

Case Study No 10

SIZE REDUCTION OF FILTER CAKES WITH THE GERICKE NIBBLER

Application Separating solids from a suspension by filtering, centrifuging or drying. Then shredding of the filter cake.

Process The suspension is pumped into the press. The solid particles are deposited on the filter medium and form filter cakes on the filter plates.

To press as much liquid as possible out of the filter cake, the plates are compressed at high pressure by a hydraulic press.

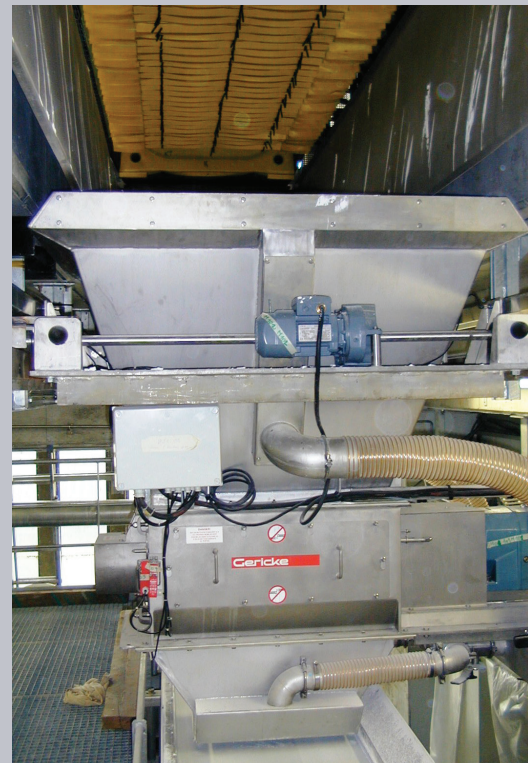
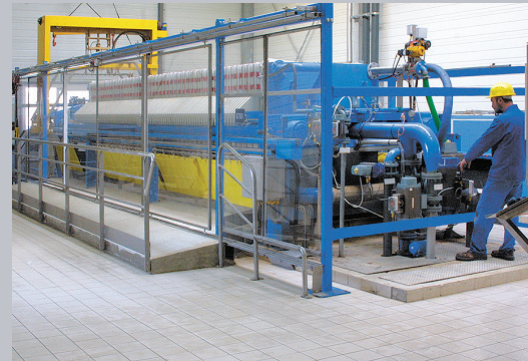
The modular design of the filter presses can provide filter areas from 1 to 1000 m² in area.

The compressed filter cakes are frequently up to 1 m² in size and several centimetres thick.

The product has up to 50% residual moisture when discharged from the filter press. The compressed filter cakes are reduced to the required granulate size by a shredding device, referred to as a nibbler.

Gericke Technology Gericke nibblers are suitable for reducing agglomerates and lumps after storage, drying processes or for recycling of rejected products.

Special feature Some products are tixotropic, which means that the viscosity decreases with increased shear force, making further processing more difficult. The nibbler shreds the filter cakes very effectively with its screening plate. The product is discharged directly into a filling station for drums by a collector conveyor belt.



Processing the filter cake in the nibbler

In most cases the cake is shredded.
The central component of a shredding system is a nibbler.

It consists of a rotor with strips screwed to it and a screening plate. The filter cake is continuously removed from the filter press and fed to the nibbler. The infeed aperture of the nibbler is adjusted to match the size of filter cake.

The nibbler rotor rotates at approximately 80 rpm.
The strips press the complete length of the filter cake against the screen. The shredded solids are collected in a tank or container.

- If products with high residual moisture are being shredded, a hole size of at least 10 mm is recommended to prevent caking on the screening plate.



Screen size: 1 to 25 mm
Throughput (1): 1'500 – 24'000 l/h
Rotor (2): 1.1 – 5.5 kW

(1) The effective throughput depends on the product properties as well as the basket and screen assembly.

(2) Speed 60 – 80 RPM; optional and special rotors available.



Gericke has recently supplied a size reduction system to a chemical plant.

In the plant the nibbler, the feed system and the discharge container are mounted on a movable frame. It moves along the complete length of the filter press to process the filter cakes.

In smaller filter systems the pulverised filtrate is stored in a container.

In very large filter presses it is better to install a conveyor belt below the nibbler to convey the filtrate to a silo.