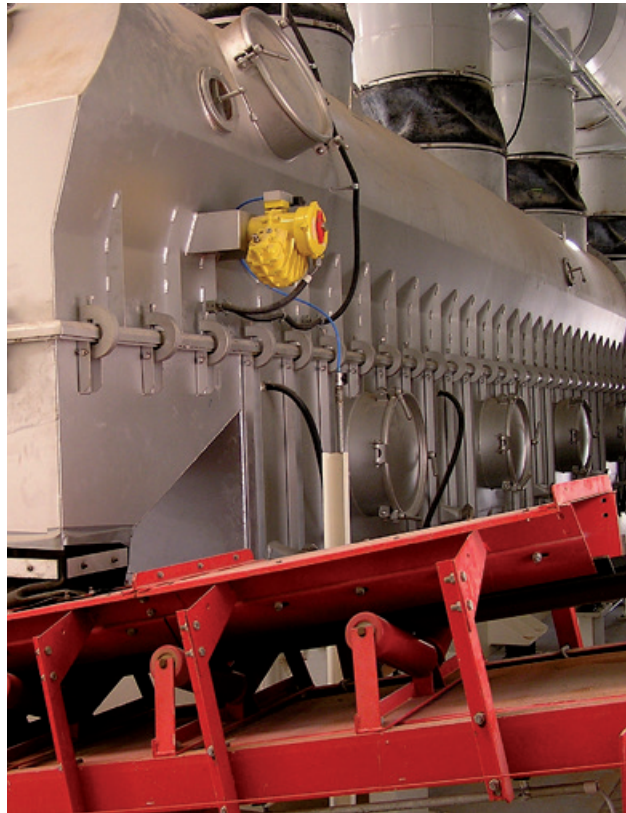


# Drum Dryer System TK+

Combined Drying and Cooling with reduced energy consumption



# Drying Technologies for Mineral Raw Materials

## Rotary drums and fluidized bed dryers add quality to your process

### Allgaier drum and fluidized bed dryers make processes more productive

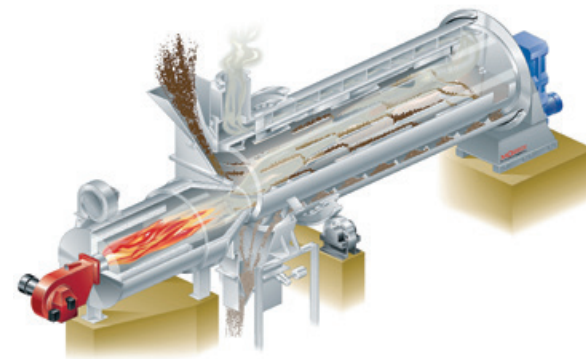
Allgaier dryers are used successfully in almost all industrial sectors, including Mineral Processing, Chemicals, Fertilizers, and Recycling.

Allgaier's Rotary Drum Dryers and Fluidized Bed Dryers are extremely adaptable, and the extensive list of available options allows for usage in a wide variety of process applications.

### Application areas of fluidized bed and drum dryers

- Building materials
- Sand
- Minerals
- Limestone
- Glass cullet
- Molding or foundry sand
- Ceramics
- Chemicals
- Pigments
- Clay
- Bentonite

- Fertilizers
- Recycling
- Waste materials
- Inorganic sludges
- Filter cakes
- Iron sulphate
- Titanium dioxide
- Hydroxides
- Magnesite
- Magnetite
- Metal chips
- Wood chips
- Gypsum
- Ore
- Ilmenite
- Slag
- Potash
- Salts
- Dolomite
- Fly ash
- Coke
- Anthracite
- Talc
- Steel shot
- Bone grist
- Fodder
- Cocoa nibs
- Rice



### Features

- High thermal efficiency
- Limited number of wear parts
- Product-optimized drying
- Wide variety of process options
- Easy access for quick replacement of spare parts
- Variable design for different products

### For every requirement

Regardless of whether a single unit or a complete system is needed – Allgaier can meet every requirement. With complete solutions, including engineering, installation and commissioning, Allgaier proves their competence in the area of plant construction.



## Drum Dryers

### Single-shell, double-shell and triple-shell drums

Allgaier rotary drum dryers are used, primarily in the minerals industry, for drying free flowing, as well as sticky and abrasive, wet materials.

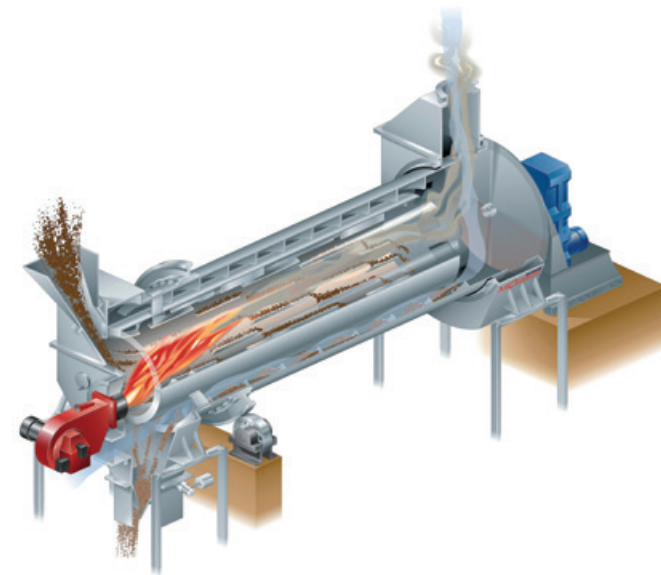
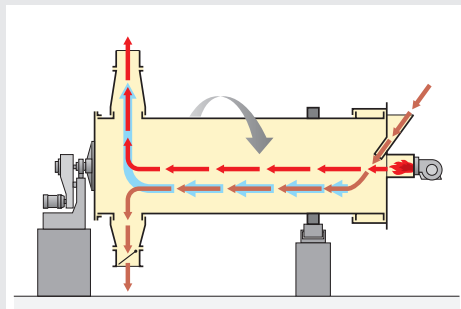
Their main features are high throughput rates and the ability to process solid materials with widely differing grain sizes.

The drum dryers are available in single-shell, double-shell and triple-shell versions and the design ensures high performance in a small space. Special versions also allow for the use of combined processes.

Allgaier Rotary Dryers use proven flighting designs pioneered by Mozer®.

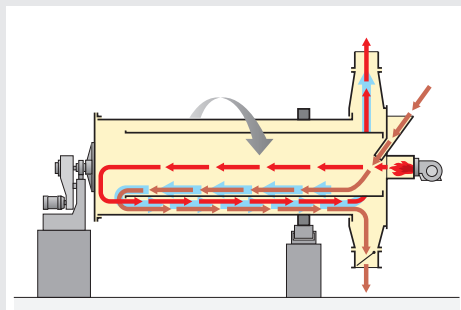
#### Single-shell drum TTD

For coarse-grained materials, clay products, broken glass, etc.



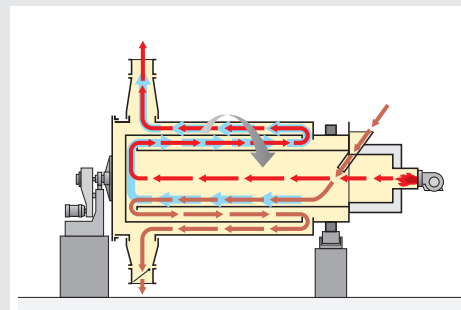
#### Double-shell drum TT

For drying of fine-grained minerals, silica sand and ore.



#### Triple-shell drum TT-T

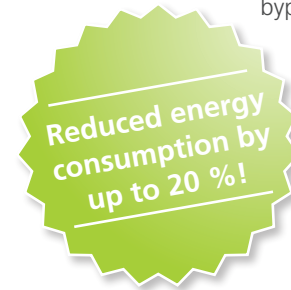
For drying of free-flowing products, with fine-to-medium grain sizes, that require long dwell times. For easily free-flowing products with fine to medium grain sizes.



### Combined processes

Allgaier has perfected the use of drum dryers, and the result is a range of designs that combine processes in a very effective and effective single system.

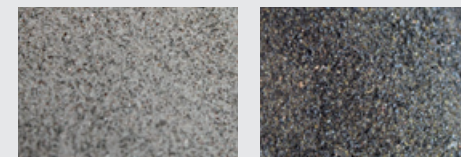
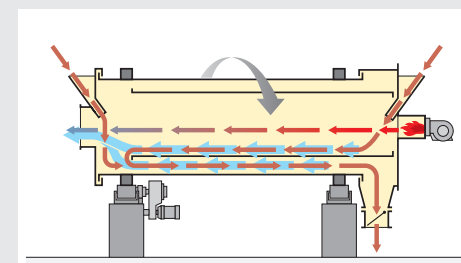
For example, the double-shell drum dryer, System TK, and its even more efficient counterpart, the System TK+, which dries and cools homogeneous products, such as sand, in a single step. The System TK+ feeds a portion of the wet product, or "bypassing product", into the outer drum. There it is mixed with the dry and warm product from the inner drum, allowing for the bypassing product to be dried, and the dry product to be cooled by evaporation.



### Drying/cooling of sand

#### System TK+

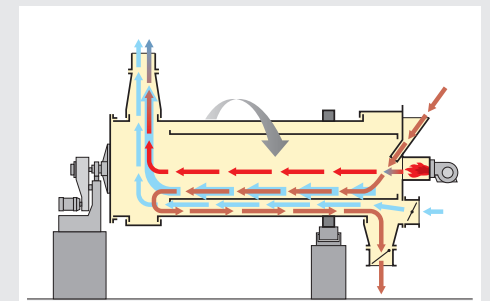
Double-shell drum for combined drying and evaporative cooling of sand. Uses include ready mixed dry products like mortar and plaster.



### Drying/cooling

#### System TK

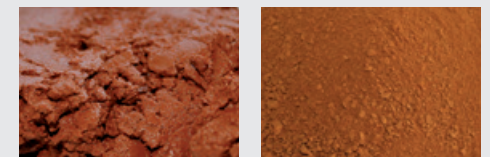
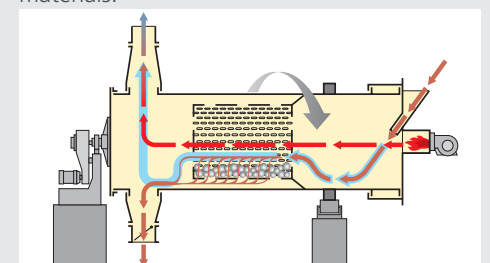
Double-shell drum with air-cooling path, for grain sizes up to 32 mm (sand, crushed limestone, etc.)



### Drying/crushing

#### System TTM

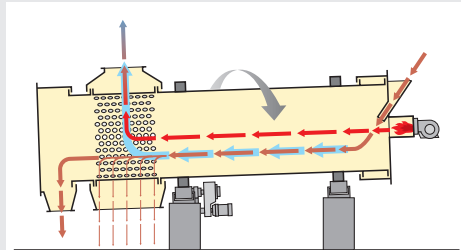
Single-shell drum with Grinder - Dries and crushes lumpy materials such as filter cakes. This improves or enables the drying of lumpy products to produce fine grained dry materials.



### Drying/screening

#### System TTT

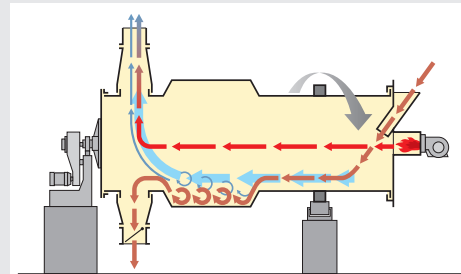
Single-shell drum with Screen - dries and screens materials such as aluminum scrap and shredded recycling products, therefore reducing the need for separate downstream screening steps.



### Drying/cleaning

#### System TRH

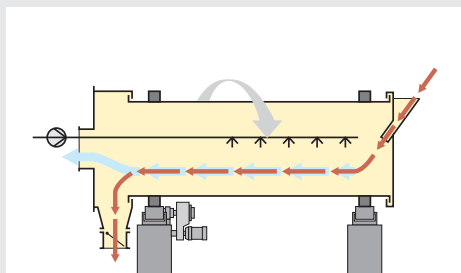
Single-shell drum with Cleaning Zone - replaces separate washing steps for materials such as limestone aggregates, and also increases the amount of good material from dry separation.



### Granulation and coating

#### System ST

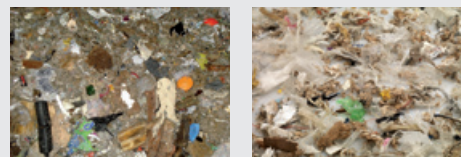
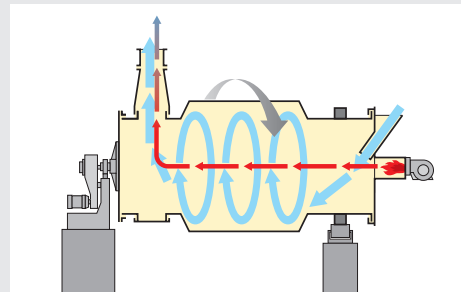
Produces granules from powders and cakes, such as of fertilizers, lime, bentonite and clay. It can also be used for coating applications e.g. urea nad potash granules.



### Drying of waste

#### System TTD

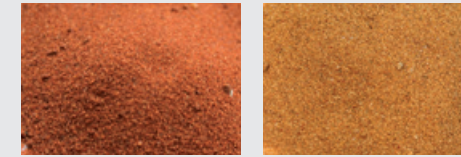
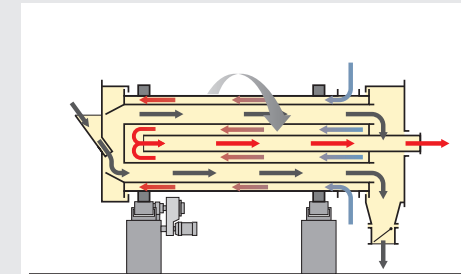
Dries municipal waste or paper rejects quickly and economically.



### Cooling

#### System RK/KT-R

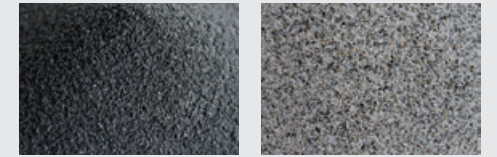
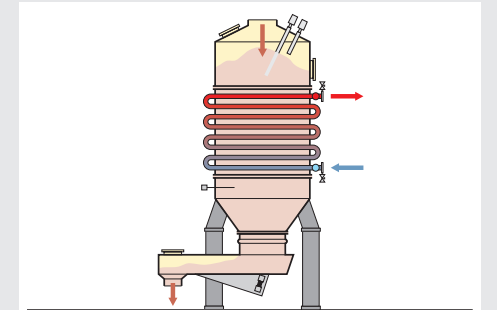
Two different models of indirect rotary drum coolers for hot bulk materials such as titanium dioxide, slag, hydroxides and gypsum, that provide for heat recovery from the hot products.



### Cooling

#### System SK

This static, water-cooled sand cooler can be combined with a Rotary Dryer to achieve uniformly low outlet temperatures, regardless of the ambient temperature.



## Fluidized bed dryers and coolers

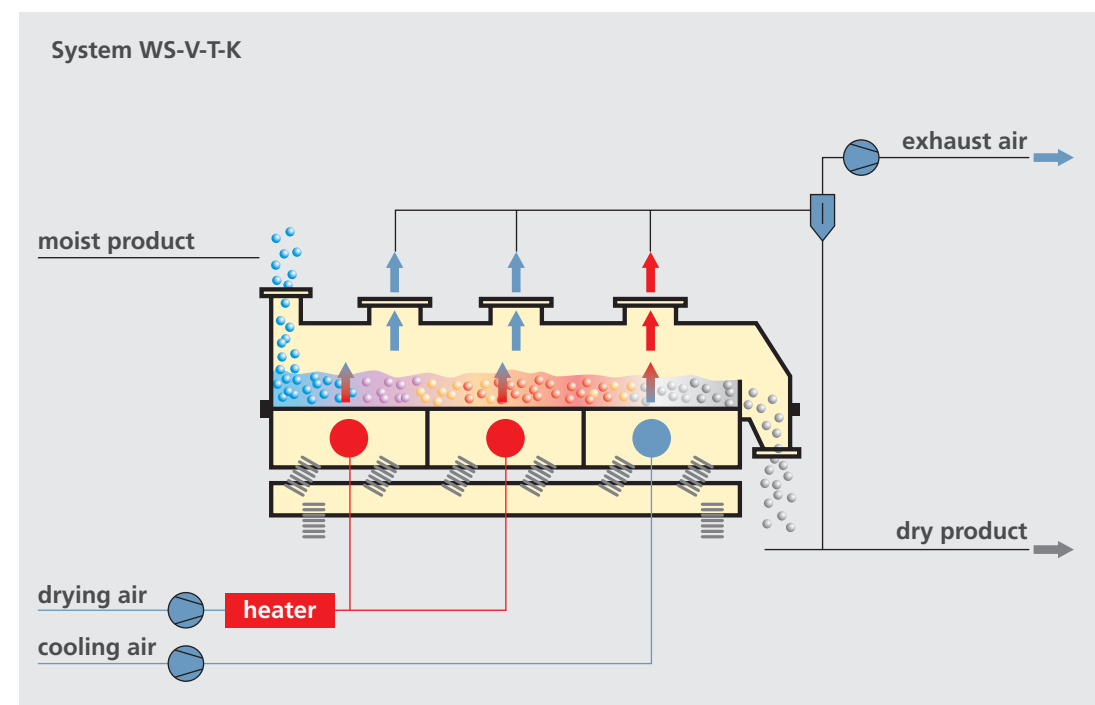
Allgaier fluidized bed dryers can be used effectively for the treatment of materials such as sand, limestone, ceramics, pellets, granules, mineral fertilizers, salt and fine chemicals.

The high rate of heat transfer in the fluidized bed ensures economical solutions and results in small plants.

The dryers are extremely well-built and have no moving parts inside the process space. This results in minimal costs for maintenance and spare parts.

### Features

- Low temperatures of the dried materials
- Careful drying of sensitive products like granules and pellets
- Exhaust-air heat recovery systems available
- Simultaneous dust removal from the fluid bed
- The product dwell time and the quality can be adjusted by regulating the height of the fluidized bed



## Application areas

|                              | Drum dryers   | Fluidized bed dryers   |
|------------------------------|---|--|
| <b>Materials to be dried</b> | Pourable to sludgy materials with large grains or lumps and major variations in the grain size and moisture content   | Dusts, powders, granules, crystals, pellets, large-grained goods, goods which cake easily, thermally sensitive materials, mechanically sensitive materials, ...                          |
| <b>Application areas</b>     | Mineral substances, sand, sludge, limestone, gypsum, fertilizers, hydroxides, animal fodder, coal, waste materials, wood, domestic garbage, ...   | Fine material substances, sand, clay, fertilizers, foodstuffs, chemicals, plastics, recycled materials, salts, pigments  |
| <b>Processes</b>             | Drying, cooling, mixing<br>Pyrolysis, calcination<br>Coating, granulation   | Drying, cooling<br>Granulation, agglomeration<br>Crystallization, roasting, calcination  |
| <b>Combined processes</b>    | Drying / cooling (sand, limestone, broken rock, clay, ...)<br>Drying / cleaning (dirty natural stone)<br>Drying / screening (shredded materials)<br>Drying/crushing (filter cakes)<br>Drying of granulates (sludges, cakes) | Drying / cooling<br>Granulating / drying / cooling<br>Drying / grading / cooling<br>Drying / dust removal / filler removal   |
| <b>Models and versions</b>   | Single-shell, double-shell and triple-shell drums<br>Separate combustion chamber available  | Static fluidized bed dryers / coolers without mechanical drives<br>Vibrating fluidized bed dryers / coolers<br>Fluid bed spray granulators<br>Suspension and past dryers<br>Batch dryers |
| <b>Heat-transfer media</b>   | Direct heating with flue gases produced by the combustion of natural gas, fuel oil or coal.<br>Indirect heating with saturated steam, thermal oil, etc.   | Direct heating with flue gases produced by the combustion of natural gas, fuel oil or coal.<br>Indirect heating with saturated steam, thermal oil, etc.                                  |



## Service and Test Center

### Reliable after-sales service

Allgaier is a reliable partner from the start of a project to the after-sales service – with very competent consultant engineers, a high level of mobility and a dependable spare part service.

of expertise, experience and instinct and is not easy.

The Allgaier Test Center is attuned to this and finds the best solution with the aid of practical tests.

### Process knowledge for better processes

Since the drying behavior of moist products varies widely, the drying systems must be designed and adapted accordingly – a task which requires a lot

With the support of experienced specialists, the test center carries out product-development work for customers. It goes without saying that this work is kept absolutely confidential, in our client's interest.



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