SWIRL FLUIDIZER®

From paste to powder in one efficient step

GEA engineering for a better world

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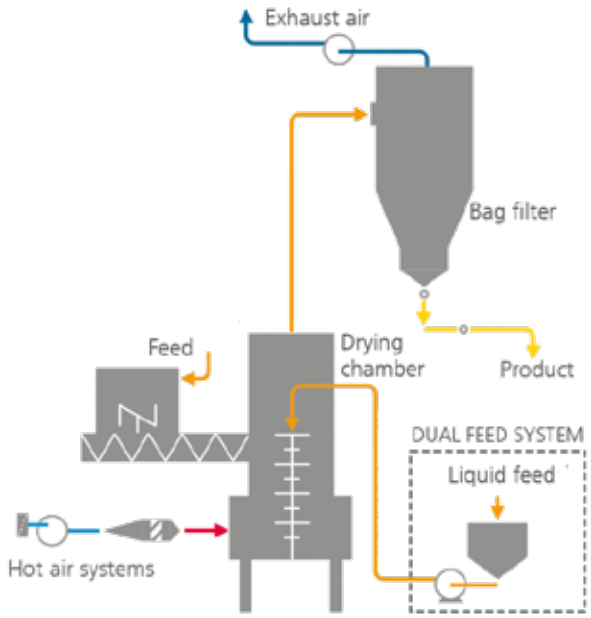
SWIRL FLUIDIZER®

A cost-effective system for obtaining fine, homogeneous high quality powders from pastes, filter cakes and other viscous slurries.

How the SWIRL FLUIDIZER® works



Drying chamber

The heart of the process is the drying chamber, in which feed disintegration, evaporation and powder classification take place. The rotation of the air created by the tangential air inlet and the disintegrator assures very rapid moisture evaporation. It also supports the separation of the dry fine powder, discharged at the top, from the remaining moist, larger particles. The bottom of the chamber has a conical design to ease the conveying of larger product lumps upwards in the drying chamber, while the entrance of the hot drying gas into the chamber is configured in such a way that product will not fall back into the gas disperser. Cooling of the hot air entrance is an option for heat-sensitive products.

Feed tank

The cylindrical feed tank is equipped with a slowly rotating agitator that ensures a steady feed supply to the bottom-mounted, frequency-controlled dosing screw, transferring feed to the drying chamber at a continuous and controllable rate.

Hot air system

Hot drying air is supplied to the air disperser at a controllable rate to ensure optimum thermal efficiency of the drying process. In principle, any available energy source can be used.

Powder recovery and exhaust air cleaning system

Most customers select a bag filter for dried product collection and cleaning of the spent drying air.

Safeguarding the system

For organic products with a fire or dust explosion risk, the drying plant can be protected by pressure relief to a safe area, explosion suppression or use of an inert drying gas. For dusts, the inert gas may be generated by a direct gas-fired air heating system – the so-called self-inertising principle. An external inert gas supply is required when drying organic solvents.

Dual Feed System (patent pending)

The Dual Feed System is ideal for products with too low solids content and thereby low viscosity – for example silica and titanium dioxide. Available for new installations and as a retrofit to existing units, this new principle of operation uses the mixing that already takes place in the drying chamber. Two inlet systems ensure that the dry powder is immediately mixed with the liquid feed so that the moisture is distributed over the entire powder surface for rapid evaporation.

Ready to serve you

Regardless of the industry or application, GEA's comprehensive pilot plant facilities are available for testing. If you are in doubt about which system to use, let us arrange a pilot scale test of your product in our test center. Our skilled process specialists will make sure you achieve the final product quality you need. You're also free to draw on GEA's overall expertise in the field of drying. Having supplied more than 10,000 drying plants world-wide, GEA is equipped to serve you.

Fast, efficient processing

When it comes to drying pastes, filter cakes and highly viscous slurries, GEA's SWIRL FLUIDIZER® offers a cost-effective solution for obtaining a fine, homogeneous, non-agglomerated dry product – in one compact process step.

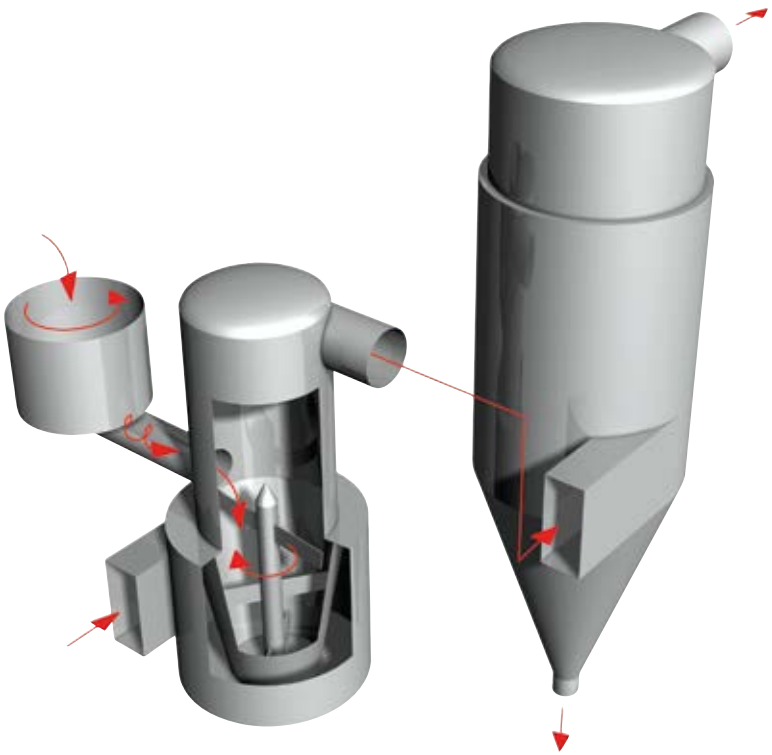
Unlike the SWIRL FLUIDIZER®, conventional drying processes such as contact dryers, band dryers, drum dryers and tray dryers are all characterized by lengthy, energy-consuming processing time and the need for costly post-treatment such as milling.

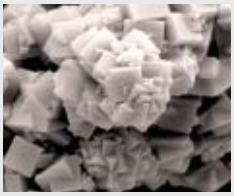
But the efficient SWIRL FLUIDIZER® requires neither post- nor pre-treatment. It can even handle filter cakes with a very high solids content in one step, making it an attractive alternative to spray drying for applications where dilution is needed to obtain a pumpable, sprayable feed.

YOUR ADVANTAGES

The SWIRL FLUIDIZER® delivers the following main process advantages:

- Handles non-pumpable products
- Combines drying and product treatment in one stage
- Saves energy
- Operates continuously
- Fully automatic operation minimizes manpower requirements
- Requires only a minimum of space
- Transfers heat and mass effectively
- Virtually eliminates heat loss
- Simplifies maintenance





SWIRL FLUIDIZER®

Tailored to your needs

The SWIRL FLUIDIZER® is available in a number of versions, all configured to meet your exact requirements. This includes closed-cycle designs for operation with organic solvents and reinforced designs for dust explosion protection.

Ideal for many applications

Today our comprehensive SWIRL FLUIDIZER® delivery program covers a wide range of applications from small standardized units to very large industrial installations.
The flexible SWIRL FLUIDIZER® is the choice of chemical industry customers as well as the pharmaceutical and food industries.

Chemical industry applications include:

- Agrochemicals – typically various herbicides and fungicides
- Ceramics – silica, bentonite, kaolin, etc.
- Dyestuffs/pigments – iron oxides, titanium dioxides, phthalocyanines, zinc phosphates, etc.
- Inorganic chemicals – metal carbonates and hydroxides, calcium phosphates, zeolite, etc.
- Organic chemicals – optical brightener, flame retardant, polymers, etc.
- Waste products – sludge, sediments, etc.

GEA Service – For your continued success

Excellent equipment or plants are one thing, the right service is another. With several options of the innovative service concept "GEA Service – For your continued success" GEA customers are optimally being supported throughout the entire life cycle of their installed systems and components. From project engineering, installation, and commissioning to maintaining and improving the performance of the customer's plant and equipment.

The SWIRL FLUIDIZER® is available in several sizes. This picture shows the drying chamber for a unit designed to dry more than 12 tons of powder per hour.

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