



PROCESS

NEUMAN & ESSER

Powder Coatings

PRODUCT HANDLING REVOLUTIONIZES OUTPUT

NEA by GKM
and Niverplast

Viewed in retrospect, we have enjoyed a genuine powder coatings boom during the past few years. More and more areas of use are opened up today by high-performance powder coatings. Accordingly, the powder coatings industry demonstrates very strong global growth, enabling the introduction of a large number of new production lines to the market.

To-date, more than 600 NEA ICM grinding systems have been installed worldwide for manufacturing powder coatings. The requirements of new systems, but also of existing systems, must dynamically adapt to market conditions. In particular, the sharply increased raw materials prices and the immense competition within the market exert high cost pressure on the manufacturers. These demanding requirements of production equipment provenly denote one of the major reasons for the successful market penetration of the highly efficient NEA ICM grinding systems. Thus, in the meantime NEUMAN & ESSER Process Technology achieved to expand its world market leader status.

NEA by Niverplast "automation"

Moreover, operators see themselves confronted with a further challenge: maximum system capacity utilization. NEUMAN & ESSER applies a revolutionary concept here. Analysis showed that filling the finished powder, particularly into smaller containers such as 20 and 25 kg boxes, is a limiting factor for the throughputs of larger grinding systems can achieve. NEUMAN & ESSER in close collaboration with

NIVERPLAST BV, the Dutch filling and packaging machines manufacturer, seized this opportunity to develop a filling station specially attuned to the requirements of the powder coatings industry. With automatic filling, throughputs of up to 2,000 kg/h, corresponding to 100 x 20 kg boxes can be achieved with highly precise filling and therefore more than twice the capacity of manual filling.

The box rolls into the filling area over a conveyor belt, is lifted there electrically and accurately filled to the desired weight via a special filling mechanism with weighing cells. It is novel that the dosing device and its filling tube are fully accessible and easy to clean, thus avoiding the cross-contamination feared within the market. Moreover, an extraction system hinders undesired dust development in the working area, and that with a maximum product yield. After the desired weight has been reached, the box is deposited and a new box fed. Additional components for the completion of a fully automatic station such as box erectors, mechanical bag cappers and labelers, can also be offered by NEUMAN & ESSER and be integrated seamlessly.

NEA by Niverplast "protective sifting"

The essential two-motor ultrasonic screen belonging to the complete system is manufactured by GKM Siebtechnik GmbH. Here, too, NEUMAN & ESSER utilized its many years' experience with powder coatings. A low construction size, high throughput, easy cleaning and smooth surfaces interplay with an

optimized sieve ultrasound system and offer a highly efficient and compact solution, also for existing grinding systems from all manufacturers, in symbiosis with the filling station.

Static load surveillance

Development also focused on work safety for this system. As powder coatings are a probable explosive material, a system introduced by NEA monitors the static loading of the components in order to hinder sources of ignition, providing an important contribution in the area of employee safety here.

The controller

The control and monitoring of all these described components takes place centrally via the overall grinding system controller. This not only enables the minimization of the number of controllers required,

but also the evaluation and visualization of all system-relevant data.

Industry 4.0 hands-on

This provides an important step towards connection to a revolutionary Industry 4.0 solution, which will be introduced. Naturally, the solution described can easily be integrated into the XPLORE solution developed by NEA. As a result, the entire production flow from the original sample weight of the raw materials to the labeling of the finished material can be recorded, evaluated and optimized.

NEA has clearly also recognized the market's requirements in this segment and has already been able to realize an impressive number of references within industry.

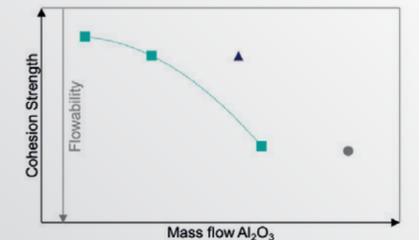
NEA → DIX

Additives such as aluminium oxide or silicon dioxide (silica) are used in powder coatings to allow for a perfect application of the product. The powder particles must be fluidised, transported without blocking, sprayed without spitting, etc. in order to ensure the required high quality.

Costs of additives are a major factor in the powder coating production. These expenses can be significantly decreased by enhancing the additive dispersion in the powder and thus reducing the necessary amount of additives while maintaining the desired flowability.

Achieving this aim requires a precisely controlled dosing of low additive quantities, guaranteeing a high flowability of the product.

NEUMAN & ESSER has developed an additive dosing and dispersing system, which fulfils these requirements. The new additive system NEADDIX ensures constant gravimetric feeding, excellent dispersion and mixing for highest quality demands. The required amount of additives is reduced up to 60%. Surface defects after application, visible as white spots, will be avoided.



■ NEADDIX
▲ Additive Injector
● Additive Suction Inlet



Combining Engineering Expertise And Digital Competencies

The concept

XPLORE provides an overview of all essential parameters for an entire production line - Detailed insights into current and historical operating data. This enables users from production or quality management up to the operators to analyze and report individually.

The implementation

Our easy-to-install IOT hardware immediately integrates all components of the production lines into the XPLORE platform regardless of the components' manufacturer. Order-related information allows for full transparency and unprecedented optimization potential.

The added value

Not only increased plant availability and reliability, but also the optimization of your plants in terms of throughput and performance effect in higher profitability. We are not just happy to assist you with our know-how in the analysis and optimization of your processes and products but also offer you access to service and direct support.

The XPLORE Platform

Visit our website and get instant access to our demo environment. www.neaxplore.de



Production Line Integration

Collection of production line data at one place accessible from anywhere. A single source of truth.



Realtime Monitoring

Monitoring of critical parameter developments as they happen.



Historical Data Analysis

Generate comparability of like products from different orders to identify ideal production conditions.



Reporting Functionality

Automated generation of reports from production data for quality assurance.



Traceability

Link order numbers to production data of all components in a production line.



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Headquarters

Übach-Palenberg, Germany
Phone: +49 2451 481-01

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Process Technology

Global

NEUMAN & ESSER Process Technology GmbH
Übach-Palenberg, Germany

North America, The Caribbean

NEUMAN & ESSER Process Technology USA, Inc.
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