

## Yeast drying

Added value instead of waste



# Brewer's yeast

## Efficient indirect drying



When brewing beer, yeast is produced as a by-product. This product is usually treated as waste. Brewer's yeast, however, contains valuable ingredients, such as amino acids, proteins, and minerals. These ingredients can be re-used in several food products. For this purpose, ANDRITZ Gouda has developed an efficient drying process. First of all, the yeast is dewatered mechanically to the highest achievable dry solids content and then dried on a drum dryer, thus ensuring low energy consumption. This process can also be used for the yeast by-product from large-scale alcohol production facilities.

### Process description

The wet yeast is collected and processed in a decanter. In the decanter, the yeast is separated to 30% dry solids content and

then fed to a holding tank. From there, the product is fed to the drum dryer by means of a pump. As a result of the drum dryer's heat treatment process, no further treatment is needed to break down the yeast cells. After the yeast has been dried to a dry solids content of 95%, it is transported by a pneumatic conveyor, passes through a mill-sifter, and finally arrives in a storage silo. After this, the dried yeast is prepared for packaging.



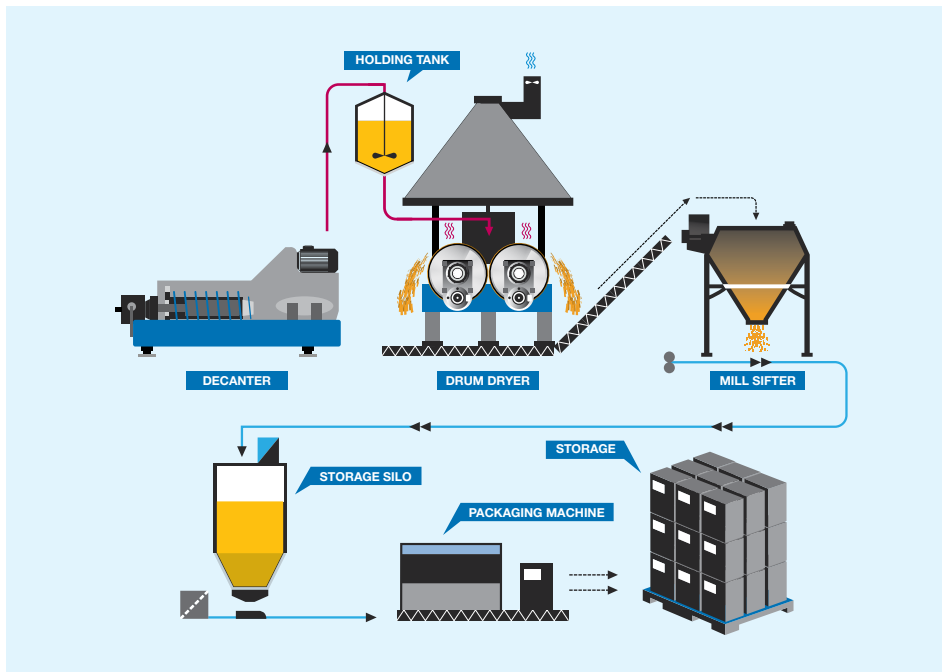
### Efficiency

Compared to direct drying processes, indirect drying on a drum dryer requires less hot air to achieve evaporation. The heat is generated by steam, for instance, and the (metal) wall of the drum transfers the heat to the product. The wall of the drum ensures that all the heat is used to dry the product and does not leave the machine or chimney unused.

This makes indirect drying a much more efficient process. An added advantage is the fact that large dust recovery systems (such as filters) are no longer necessary because there are no large amounts of drying gas. To ensure low emission values, it is recommended to clean the exhaust vapors in a small biofilter before releasing them into the atmosphere.

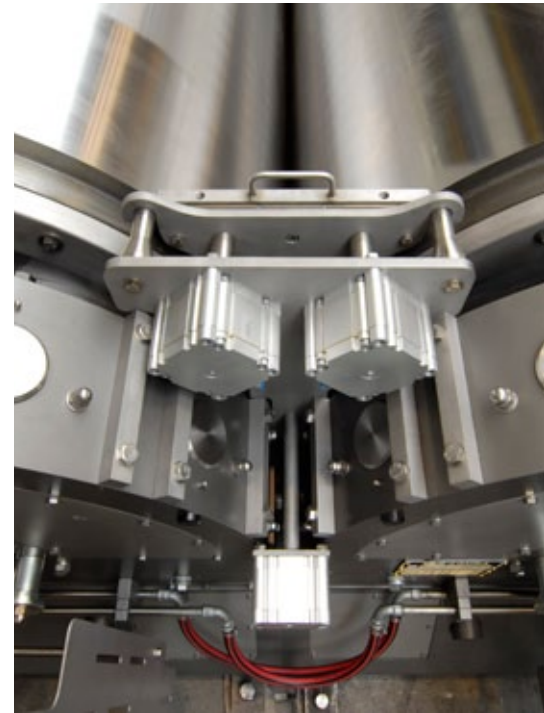
# The ANDRITZ Gouda drum dryer

## The heart of the process



▲ Yeast drying process

Detail of a double drum dryer ▶



### The heart of the process

The heart of the installation is the ANDRITZ Gouda double drum dryer. The dryer mainly consists of two cast iron cylinders that are heated inside with saturated steam. The thickened yeast concentrate is fed between the rotating drying cylinders so that the product can form a so-called hot "sump". From this sump, the yeast is distributed over the rollers in a thin layer. Inside the drum dryers, the cylinders are heated with saturated steam, which then condenses on the wall of the drum.

The condensate is removed continuously from the drum so that the largest possible surface area remains available on the inside of the drum for condensation of the steam. The steam system is a closed loop, which means that the product cannot come into contact with the steam or condensate. As a result of its contact with the hot cylinder

surface, the water in the thin yeast layer evaporates. When the cylinders have rotated through two-thirds of a revolution, the dry, solid matter is scraped off the cylinders with a knife.

### Knife holder

The clever design of the knife holder guarantees even knife pressure over the entire length of the drum. The use of specific materials prevents vibrations that result from

scrapping and guarantees uniform product removal. The knife pressure can be controlled easily from outside the process area.

Two discharge screws and a pneumatic conveying system transport the dried yeast to the downstream process steps. This drum dryer is available in a variety of sizes, from 1.5 m<sup>2</sup> up to 38 m<sup>2</sup>. A large number of ANDRITZ Gouda drum dryers for this application are operating around the world.

### Benefits

- Compact, safe, and simple
- Perfect solution for drying brewer's yeast and yeast from alcohol plants
- No additional autolysis necessary
- High energy efficiency due to pre-evaporation

## ANDRITZ Gouda

ANDRITZ Gouda has been implementing complete process solutions for the environmental, chemical, and food industries for over 100 years. As a machine manufacturer as well as process solutions expert, ANDRITZ Gouda is able to handle all of the stages involved in designing and building plants, including engineering, service, installation, and commissioning.

ANDRITZ Gouda, as part of the international ANDRITZ GROUP, has several pilot plants available to test new materials, generate design data, and provide representative product samples. The proven calculation model for scaling up to industrial size ensures successful application in full-scale processing.



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