

S-JET[®] System from NETZSCH – CONDUX

Full steam ahead into the submicron range

Until now you had no choice: Wet grinding was the only way to process material with particle sizes in the submicron range. If the material was to be used in a dry form, moisture had to be extracted from the pulverised product, and that can be a costly process.

Dry grinding in the nano range with improved Performance

Recently NETZSCH-CONDUX Mahltechnik GmbH in Hanau, a worldwide leading company in the area of processing of dry products, together with Dr. Roland Nied, a world renowned scientist in particle processing technology, developed an alternative: The *S-JET[®]* System (patent pending) – **s** as in **s**tream and **s**uperfine. This system makes it possible to dry grind material to particle sizes in the submicron range, with considerably improved performance. The mechanical requirements are fulfilled by our consistently refined Fluidized Bed Jet Mill, CGS.

How is this possible?

„To increase the energy needed to pulverise material, we changed the type of gas we use from air to steam“, explained Thomas Schneider, Marketing Manager of NETZSCH-CONDUX Mahltechnik GmbH in Hanau. „Superheated steam is already being used as a grinding medium in older spiral jet mills without an integrated air classifier. These jet mills leave an oversized residue, meaning that no defined particle sizes in the nano range could be achieved. This is not the case when it comes to our *S-JET[®]* System.“

The Functional Principle

„Simply spoken, superheated steam provides two considerable advantages“, Schneider went on to explain. „First, jet streams of up to 1.200m/s can be obtained with steam, whereas the upper limit obtained with air is about 600 m/s. This increases the kinetic impact energy of the particles in the fluidized bed fourfold, whereby they can be pulverized to a nano scale. Second, the speed of sound of steam is approx. 550m/sec; that of air is only 330m/sec. This increases the possible circumferential speeds of the classification current inside the dynamic classifier wheel and the force of acceleration on the particles. This effectively results in a finer cut point allowing classification into the nanometer range. This makes using Fluidized Bed Jet Mills sensible.“

The plusses of this process at a glance:

- highest finenesses (< 1 micron)
- up to double the throughput capacity
- considerably higher degree of efficiency
- processing of difficult products
- optimum product performance
- highest product purity
- steep particle size distribution
- virtually contamination-free grinding
- highest possible product yield

Innovation through Experience - to the benefit of our Customers

„Good ideas are not created by magic, but rather by solutions based on know-how and technical achievements“, stated Thomas Schneider, regarding the innovative ability of his company. „Naturally NETZSCH-CONDUX's long experience and market leadership have already helped to meet many challenges. Our customers benefit from not having to become grinding specialists themselves to solve the application problems that we can provide the exact solutions for, economically and expeditiously. NETZSCH-CONDUX has a long research tradition. Highly qualified employees have been working for many years in our in-house laboratory to develop solutions for specific applications“.

Our company skillfully combines the lean-management of a mid size business with the possibilities of a global player. As a member of the business unit Grinding & Dispersing of the international NETZSCH Group, NETZSCH-CONDUX develops and manufactures machines and plants for fine-grinding and classifying the finest powders, in close cooperation with our renowned customers.

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