

## PRESS INFORMATION

### **New standards in the production of dry solids from liquids and suspensions.**

Indirectly heated contact disk dryer – Allgaier CD Dryer

**The call for energy-efficient devices is becoming ever louder in drying technology. At the same time, cost pressures and the demand for end-product quality are increasing. Especially for drying solids dissolved or suspended in liquids, Allgaier now has a solution that satisfies the stringent demands of the industry: the CD Dryer.**

#### **Indirectly heated contact dryer**

The CD Dryer is an indirectly heated contact dryer. The drying process goes like this: The liquid is applied by way of a pump and feed pipes directly to double-walled disks that rotate and are configured vertically as an assembly. The disks are heated internally using saturated steam. The direct transfer of heat to the liquid product evaporates the water very quickly, thus providing excellent efficiency because heat losses are minimized. After one disk rotation, scrapers making contact with the disks remove the dried solids and send the dry material obtained to the next process step – in the form of pellets, films or flakes depending on the output product – by way of a product discharge. For example, the solid material portion of concentrated salt solutions can be obtained as a fine-grained powder. Using the downstream conveyor unit, the product can be transported further or collected directly using a silo or another container. The principle of operation of the CD Dryer is fundamentally different from conventional disk dryers where the disks are immersed in the moist material. They are usually used only to reduce the water content of liquid, paste-like or bulky products to save transport costs, for example. The CD Dryer provides considerably more varied options for use, thus opening great potential in a widely diversified application spectrum.

#### **Many application areas with little space required**

One branch where the CD Dryer achieves outstanding drying results is the treatment of organic and inorganic industrial and special waste water, for example. A large portion of industrial wastewater comes from the foodstuffs branch. Slaughterhouses, breweries, soft drink factories, distilleries and dairies produce large quantities of wastewater. Accordingly, they also benefit greatly from the lower disposal costs that come from treating the product with the CD Dryer. Examples of inorganic wastewater that can be concentrated or dried using the CD Dryer are landfill leachate, bentonite and china clay sludges, wastewater loaded with tin and tungsten sludges. Another area where the CD Dryer can be used for extremely cost-effective drying is the processing of the most varied plant and animal materials such as algae suspensions, brewer's yeast, distillation residues, fish wastewater or gelatins. In addition to this, the CD Dryer can dry all materials that can be pumped, that do not caramelize, that do not contain solid elements and that do not produce a great deal of foam. As a result, it can be

used in virtually every branch of process engineering in the chemical industry, ranging from the ceramics industry to waste management, wastewater treatment and breweries.

In all of these areas, the new CD Dryer represents an interesting alternative to conventional drum dryers that are usually used to dry solids dissolved or suspended in liquids. The space required by the disk assembly in the CD Dryer is up to 60 percent less than that of the drums of a comparable drum dryer having the same heat-transfer surface. The compact configuration has another advantage. If necessary, the dryer can be moved as a single unit simply and quickly to another location. The fork shoes needed for transport are located beneath the process space. In addition, the control cabinet necessary for operation is integrated into the machine frame. As a result, the CDC Dryer provides maximum flexibility in production.

### **Disk assembly as the engineering heart**

The heart of the CD Dryer is the disk assembly. The hollow disks are heated from the inside using saturated steam at a pressure of up to 5 bar. This provides efficient contact drying of the liquid products. Depending on the application or the product characteristics, the material of the disks and the coating on the disks can be adapted for highly corrosive or even abrasive products, for example. The diameter and number of disks depend on the desired throughput. There are two options available for this: Disks with a diameter of 900 mm or 1300 mm. Both disk diameters are available in three housing sizes each. For up to four, eight or 12 disks (900 mm diameter) and for up to eight, 12 or 16 disks (1300 mm diameter). If greater throughputs are required, it is easy to add additional disks – up to the maximum possible number of disks for the type – to the CD Dryer, thanks to this platform design.

The sturdy scrapers to extract the dry material from the heated desks are available in different material versions and are automatically aligned to make optimum contact with the disk sides.

With the CD Dryer, you can see at a glance whether the production process is running as desired. The cover, which is made of laminated safety glass and swings up, allows the process to be monitored easily from the front while the system is in operation. When opened, it also allows convenient access to the process space for cleaning tasks and for checking or adjusting the blades. The two technical spaces – the steam technical space on the left and the condensate space on the right – have viewing ports and an integrated work light for visual inspection. Separate swinging doors provide good accessibility to the technical spaces for maintenance work. You can intuitively call up or change the current machine data or process data using a touch panel.

### **Energy-efficient drying**

With the CD Dryer, Allgaier is intentionally betting on the technology of disk drying. It provides compelling advantages compared to the use of drum dryers. The space required by the central disk assembly is considerably less than that for a drum dryer. The following example shows this: For a heat-transfer surface of 24 m<sup>2</sup>, a traditional drum dryer needs 7.7 m<sup>2</sup> of space. A CD Dryer only needs 3.0 m<sup>2</sup>.

In addition to this, the scraping process of the dried products in a drum dryer is comparatively complicated. The blades need to be very precisely adjusted over a length of several meters. Assembly and maintenance correspondingly cost a lot of time and money. With the CD Dryer,

several disks operate in parallel. Each disk has its own short scrapers that are self-adjusting, simple to install and easy to maintain.

And the CD Dryer scores points in energy efficiency. The thin-walled sturdy disks of the CD Dryer ensure ideal thermal conductivity properties. This provides a high specific evaporation power per m<sup>2</sup> of heated dryer surface with a short heating phase of the system at the same time. Compared to convective drying methods in air operation or using gas recirculation, the CD Dryer, being a pure contact dryer, does not need an air supply for heat input because heat is fed to the moist product in direct contact with the heated surfaces. The closeness of the dryer and the fluids substantially reduces the energy consumed in the drying process. In addition, the drying process of the CD Dryer creates only a little – usually dust-free – exhaust air. The resulting small quantity of vapor is removed with a high water vapor concentration. As a result, relatively little heat is lost with the dryer exhaust.

The amount of exhaust air, which, in comparison to convective drying systems, is substantially reduced, also has a positive effect on the acquisition and operating costs. Due to this, the downstream equipment, such as the cyclone separator, filter, washer and exhaust air fan, can be designed to be smaller and can be implemented in a much more cost-effective manner.

The Allgaier test Center in Uhingen has a CD Dryer in semiindustrial scale available for tests using real products. This produces results yielding information on the design of large-scale systems for customer projects.

**Allgaier Process Technology** with its core brands Allgaier, Mogensen, Gosag and Mozer is the market leader in custom-made systems for industrial washing, drying, cooling, screening and sorting applications for all types of bulk material. With a presence in over 40 countries, Allgaier Process Technology serves more than 40,000 manufacturing customers in a variety of industries including, but not limited to, chemicals and pharmaceuticals, food and feed, waste and recycling, mining and metallurgy, biofuels, wood, ceramics, plastics and stones & soil.

For more information please contact:

**Allgaier Group**

Christine Gnädig

Director Marketing & Communication

Ulmer Straße 75

73066 Uhingen

Germany

Phone: +49 7161 301-5148

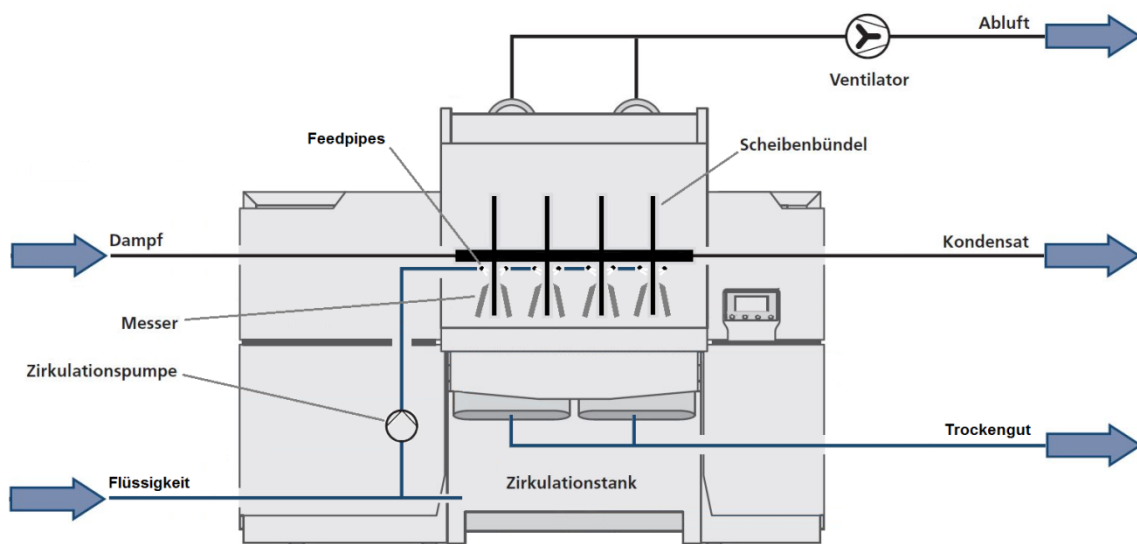
[Christine.Gnaedig@allgaier-group.com](mailto:Christine.Gnaedig@allgaier-group.com)

[www.allgaier-group.com](http://www.allgaier-group.com)

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The **Allgaier CD Dryer** is an indirectly heated contact disc dryer for the treatment of liquids, suspensions and solution containing solids.



Simplified functional principle of the Allgaier CD Dryer



The disk bundles heated up to 5 bar by means of saturated steam from the inside are very robust and can be adapted to the product properties in regards to abrasion and corrosion.



Compact design - the space requirement of the disc package in the CD Dryer is up to 60% lower than that of a comparable drum dryer with the same heat transfer surface.