

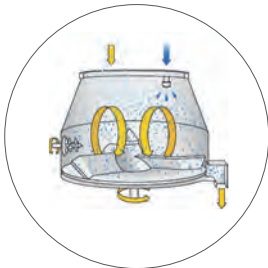


## TWINPRO®

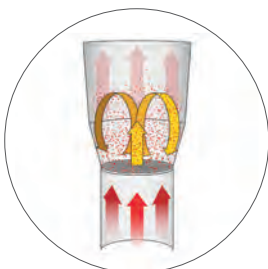
The fusion of two batch processes

## CLASSIC BATCH GRANULATION LINE

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**Vertical Granulation**



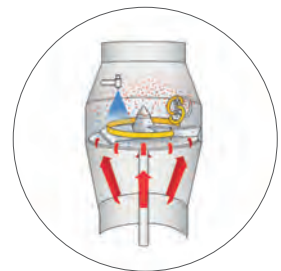
**Drying**



**VG Pro vertical granulator, GSE wet sieve,  
WSG Pro fluidized bed granulator**

# THE NEW TWINPRO® – THE FUSION OF TWO BATCH PROCESSES

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**TwinPro**

PERFECT, DOWN TO THE LAST DETAIL



Vertical Granulation



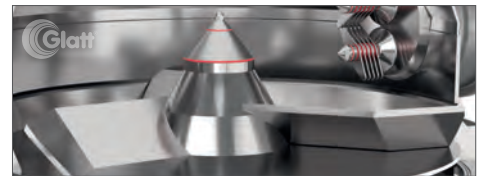
Drying



Spray nozzle



Double-wall chopper



Z-rotor



Annular gap container bottom



Sample taking

## GLATT TWINPRO® – THE FUSION OF TWO BATCH PROCESSES

### *High shear granulation and fluidized bed drying in a single process*

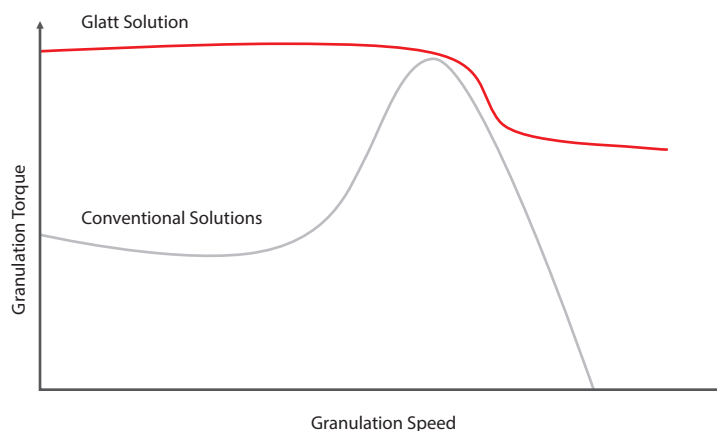
As a partner of the pharmaceutical industry with comprehensive process know-how, our experts are always at the forefront in the development of needs-based process solutions for your batch production. Because only those who understand the process and know the details can develop systems that can do more than just the sum of the individual components. Our new Glatt TwinPro® is revolutionary. It unifies two previously separate processes into a single one. High shear granulation and fluidized bed drying. This unique

process fusion unites our decades of process experience in high shear granulation with pioneering expertise in fluidized bed drying for the first time.

Your benefit: Removing wet sieving and product transfer eliminates a critical step. The result: significantly less process time and easier cleaning. Removing a complete machine unit also reduces your installation and building expenses while maintaining excellent function.

### **The new TwinPro®: One process. Many plus points.**

- » Low process time. Higher efficiency.
- » Elimination of wet sieving and product transfer. More reliable processes.
- » Less space required. Optimized use of the production area.
- » Optimal total containment. Maximum protection for people, product, and the environment.
- » A multi-port. Many uses for PAT.
- » Proven process design. Simple scalability.



**Maximum torque at every speed**



## PRODUCT FLOW AND TOTAL CONTAINMENT



Maximum freedom in set-up  
Horizontal product flow: Position H1 and H2  
Vertical product flow: Position V1 and V2  
Charging: Position H1 and V1  
Discharge: Position H2 and V2

# GLATT TWINPRO® – THE HIGHEST PERFORMANCE FROM THE PIONEER OF THE FLUIDIZED BED

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## INTEGRATED PROCESS SYSTEM REDUCED TO A MINIMUM



TwinPro® in the Glatt Innovation Center

### *The future of containment granulation*

Because it fuses these two processes for the first time, the Glatt TwinPro® offers you the optimal system for total containment applications thanks to a significant minimization of material loss.

### *Maximum process management efficiency*

With Glatt TwinPro®, you can accelerate your processes by 20% compared to the classic batch granulation line. The patent-pending process system allows for gentle fluidized bed drying after high-shear granulation is completed, thanks to a lowering base.

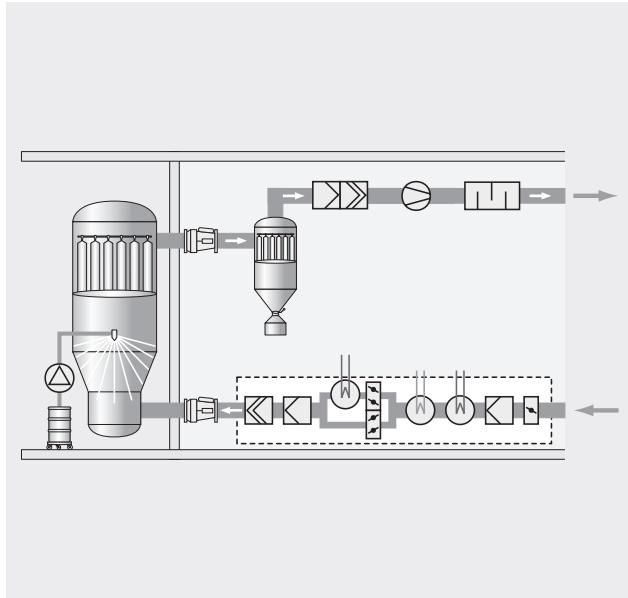
The newly developed double corrugated vibrator in combination with the Z-rotor, have allowed our experts to eliminate wet sieves. The proven container geometry and design of the Z-rotor have retained the same dimensions for all available sizes. This means processes can also be transferred from existing Glatt technology.

### *Maximum Functionality*

The new TwinPro® scores points for reduced complexity with the goal of maximum functionality and an overall efficient operation. The functional construction has been designed to meet operator demands, down to the smallest detail and facilitates easy product handling. The ergonomic design impresses with fast installation and no non-functional elements or exterior attachments. Smooth, seamless surfaces reduce contamination and ensure optimal cleaning.

### *Maximum safety*

The closed system is shock pressure resistant to 12 bar and offers reliable protection against dust explosions and in applications with hybrid mixtures.



**Fluidized bed processor with standardised inlet and exhaust air treatment**



**Double chamber vibration filter**

**SC-Super Clean blow out filter**

## INTAKE AIR TREATMENT – PERFECTLY TAILORED TO YOUR REQUIREMENTS

### *Treated intake air*

Freeze protection heating, humidification and dehumidification, better heating power, HEPA filter, full housing interior made of stainless steel – you will receive the optimal intake air treatment device, custom tailored to your needs.

### *Filtered exhaust air*

Exhaust air is filtered in the machine tower. We can integrate a HEPA filter as a police filter for specialized requirements related to exhaust air purity or for safety reasons.

Fan noise can be effectively reduced to a minimum with a silencer and/or muffler insulation.

## FILTER SYSTEMS

### *Variations for any use*

Whether you need a single or double chamber design, a vibration or blow out filter, filterbags or filter cartridges, material or metal filters – anything is possible.





**WIP cleaning system  
for single-use cleaning**

**CIP cleaning system  
for circulation cleaning**



**Glatt quick action stop valve**

**Explosion protected valve**

## CLEANING CONCEPTS – FLEXIBLY DESIGNED TO MEET YOUR NEEDS

### *WIP – Washing In Place*

WIP (Washing In Place) means thorough pre-cleaning. Manual follow-up cleaning is required to achieve the desired cleaning result. The system must be opened for WIP. In general, WIP processes can be validated. During the process, pre-cleaned filters are removed from the machine and the rest of the closed machine is thoroughly cleaned using specialized installed cleaning nozzles. The minimum remaining dirt is removed manually.

### *CIP – Cleaning In Place*

CIP (Cleaning In Place) is a fully automated, reproducible cleaning process with defined cleaning results. The machine never needs to be opened for this type of cleaning. Of course, this process can also be validated. Typical filter designs – whether filterbags or conventional cartridge filters – are not suitable for CIP.

## SAFETY CONCEPT

### *Always stay on the safe side*

- » 12 bar pressure shock resistant
- » Explosion suppression
- » Grounding and ground monitoring



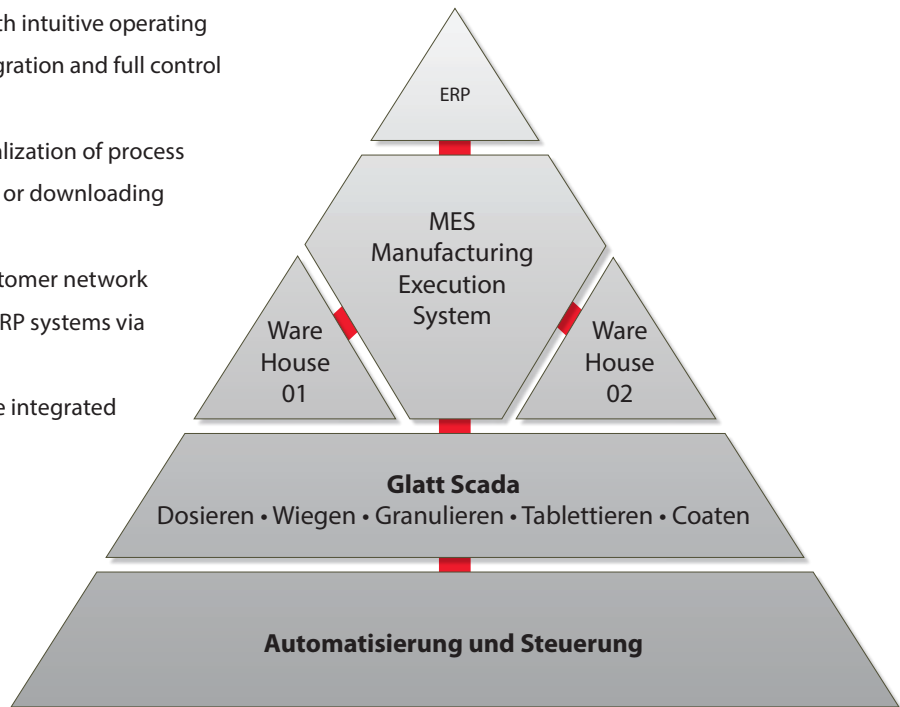
**Trusted technologies. Improved process.**

- » Proven batch sizes and process container geometries.
- » Typical process tool circulation times.
- » Identical spray rates and spray systems.
- » Identical air quantity requirements.

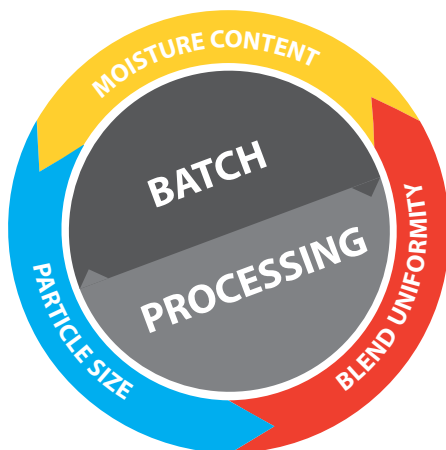
## GLATTVIEW – FULL CONTROL IN BATCH OPERATION

The smart GlattView control system with intuitive operating concept allows for flexible system integration and full control over all processes:

- » Optional connection for online visualization of process and trends, evaluating process data, or downloading recipes
- » Easy Ethernet connection to the customer network
- » Prepared for connecting to MES or ERP systems via OPC/XML interface
- » Standard interface for Werum can be integrated as an option
- » Custom-tailored adjustments to the customer's MES system



## INTELLIGENT PROCESS ANALYSIS TECHNOLOGY



*Keep an eye on all parameters*

- » Particle size:  
Optical in-line sensor for measurement of the particle sizes and distribution
- » Product moisture:  
In-line sensor to measure product humidity
- » Active agent content:  
In-line NIR sensor for the qualitative measurement of the process stability and quantitative content calculation



○ MICROWAVE   
 ○ NIR   
 ○ DIRECT IMAGING / SPATIAL FILTER TECHNOLOGY



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