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# BÖHLE INNOVATIV

WE DEVELOP YOUR FUTURE.

## Our latest development: The Compact Unit


**In this issue:**

## Dear readers,

**December 2010**

An eventful year has nearly reached its end. Since 2009 was the best year in our company's history, it seemed that we could avoid short time work at L.B. Bohle. However we were wrong. The economic situation was also hard for our team. In the beginning of 2010 we had to start short time work for a few months.

But now we are back to full time work and want to thank our clients who placed their orders in these hard times.

We used this period for research and development. We created a new granulation system that we want to present to you in this issue. The system is a combination of a high shear granulator and a fluid bed system – in a very compact design. The new system was installed at a client's facility and starts production in a few short days.

The development of the continuous coater KOCO® was updated. Many clients preferred a semi continuously production compared to a completely continuous production.

So we revised the coating drum. Furthermore we integrated automatic batch charging and discharging functionality.

Now the user can decide how much suspension should be coated on the tablets. There are a lot of variations possible. The quantity of suspension on the tablets can be determined prior to the next batch.

The following numbers will show the capability of the Bohle KOCO® 50:

| | |
|---|---|
| Filling volume: | 40 kgs |
| Quantity of suspension: | 1 % additional weight |
| Coating time: | 19 minutes |
| Charging / Discharging: | 4 minutes each |
| Drying: | 2 minutes |
| Quantity per hour: | 100 kgs |
| Length of trial: | 72 hours in three-shift-production (without any interruption) |
| Volume: | 7.2 tons of tablets |

These numbers show that our coater is well prepared for three-shift-production.

KOCO® 50 – a real high speed coater!

Best regards

Inspection of fluid bed system after cleaning

Until now, there has been no elegant solution for a completely smooth running process in traditional granulation equipment. Too many variables during the process required the full attention of operating personnel. A blocked transfer line, for example, has always been a technical challenge. Operation of this kind of process equipment has often been characterized by huge efforts from multiple disciplines.

With the newly available Bohle Compact Unit these difficulties are a thing of the past.

The new compact design of the granulation unit ensures optimal results and features a high-shear mixer and fluid bed dryer side by side, complete with sieving step in between. Not only has the width been reduced, but also the installation height is very low. For example, due to the unique

System during production process

lifter for the filter unit inside the BFS, an opening in the concrete ceiling for installation of equipment can be avoided. There is no need for a long pneumatic cylinder which would protrude beyond the process tower. Furthermore, the inlet plenum features a reduced overall height. Due to the flat tangential air inlet, the air flow of the distributor bottom has been optimized. The low position of the multi-function outlet valve enables easy operation during feeding and discharging. The height of the transfer tube from the BTS to the BFS conveys wet granules in excellent ergonomic and process form. The tube is very short, straight and smooth inside. This transfer layout in combination with the multi-function valve ensures unobstructed flow without elbows or bends. A platform, which is common for traditional 2-level equipment and needs to be cleaned frequently, is not necessary with our concept.

Open tangential sieve

A very important development for smooth product transfer has been introduced in the last Innovativ - the Bohle-Tangential-Sieve in design sizes "300" and "400". When product flow of wet granules is required, typically it cannot be fluidized again without mechanical treatment. With the design of our new tangential sieve, material blockage is virtually eliminated. The transition between the outlet of the GMA wet granulator and the BTS tangential sieve is straightforward and has no reductions. The material falls onto the unperforated bottom of the sieve via gravity. From there it is moved by the impeller through a screen vertically positioned in the cylindrical part of the sieve body. As such, the product flows tangentially inside the tube in the same direction as the transport air, in a non-tortuous path. This allows a perfect dosage of product inside the transfer line. →

Air flow during product transfer

→ Continuation: **Compact Unit**

The innovative Bohle Compact Unit is the new highlight in the field of traditional wet granulation. Of course, the fluid bed system can handle further applications. With the optional spraying system, spray granulation as well as pellet coating and layering processes are possible. Changeover of the product bowl is not necessary. This saves a significant amount of space in the production area.

Position of sieve to transfer hose

In additional to all the technical advances, improvements in the field of safety have been made. The wet granulator GMA and the Bohle Tangential Sieve, including the transfer tube, is shock pressure resistant up to twelve bar. Consequently all equipment parts in contact with dust or solvents (if required) are designed for shock pressure resistance.

When it comes to how traditional wet granulation can be realized economically and ergonomically, Bohle's Compact Unit is a compelling solution. Featuring many technological advances and inherent safety considerations, the Compact Unit creates the industry benchmark.

Please contact us for further detail about the Compact Unit's convincing capabilities for your applications. ■

Check of granulation process through inspection window

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PO-Box 1162 · 59303 Ennigerloh, Germany
Fon: +49 (0) 25 24 93 23-0
Fax: +49 (0) 25 24 93 23-29
info@lbbohle.de · www.lbbohle.de

# The Bohle extruder

## New development for continuous granulation.

The well known Bohle continuous dryer is now enhanced by a synchronous, twin-screw extruder. Promising initial trials exhibited minimal residence time with excellent granule characteristics. Via possible screw geometry modification through the use of different, interchangeable segments and changes in screw speed, the extruder can be used for multiple granulations tasks. Precise measurements of the torque on both screws guarantee full process control. As always, the design and implementation of the extruder follows standard pharmaceutical guidelines. Simplified cleaning, a hallmark of all Bohle process machines, is also a characteristic of the new extruder. Contact us to get more information and to arrange your trials on the new Bohle extruder. ■

The Bohle extruder