ALLGAIER | PROCESS TECHNOLOGY

Drum Dryer/Cooler | System TK-D

Combined drying and cooling with heat recovery

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Drum Dryer/Cooler System TK-D

Combined drying and cooling to low material temperatures

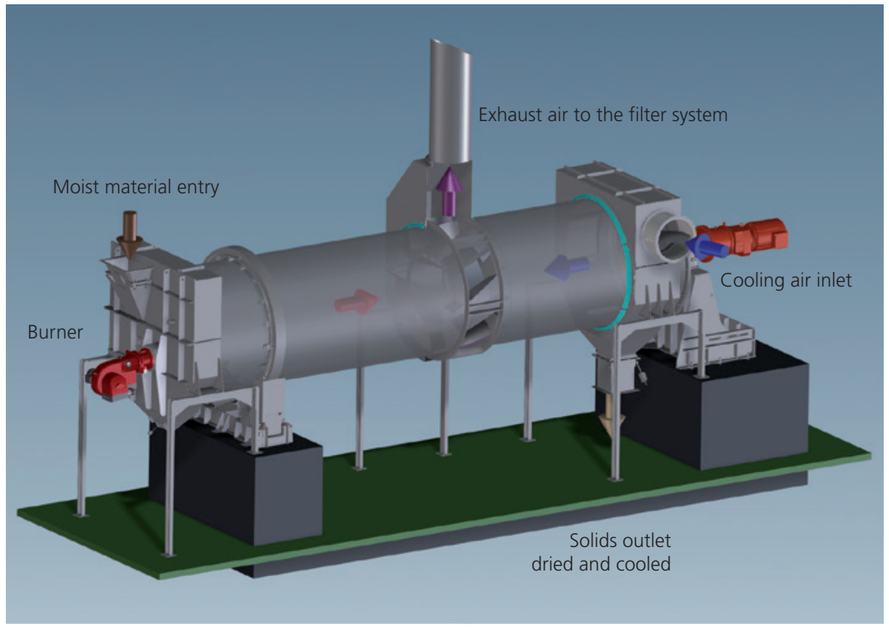
The TK-D Series Drum Dryers are a refinement of the extremely successful Allgaier Series TK and TK+ Dryers/Coolers. Adding the option of cooling to particularly low solid temperatures and efficient heat recovery with the resulting energy savings makes the TK-D Series a welcome complement to the TK and TK+ Dryers/Coolers.

Allgaier's drum dryer applications span a number of industries. Processing construction material is a perfect example of their effectiveness and efficiency. After being dried, construction materials require a low temperature for further processing. This is achieved by cooling that occurs immediately after drying. Cooled solids temperatures of 55 °C to 60 °C are adequate for most applications in the construction and minerals industries. In some cases, however, lower temperatures around 30 °C to 40 °C are required for the dried output materials. This is the case when temperature-sensitive additives are mixed with the dried sands, for example, foundry sands or ready-mix products such as construction adhesives.

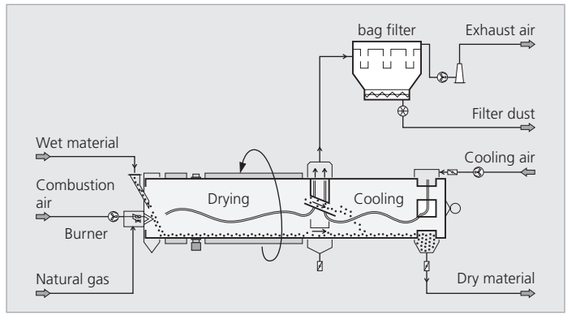
Advantages:

In contrast to the double-shell TK Drying/Cooling Drum, the single-shell TK-D has no contact points between the cooling dry material and the hot inner drum in the entry area of the dryer. Through this design, the TK-D Drying/Cooling Drum outputs low-temperature dried solids approaching ambient temperature or the temperature of the cooling air used.

Drying/cooling drum in operation



TK-D with single extraction of the exhaust air streams

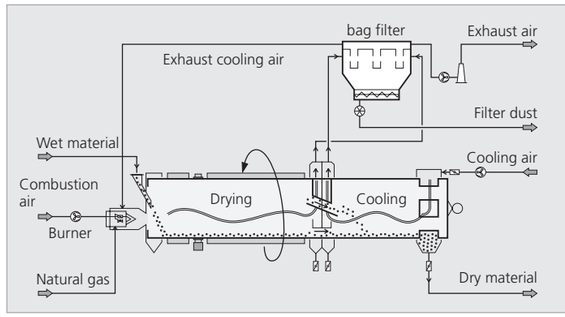


Single extraction of the exhaust air streams

With a two-part configuration of the central chamber, exhaust air streams from the drying zone and from the cooling zone can be indiviually extracted and dedusted. While the moisture-laden dryer exhaust air is dedusted and released to the atmosphere, the warm, dry and dedusted cooling exhaust air can be returned to the process as preheated drying air resulting in heat recovery from the dry, warm solid. This provides savings of the primary heating energy such as gas or oil.

The separate supply and exhaust of the gas streams allow different process controls between the solid and the gas (air):

- Co-current flow or counter-current flow drying, independent of one another, can be combined with
- Counter-current flow or co-current flow cooling



Separate extraction of the exhaust air streams and heat recovery

The use of counter-current flow routing of the drying air and the stream of solids is a particularly efficient high-temperature process for solids immediately followed by cooling.

The drying or heating zone can be configured and optimized completely independently of the cooling zone.

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