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On the way to Germany's largest sewage sludge incineration plant: HUBER supplies three HUBER Disc Dryer RotaDry® units for the extension of VERA Hamburg by HAMBURG WASSER. The extension will increase the capacity of the VERA incineration plant by approx. 50 percent. As a result of the extension, the annual throughput of sewage sludge at the plant will increase to about 76,000 tonnes dry matter, with further potential for expansion to 97,000 tonnes per year.



The VERA II plant is located in the port of Hamburg. (© HAMBURG WASSER)



Schematic representation of VERA II. (© HAMBURG WASSER)



Aerial view of the construction work for the expansion of VERA II. (© HAMBURG WASSER)

Energy self-sufficient showcase sewage treatment plant

Digester sludge has been treated thermally in an environmentally friendly way in Hamburg since 1997. The VERA, a recycling plant for residues from wastewater treatment, is the core element of Hamburg's energy self-sufficient sewage treatment plant. In the VERA, municipal sewage sludge and screenings from the Köhlbrandhöft/Dradenau sewage treatment plant network as well as sewage sludge from third parties are thermally treated and disposed of without causing any harm. HAMBURG WASSER has been drying and incinerating its sludge at the Köhlbrandhöft site for over 25 years. The existing plants comprise six drying lines and three lines with a nominal capacity of 3 tonnes dry matter per hour each.

Decision for HUBER Disc Dryer RotaDry® 2064

HAMBURG WASSER and Steinmüller Engineering GmbH decided to use the technology of the Berching-based company and ordered three HUBER Disc Dryer RotaDry® units for the extension of the VERA. The commissioned HUBER Disc Dryer RotaDry® 2064 machines each consist of 64 individually steam-heated discs with a diameter of 2 m and a wall thickness of 10 mm.

When designing the dryers, it was necessary to consider different load cases during operation of the plant. The water evaporation capacity of each dryer is at least 4.6 t/h, which corresponds to a throughput capacity of approx. 10.8 t of original substance per hour.

The partially dried sewage sludge with a dry residue of $\leq 42\%$ is used as fuel in the next process step in the fluidised bed incinerator.

Dimensioning of the HUBER Disc Dryer RotaDry® units

The dryers were dimensioned in such a way that two out of three dryers can provide the partially dried sewage sludge required for VERA II's full boiler load. The vapours (air saturated with water vapour) released during partial drying of sewage sludge are condensed with the help of a spray condensation stage. The process steam, which is extracted from the process steam system, serves as a heat source.

Expected start of construction at the end of 2023, commissioning planned for 2024

The planned new building is directly adjacent to VERA's existing sewage sludge incineration plant and the sewage sludge dewatering and drying plant KETA. The limited space available for construction poses a particular challenge. Assembly is expected to start towards the end of 2023, and commissioning is planned for 2024. The aim will be to connect and commission the four lines with minimum downtime during the changeover. After completion of the expansion and the subsequent rehabilitation of the existing plant, VERA Hamburg is expected to ensure the safe and environmentally friendly disposal of the sewage sludge produced for many years to come.

100,000 megawatt hours of electricity and 165,000 megawatt hours of heat per year

According to HAMBURG WASSER, the joint venture of Hamburger Wasserwerke GmbH and Hamburger Stadtentwässerung AöR, sewage treatment at the Hamburg STP produces around 1.5 million m³ of sewage sludge every year, which is digested, dewatered, dried and then incinerated. From "waste product" to energy provider: already today, the operation of VERA produces almost 90,000 megawatt hours of electricity and almost 100,000 megawatt hours of heat annually from the incineration of sewage sludge. These amounts of energy are used to supply the sewage treatment plant and the adjacent container terminal. The expansion of the plant is expected to increase the amount of electricity generated to 165,000 megawatt hours of heat per year in the future.

Related Products:

- [HUBER Sécheur à disques RotaDry®](#)

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