Climate-friendly energy supply: HUBER SE supplies belt drying plant for RWE for thermal utilisation of sewage sludge in NRW, Germany

HUBER SE supplies two BT 30 belt dryers for a sewage sludge drying plant of the energy supply company RWE at the Knapsacker Hügel power plant in North Rhine-Westphalia. RWE is expanding the thermal utilisation of sewage sludge and other biogenic material there. HUBER's technology supports RWE in the gradual implementation of the coal phase-out by gradually replacing brown coal with biogenic materials. Commissioning of the plant, in which the group is investing a double-digit million amount, is planned for the end of this year.

It is a major project for HUBER and at the same time a step towards more sustainable and climate-friendly energy supply: with the construction of the plant for drying sewage sludge on the Knapsacker hill in Hürth near Cologne, brown coal is to be replaced by sewage sludge as biogenic fuel in the future. HUBER supplies two BT Belt Dryers size 30 as complete systems including the accessories for this large-scale project.

The symbolic groundbreaking ceremony for the plant for the drying and thermal utilisation of sewage sludge took place in June 2021.

HUBER paves the way to more eco-friendly and green technology

The main objective of the plant is sewage sludge drying for the production of more sustainable fuel: HUBER thus contributes to the use of climate and environmentally friendly process steam generation. For this purpose, municipal sewage sludge is accepted at the plant, dried and directly thermally utilised in the on-site power plant. RWE Power has been utilising sewage sludge from municipal wastewater treatment at its plants on Knapsacker Hügel in Hürth and in Frechen for about 25 years. Last year, RWE reliably and safely recycled some 900,000 tonnes of sewage sludge. This corresponds to about half of the volume produced in NRW.

Dr. Johann Grienberger (Chief Technology Officer HUBER SE): "Turning sewage sludge from a waste product into a valuable resource"

”The HUBER Belt Dryer BT is one of our products that help our customers to transform sewage sludge from a supposed waste product into a valuable resource,” says Dr. Johann Grienberger (Chief Technology Officer HUBER SE). ”While the drying of sewage sludge has long been an established process of modern wastewater treatment plant technology, HUBER is constantly working to further develop its existing drying processes and plant technology. Our medium-temperature drying system with the HUBER Belt Dryer BT, for example, meets the highest requirements in terms of plant operation, economic efficiency and environmental compatibility,” explains Dr. Grienberger.

The HUBER medium-temperature drying system BT consists of two belts mounted one above the other, which are covered with the product to be dried. A process air stream passing through the product layer dries it efficiently, while dust formation can be largely avoided due to the pelletisation of the sludge and the low mechanical stress. The safety of the plant concept is ensured at all times while maintaining emission levels.

The RWE power plant at the Knapsacker Hügel in North Rhine-Westphalia

Drying and thermal utilisation of 92,000 tonnes of sewage sludge per year

With the new plant for sewage sludge drying from HUBER, RWE is taking a further technological step: Thanks to pre-drying from about 75% to 10-15% moisture, the sewage sludge has a similarly high calorific value as lignite. In future, 92,000 tonnes of sewage sludge will be dried annually at the plant and thermally utilised in the power plant there.

Rainer Köhler (Chief Sales Officer HUBER SE): ”Successfully carry out projects of this magnitude for renowned customers such as RWE”

”In addition to the numerous smaller and medium-sized projects that we realise, it is major orders such as this belt drying plant for the thermal utilisation of sewage sludge by RWE that we are particularly proud of,” says Rainer Köhler (Chief Sales Officer HUBER SE). ”We successfully carry out projects of this magnitude for well-known customers, which of course include RWE – from technical development to construction and delivery to installation. This demonstrates our leading global position in the field of wastewater treatment, drinking water treatment and sewage sludge recycling.”

Commissioning by the end of 2022

After the engineering order had been processed by HUBER's project team, the company had also received the order for the construction of the dryer in July 2020. Despite the current challenging supply situation, the installation of the plant is proceeding according to plan. Following the installation, the plant is scheduled to be commissioned by the end of 2022. RWE is investing a double-digit million amount in the new belt drying plant.

Similar calorific value to that of brown coal

Due to the pre-drying from 75% to 10-15% moisture, sewage sludge has a similarly high calorific value as brown coal. As a result, the operator of the power plant reduces the amount of raw lignite currently used by a ratio of 1:1. ”We are implementing the coal phase-out and are gradually adapting to it in good time by gradually replacing lignite with predominantly biogenic materials,” says Christian Forkel, head of the Refining Division at RWE Power. ”In this way, our plants will continue to be available to recycle sewage sludge, waste wood and other materials in an environmentally friendly way in the interest of our customers – a big step towards sustainability while ensuring disposal security.”

Co-incineration of sewage sludge enables environmentally sound disposal of residual materials

The co-incineration of input materials (e.g. sewage sludge and secondary fuels) enables the environmentally sound disposal of residual materials. When co-incinerated, the material is used with the main fuel, brown coal, to generate process steam, district heat and electricity.

The Knapsacker Hügel power plant, named after the site in Hürth-Knapsack, operates with power-heat cogeneration and thus uses

energy from the fuels in a sustainable manner. At the site, RWE Power is taking a consistent approach to CO_2 reduction in the generation of process steam. A plant for processing waste wood and other biogenic fuels was already commissioned there. RWE Power has already invested millions in the Knapsacker Hügel site in recent years. In spring 2020, the intermediate sewage sludge storage facility there was enlarged to around 5,300 m² and two new conveyor lines were put into operation. This optimised the capacities for co-incineration and at the same time secured employment.

Related Products:

- HUBER Belt Dryer BT

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