



10 Years of Particle Technology at Neuhaus Neotec

The particle technology deals with the production, refinement and processing of particles, in particular via fluidised bed processes. Various processes such as drying, agglomeration and coating are used to optimise the material properties of powdery or liquid substances. Neuhaus Neotec develops machines and plants for continuous and batch processing as well as for pilot processes and laboratory applications.

In 2008, the particle technology division was established at Neuhaus Neotec. With the takeover of Heinen Drying in 2010, the existing know-how was further expanded. In the meantime, Neuhaus Neotec has developed into one of the technology leaders in particle technology. The machines and plants, which are manufactured entirely in Germany, are used worldwide, for example, in the food industry and biotechnology as well as in the chemical and pharmaceutical industries.



Instantisation of beverage powders to improve solubility.



Fluidised bed processes can be used to transform liquids into powders.

Neuhaus Neotec is one of the most flexible suppliers of fluidised bed plants. Machines and complete plants are built for continuous operation as well as for batch processing, including all necessary peripheral systems. There are also suitable solutions for scalable pilot and laboratory operation. Fluidised bed plants of Neuhaus Neotec are characterised by their high technical standard and very compact design.

The fluidised bed technology is one of the most versatile processes in particle technology. Due to the intensive mass transfer and heat exchange in the fluidised bed, optimum conditions are created for an effective process for the precisely defined transformation of the properties of bulk solids or liquids. The powders or granulates produced in this way show, for example, improved solubility in instant beverages or a higher bulk density in detergents. With a coating produced in the fluidised bed, it is possible to mask taste and odours, to apply the finest protective layers or to delay the release of active ingredients from medicines in a dosed manner. The optimised raw materials or compounds facilitate further processing for industrial requirements and meet the end users' requirements for dust-free powders and granulates with specifically adjusted particle properties.

The particle technology of Neuhaus Neotec designs and manufactures tailor-made solutions for the respective field of application and covers all areas of fluidised bed processes:

- Drying
- Agglomeration
- Spray granulation
- Spray drying agglomeration
- Coating
- Micro-encapsulation

Conti FB – Fluidised Bed Systems

The designation Conti FB stands for continuous fluidised bed plants (FB = Fluid Bed) from Neuhaus Neotec. They are mainly used for fully automated processes in the large-scale production of goods whose price-sensitive markets require particularly effective production. Conti FB plants are of modular design and have separate zones for the inlet and exhaust air. The continuous process is fully automatic, reproducible at any time and requires only a small number of staff.

- Processes: Drying / cooling, agglomeration, spray granulation, encapsulation
- Division into zones for process control with individual temperature profiles
- Top- or Bottom-Spray
- Internal or external filtration system
- Vibrating or static systems
- Nozzles in every zone, height adjustable
- Compact plant design
- Through-the-wall installation: Separation of technical and production area

With the Conti FB system, not only large product quantities can be processed under profitable conditions, but the continuous process is also an interesting alternative to conventional processes for smaller capacities of around 10 kg/h, for example in the pharmaceutical industry.



The fluidised bed provides optimum conditions for effective mass transfer and heat exchange.

Batch FB – Fluidised Bed Systems

Batch FB (FB = Fluid Bed) is the term for fluidised bed units for batch processing, which is frequently used in the pharmaceutical industry or by manufacturers with campaign production or frequently changing formulations. The individual process steps can be precisely controlled in the Batch FB units. This makes a Batch FB fluidised bed system very flexible in the adjustment of parameters, for example in the production of complex product formulations.

The planning of a fluidised bed plant requires a lot of special knowledge. The more flexible and effective the process is, the more decisive is the holistic concept from the process technology to the selection of the optimum peripheral equipment.

- Processes: Drying, agglomeration, spray granulation, encapsulation, coating
- Execution according to GMP guidelines
- Pressure shock resistant design up to 12 bar
- Top- and Bottom-Spray
- Wurster Coating / Spouted-Bed Coating
- Various product feeding and discharge concepts



Batch processing in a Batch FB plant is particularly effective with frequent product changes.

Conti FB Pilot

For processes from 5 to 50 kg/h, Neuhaus Neotec has developed the Conti FB Pilot systems as test plants for testing new formulations and for laboratory applications. Thanks to the flexible plant design, the test quantities can be reliably scaled up to larger production quantities.

With the compact system almost any product can be processed and any fluid bed process can be carried out. Like the "big ones", the Conti FB Pilot also has numerous special design features.

- Processes: Drying / cooling, agglomeration, spray granulation, encapsulation, coating
- Execution according to GMP guidelines
- Nozzles in every zone, height adjustable
- Removable nozzles, also during the process
- Division into zones for process control with individual temperature profiles
- Top- or Bottom-Spray
- Vibration for fluidisation of sticky products
- Humidification / dehumidification of the inlet air

Neuhaus Neotec also offers fluidised bed plants in various sizes for batch processes on a laboratory scale.



The pilot plants of Neuhaus Neotec allow process parameters to be tested on a large scale prior to production.