



DIOSNA Compact Granulation System CGS

Compact efficiency for the production of tablet granules.

Convincing Concepts for integrated processing

CGS - Compact Granulation System consisting of mixer-granulator and fluid bed dryer

Wet granulation of pharmaceutical tablet mixtures with subsequent fluid bed drying is a basic step in the production of solid dosage forms. The CGS concept provides optimal integration of the process steps of mixing, granulating and drying. The outlet of the mixer-granulator is directly linked to the inlet of the fluid bed dryer, eliminating long transfer chutes. This product contact surfaces are minimised and the yield is increased. Even sticky granules which are difficult to transport by pneumatic conveying can be transferred easily and quickly into the dryer.

Installation expenditure for the CGS is low. Mixer and dryer are supported by one common frame which makes additional framework unnecessary. The operating media are supplied through-the-wall from the technical zone.



Closed product-flow even for Containment applications.

CGS requires extremely small installation area

Due to the compact installation, the floor space required by the CGS plant is very small. This fact is not only important for existing plants with limited available space, but also for new plants which allows clean room space to be reduced. Since the size of the cleanroom area influences not only the operating costs but also the investment cost, the CGS concept offers considerable potential for reducing the overall project capital and running costs.

CGS increases productivity and yield

In the CGS concept, mixer and dryer are connected via an extremely short and geometrically optimized transfer line. This allows an accelerated product transfer without product loss. The special design of the DIOSNA mixing tools and the extremely tight tolerances ensure an efficient granulation process and maximized yield - as good as it gets!



Toollift-System:
Mixing tool in raised position.



The short connection between mixer and dryer increases the yield and the process safety.

CGS offers integrated explosion protection for solvent based applications

If solvent based formulations are to be produced, special attention must be given to explosion protection.

The CGS concept can incorporate an integrated explosion protection concept. The individual processing units of mixer, wet mill and dryer will then be designed to be 12 bar pressure shock resistant. Due to the short and direct connection between the mixer and the dryer the normally required explosion protection valve between the single elements can be omitted. This considerably reduces the cost, set-up times and maintenance.



12 bar pressure shock resistant mixer-granulator with innovative automated lid actuation.



Excellent access to all plant components is shown here for the vacuum conveyor to discharge the dryer.



Screen changeover at dry mill.

CGS provides optimum access to all plant components

The mixer-granulator and the fluid bed dryer are installed on a common frame and are connected by an integrated operator platform. Peripheral components such as wet mill and vacuum conveying system with dry mill are integrated into the plant allowing ergonomic access for inspection, maintenance and cleaning. As an example the screens of the mills and the filters of the pneumatic conveying system can be easily changed from the platform without additional tools. Due to the optimal ergonomic design, the CGS can be set up and operated by one single operator.



Opened discharge valve and Tool-lift of the mixer-granulator.



DIOSNA CIP filter system

CGS reduces the cleaning times

All connection lines of the CGS from feeding the mixer to discharging the dryer are integrated into the automatic cleaning system. Due to well planned accessibility of all areas the supply lines can be connected in minimal time. Nearly all components are subjected to the automated cleaning.

In the WIP design a prerinsing concept ensures that the main residues are eliminated and all powdery material bound in cleaning liquid before the plant is opened. Subsequently a safe dismantling of components (e.g. product filters) is possible before the main cleaning cycle is started. The parallel offline cleaning of some components ensures an optimized cleaning downtime. Of course the CGS system can be configured for full CIP including the unique and patented Diosna CIP filter cleaning system.



Semi-continuous granulation line with integrated bin blender.

CGS: Integration in perfection

In particular in high-volume production and for containment applications it makes sense to integrate as many process steps within a confined area. This way, the CGS concept allows for a completely contained, fully automated and semi-continuous production. PAT devices can be integrated as required.



Containment design of mixer lid with split butterfly valve

Containment design of the plant

From feeding the mixer to discharging the dryer into an IBC, product transfer is completely enclosed. The CGS can be upgraded with all necessary options to meet even the highest containment requirements for the production of highly-potent substances. The upgrade package ranges from the integration of containment valves for charging and discharging interfaces to WIP/CIP design of the plant. Product sampling devices and exhaust air filter systems are adapted to the containment requirements accordingly.



CGS - The ease of use and the excellent accessibility of all plant components give substantial advantages for operation, cleaning and maintenance.

Direct, space saving, value adding, accessible

DIOSNA Compact Granulation System CGS

The DIOSNA Compact Granulation System CGS combines the process steps mixing, granulating and drying in one compact granulation unit. It provides accelerated product transfer and reduced GMP space requirements.

- **Reduction of the project and operating costs**
- **Smooth and quick product transfer**
- **Minimum installation area**
- **Process safety and excellent containment**
- **Simple to operate and excellently planned component accessibility**



Quality, Experience, Innovation worldwide

Process plants for the pharmaceutical industry.

DIOSNA delivers plants for mixing, granulating, drying and coating for laboratory, pilot and production plants. From initial concept discussions through process development, planning and the supply of turnkey solutions, we offer an individual package to look after all aspects of your project.

- Mixer-Granulators
- Batch processing fluid bed plants
- Single-Pot Systems
- Film Coating Plants



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