



MODCOS – FULL CONTROL IN CONTINUOUS OPERATION.

The modular system for maximum flexibility.



MODCOS m-line

MODCOS. ONE CONVERSION. MANY POSSIBILITIES. EVEN MORE BENEFITS.

*Small step for conversion –
large step for efficiency.*

For the first time ever, you can elegantly convert GPCG batch machines and incorporate them into a continuous process chain using Glatt's MODCOS concept. This intelligent concept for the production of solids not only offers individual configuration options, but also huge potential savings. Individual process units can also be individually integrated into the process chain as desired by the customer or as required by the process.

Benefit from many advantages.

- » Modular process technology for maximum efficiency and flexibility from product development to commercial production
- » Fully automated process with consistently high product quality from powder to finished tablet
- » Process-analytical control along the entire process chain
- » Ability to process solvents
- » 12 bar pressure-shock resistance

Three models are available:

- » s-line up to 15 kg/h (Fig. on page 2)
- » m-line up to 50 kg/h (Fig. on page 5-6)
- » l-line above 50 kg/h

FLEXIBILITY THROUGH VARIABILITY.

- » Variable-use process units can be integrated into one production line. All stages of the process can be performed individually and in any order; covering everything from powder dosing to tablet pressing
- » Three granulation methods to choose from:
 - » Twin-screw extruder for high-shear granulation
 - » Single-shaft continuous granulator for mid-shear granulation
 - » Fluid bed processor for low-shear granulation
- » GPCG fluid bed system are designed for continuous and batch operation simply by replacing process modules

Dosing

- » Loss in weight twin-screw feeder
- » Individually configurable

Mixing NEW

- » The Glatt All-rounder – can be used as dry mixer or wet granulator
- » Ideal for mechanically sensitive products

Granulating

- » Twin-screw granulator with segmented screws
- » Temperature monitoring and control for stable processes

Drying NEW

- » Glatt's multi-talented fluid bed for drying and granulating in batch or continuous mode

INCREASED EFFICIENCY AND COST-EFFECTIVENESS.

- » One system covering the range from product development to production of small quantities
- » Rapid responsiveness to market requirements
- » Minimal scaling-up effort
- » Lower operating costs thanks to reduced need for space, clean rooms, and staff
- » Rapid and reliable production of variants for process optimization and validation



Conveying

- » Vacuum transfer system for product transport
- » Small dimensions yet high transport capacity

Milling

- » The Glatt rotor sieve with interchangeable inserts for dry and wet products

Tablet compression

- » Rotary press for producing up to 370,000 tablets an hour
- » Additional functions such as check master, magnesium stearate spraying system
- » 100 % inline monitoring available as an option

Discharging NEW

- » Continuous discharge
- » Vacuum-sealed
- » 12 bar pressure-shock resistance

HIGH PHARMACEUTICAL SAFETY AND SEAMLESS PAT INTEGRATION.

- » Intelligent control system with perfectly coordinated PAT for fully automatic process control in real time
- » Consistent product quality over the entire production period
- » Both integrated and local control possible for all process units
- » MODCOS meets the requirement for parametric release / real time release

A Particle size

Optical inline sensor for measuring the particle sizes and their distribution

B Product moisture

Inline sensor for recording product moisture using microwave technology

C Substance content

Inline NIR sensor for qualitative and quantitative measurement of API content and content uniformity

- » The type and installation positions of the PAT measurement systems are defined individually to meet process requirements

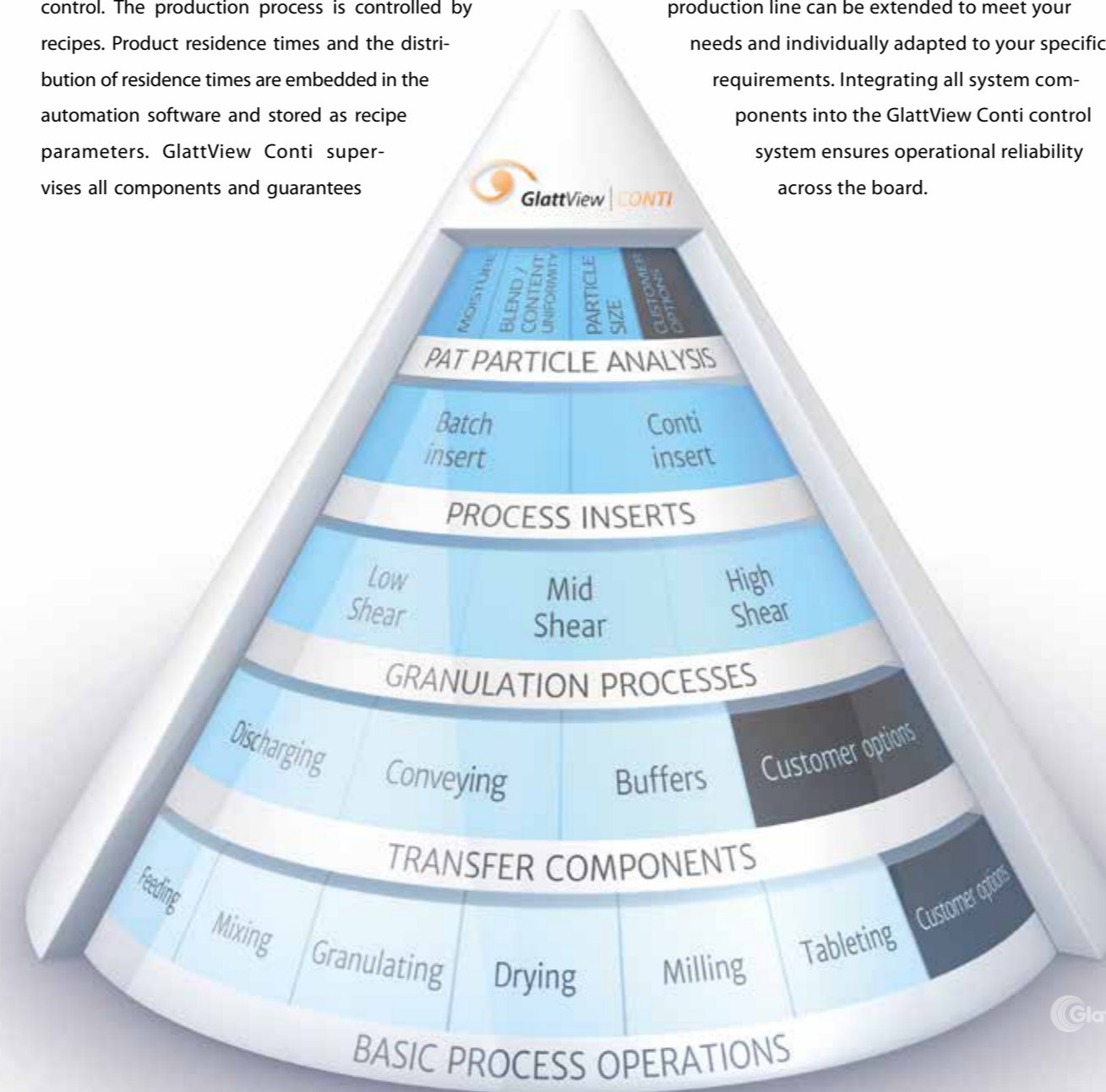
MODCOS m-line

FULL CONTROL – OVER THE ENTIRE LINE.

GlattView Conti, the intelligent control system for continuous processing.

The GlattView Conti is the control system for the MODCOS production line, where all process parameters come together. These are continuously monitored and provide the basis for continuous, automatic process control. The production process is controlled by recipes. Product residence times and the distribution of residence times are embedded in the automation software and stored as recipe parameters. GlattView Conti supervises all components and guarantees

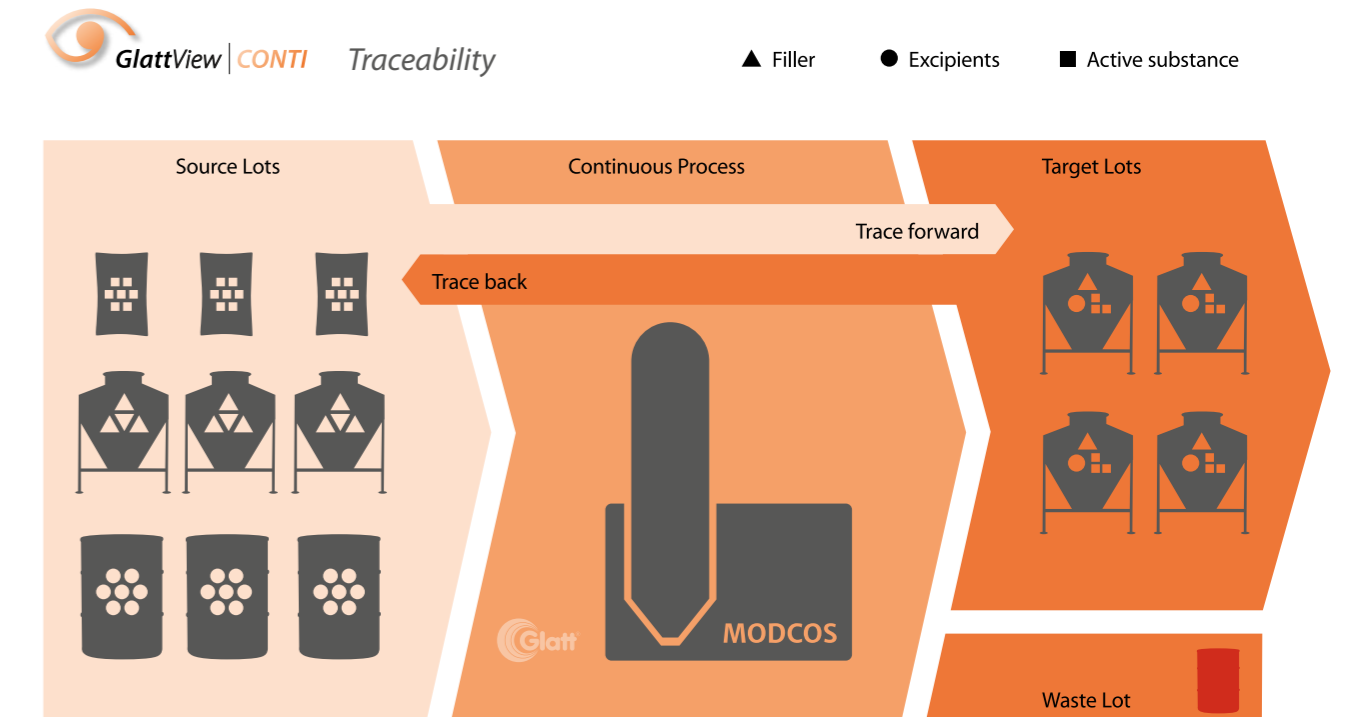
reliable documentation. Process data for all process units can be displayed as a table or graph. Process data can then be individually evaluated based on source lots, waste lots or target lots. The modular production line can be extended to meet your needs and individually adapted to your specific requirements. Integrating all system components into the GlattView Conti control system ensures operational reliability across the board.



TRACEABILITY AND PROCESS CONTROL IN REAL TIME ALONG THE ENTIRE PROCESS CHAIN.

Every movement of material in the system can be traced accurately with GlattView Conti using a residence time model. The location of each material can therefore be established at all times. The entire process including all events is fully documented. By virtually marking each raw material lot, you can trace which one was involved in the finished product lot, even at a later date. And vice versa. A residence time model and real time process control and evaluation using PAT form the basis for this integrated control.

- Complete process reliability:**
- » PAT-based real-time checks and control
 - » Integration of variable-use process units
 - » Complete process documentation and traceability



- » Source lot: Raw materials, APIs, excipients
- » Target lot: Finished product
- » Waste lot: Product out of specification



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