**Here: Image tablets as a narrow banner**

Research & Development
**Equipment to Attain your Goal**

Granulation is one of the most important techniques in the pharmaceutical industry. Although it has been in use for years, selecting the right equipment and technology can still cause headaches.

The requirements for developing wet granules are clear: The goal is to obtain mixtures that are suitable for further steps such as tableting, coating. In order to do this, modification of various parameters such as compaction, flowability and compressibility may need to be done . Of course, the properties of the active ingredients (API) and other raw materials also have a very important influence in pharmaceutical production. This includes particle size, structure, density, solubility or stability.

Overall, the granulation process should be robust, repeatable, controlled and associated with low product loss.

Here: picture of granules next to the text or here

At DIOSNA, we position ourselves as your ideal partner for OSD development. The deep understanding of our pharmaceutical & granulation processes has flowed into the development and improvement of our laboratory equipment over many decades. Our high-shear mixers, fluid bed dryers and coaters offer you the optimal basis for targeted development.

**Here:** *image of granulates next to text or here*

**Here: Image P 1-6***, MiniLab Dryer and Coater, in caption Batch Sizes. Link to the representative pages*

**We Experiment With You!**

As a premium level parntner, it is our mission to give you our expertise in the development and optimization of recipes. Our experts are also at your service for any scale-up and formulation questions you may have. Do you prefer top or tangential spray? Spray or hotmelt granulation? These are the questions we can help you answer.

With a virtual tour of our DIOLab you can figure out which technologies would work best for your operation.

***Hier:*** *Image and link of DIOLab*

***Or here****: Image P1-6, MiniLab dryer and coater, in the caption Batch Sizes. Link to the respective pages on the HP*

**Or here: Image Tablets as a narrow banner**

**Monitoring processes**

The pharma mixer provides a PAT-software package to monitor granulation processes to secure high-quality granules.

The effective power of the mixer motor is measured via a dedicated load cell. The mixing tool speed is regulated and measured by means of a shaft via proximity sensor and pulse counter. The following values / key figures are calculated from the measuring values:

• circumferential speed

• Froude number

• Effective power less idling power

• Total energy intake of the batch by the mixing tool

• Mixing tool torque

• First derivation of the power curve with display of the turning point of the curve

The values are displayed and recorded (selection by the operator). The power-/torque values can be assigned with warnings/alarms in case of exceedance of adjustable set points and used as trip points in the mixer recipe (endpoint detection of granulation).

We offer you the PAT software package for the high-shear mixer in a limited U.S. Edition.

**Here:** *Image of the P 1-6 Limited Edition*