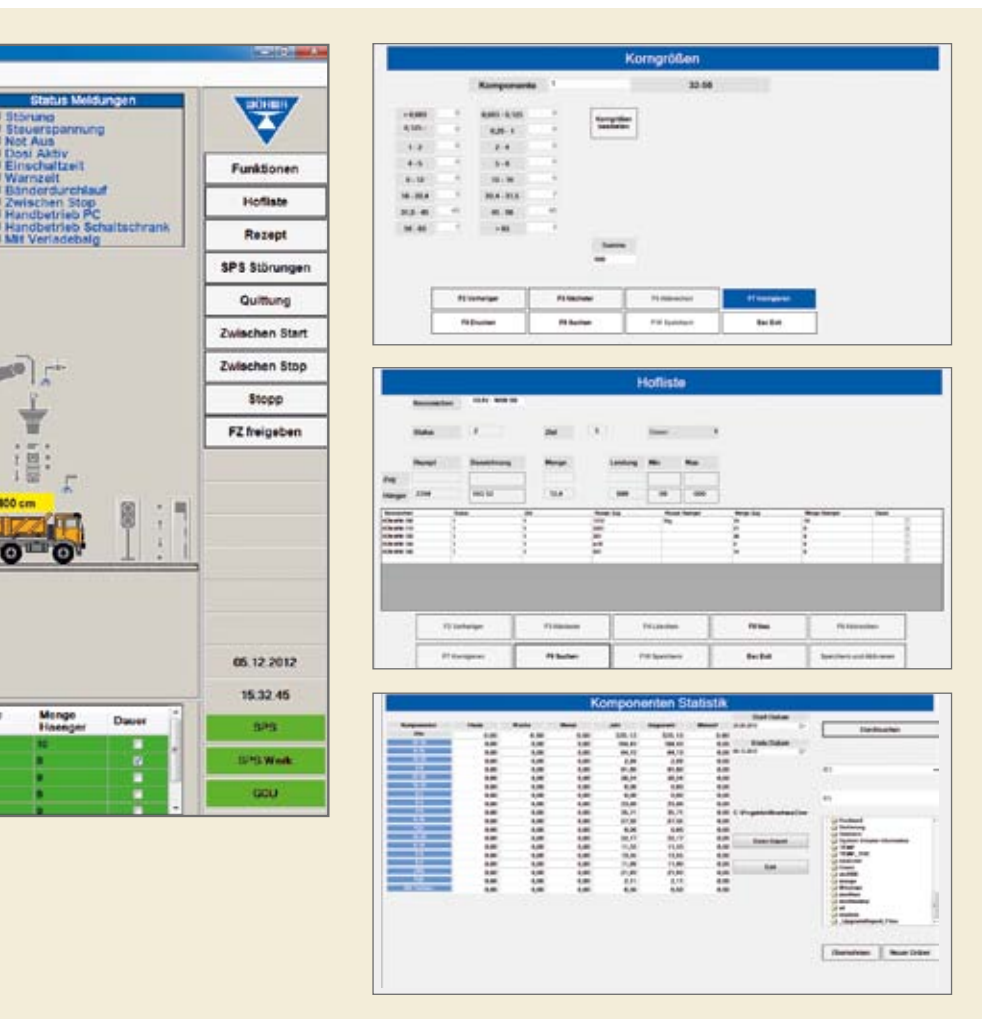
If required, the blending and loadout system PCS35 can be programmed to include the automatic addition of water. The percentage of water to be added is stored in the corresponding recipe so that the operator simply selects the recipe's number and the blending system automatically controls the amount of water addition.

## Yard list

The system offers a scheduling list that is simple to handle and allows vehicles to be registered at the entry point. The operator selects the pre-stored recipe and target quantity for the vehicle at the loadout point, or the driver starts the loadout in self-service at a card-reader station.

## Statistics for stockpiles/products

All standard WOHWA blending and loadout systems PCS35 offer stockpile statistics, showing the operator at a glance which products have been stockpiled and what quantities are available. Additionally, all standard WOHWA blending and loadout



systems PCS35 offer the operator clearly displayed statistics about all loaded products and quantities. All statistics can easily be sent to host systems via Intranet (Ethernet) or Internet (VPN).

### Legal-for-trade belt scales / standard belt scales

If the „Specifications and Requirements for „legal-for-trade“ Belt Scales” are observed, WOHWA can easily integrate a belt scale directly at the loadout point for trade purposes, e.g. for loadouts to railcars. Further information can be found in the WOHWA

product leaflet on Belt Scales.

### High degree of accuracy and precision with automatic in-flight compensation

For high loadout accuracy and precision, the communication between blending/loadout system and WOHWA belt scale must be very close and fast. During each loadout procedure, the automatic in-flight compensation, which is WOHWA’s own special development, is continuously computed for the current recipe, and the blending system PCS35 terminates the loadout as soon as

the pre-selected target value is reached. With the use of this technology, vehicles can be loaded with higher accuracy and precision than using conventional technologies, because changes of flow characteristics during each loadout are being taken into consideration during computation of the in-flight-compensation.

### Automatic zero setting

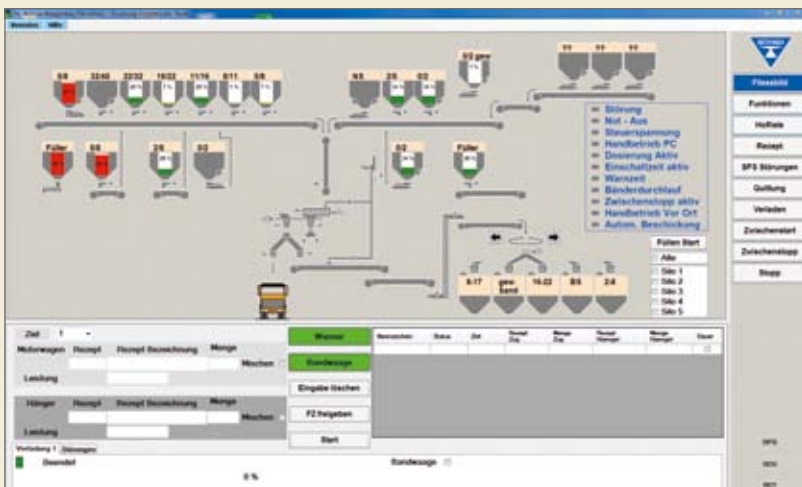
If required, the belt scale integrated into the blending system can automatically be reset to zero. This mechanism guarantees a higher loadout accuracy.



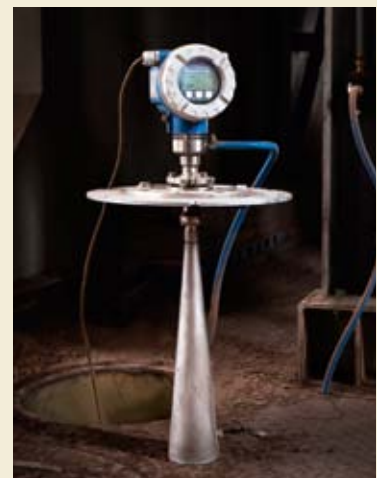
Legal-for-trade WOHWA belt scale SFB64E



In-situ terminal for manual operation mode



Manual mode switch included on visual display



Integrated radar or ultra-sonic fill level measurement



Integrated manual operation mode

### Easy-to-operate manual mode

Switching from automatic mode to manual mode can easily be done on the display screen in order to switch any selected motor ON and OFF. Additionally, there is the possibility of re-calibrating the fill level sensors by adjusting the analog values.

### Mobile manual mode terminal

The mobile manual mode terminal allows easy handling of maintenance and repair work.

### Parallel loadouts

Complex blending and loadout systems with parallel loadouts at several loading points can easily be realized.

### Multi-user capability

If required, the WOHWA blending and loadout system PCS35 can be operated from any of several operator stations.

### Automation of blending and weighing processes

For more than 35 years, WOHWA has been providing complex, secure and stable system configurations including scales (truck scales, belt scales), card reader systems, digital signature pads, automatic vehicle license plate recognition, and weighing data processing. WOHWA offers a variety of custom-tailored system solutions. Your great advantage - no complex, intricate interfaces between differing systems from different manufacturers. One supplier, one point of contact.

### Gravimetric Addition

Gravimetric addition with the aid of weigh belt feeders, weigh screw feeders, or hopper scales (loss-in-weight), can easily be integrated into a volumetric blending and loadout system for the production or loadout of hydraulically bound layers (gravimetric addition of cement).

### Silo Fill Levels

Fill levels are measured with the aid of radar or ultra-sonic sensors. Minimum, maximum and normal fill levels are marked by color changes and displayed, in a clear layout, on the screen of the PCS35 system. In entry mode for parameters, the operator can adjust MIN and MAX values in accordance with plant requirements.

### Data Back-Up and User Login

The PCS35 system logs and archives in the background all essential and important plant data and entries to reduce plant standstill periods to an absolute minimum, and to allow relevant fault analyses Archiving is performed via network on the corresponding data storage devices, or manually on a memory stick. This saves time in the event of faults or damage, and reduces quite considerably on-site maintenance calls. In the background, the system's User-Login module is logging all operator activities: Who does what, when and how, thus helping to avoid operator errors.



Parallel loadout: Simultaneous loadout at two points



Digital Signature Pad for signing delivery notes



Hopper scale with screw feeder for gravimetric addition

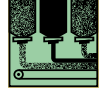


Integration of remote displays and camera system



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# WOHWA Blending and Loadout System PCS35 for the bulk material industry



WOHWA service engineer performing remote maintenance



Preparing plans and documentation using EPLAN



Training at the WOHWA training center

## Maintenance Management

The blending and loadout system PCS35 allows easy recording and storage of essential maintenance information for each motor, e.g., maintenance intervals.

## Online remote maintenance

The integrated remote maintenance module and the system monitoring feature (archiving of all entries and system statuses) allow the WOHWA service team to analyze and correct faults quickly and reliably from the office at the WOHWA factory.

## Safety concept and documentation

After project commissioning, WOHWA supplies all required manufacturer's declarations for all WOHWA systems and components to provide legal certainty for the plant's operation.

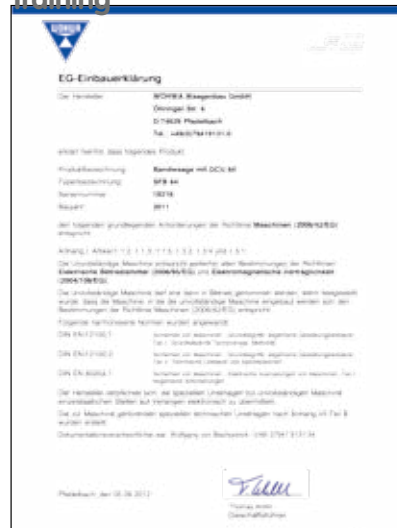
Additionally and in accordance with general standards, WOHWA provides all wiring diagrams (EPLAN P8), operation manuals, and instructions for parameterization for the electrical control components of WOHWA's PCS35 system.

Individual training will be provided on site by specially trained WOHWA service engineers, or at the WOHWA training center, to guarantee the safe operation of the blending and loadout system.

## Multiple-Language Support

Like all other WOHWA products, the WOHWA Blending and Loadout System PCS35 features a multiple-language User Interface. In calibration mode, the operator can switch between the most common foreign languages, English and French. Other languages can be provided on request.

## Training



EC Declaration of Incorporation