Sludge Drying with Solar and Renewable Energy

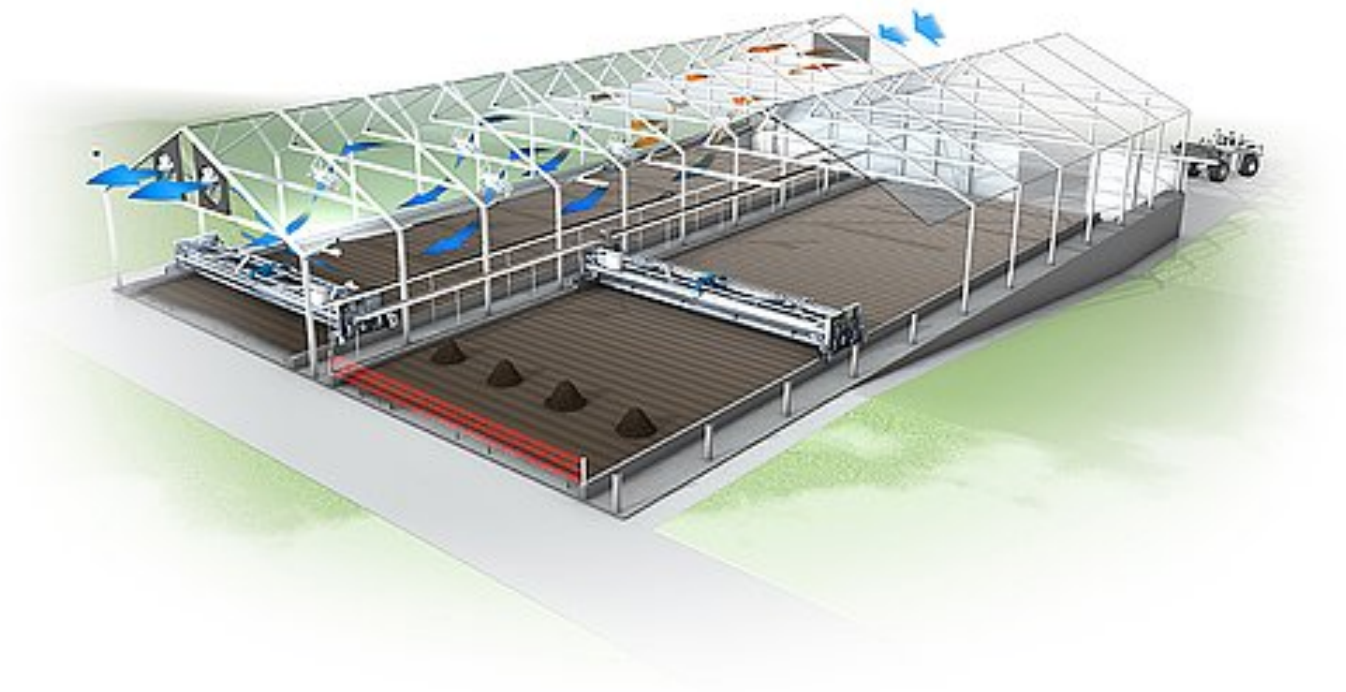
The HUBER Solar-Regenerative Sludge Dryer SRT is able to meet the most different specific customer requirements, whether as a pure solar dryer or all-year-round dryer operated with additional heat. Also the automation degree of sewage sludge feeding and removal is variable.

The combined sludge turning and transporting system is at the heart of the drying plant. The sludge is transported through the hall virtually continuously or as an option in batches. With its double shovel the turning/transporting unit can not only aerate, break up and move the sludge through continuous shovelling but also achieve a controlled distribution of sludge in its shovels. Due to the latter function of the shovel sludge can be back-mixed or sludge feeding and removal take place at the same hall side.

The dryer consists of a transparent thermo shell in which the HUBER Sludge Turner SOLSTICE® distributes the sludge all over the area. The air and sludge bed are heated by solar radiation. In addition heat (for example at 50° C) can be added via floor heating. Heat input via heating coils is also possible (usually with temperatures above 70° C). External heating can be operated with exhaust heat from a block heat and power plant or by means of a heat pump which uses the heat contained within wastewater (WWTP effluent). (See also HUBER Solution Sludge Drying with Wastewater Heat)

If an additional external heat is used, space requirements are smaller compared to pure solar drying and plant operation is possible all year round even in areas offering only moderate or rare solar radiation.

Systems concept



Design sketch: Sludge drying with solar energy

Process

SYSTEM DESCRIPTION

The liquid sludge can be pre-dewatered in our HUBER Screw Press Q-PRESS®. Sludge feeding can for example be accomplished by means of a screw that distributes the dewatered sludge cake at one gable side over the full width of the thermo shell. The special HUBER sludge turner SOLSTICE® travels on tracks. While continuously being restacked by the turner, the sludge on the floor is slowly transported to the other end of the hall. On its way through the hall, the sludge is being dried by solar radiation. As an option, heat can be added via a floor heating. The dried material has a solids content of at least 65% and can be discharged into a container by means of a ROTAMAT® Screw Conveyor.

Where no, or not sufficient heat is available, we withdraw heat from treated wastewater (See also our HUBER Solution Sludge Drying with Wastewater Heat).

Case Studies

- More than 15,000 tons of sewage sludge per year: HUBER installs solar sewage sludge drying technology on Pachacútec WWTP (Peru)
- Solar HUBER dryer stops rising costs for sludge disposal
- From thin sludge to dry granulate – all from one source
- New safety system for the HUBER Sludge Turner SOLSTICE®
- Research and development in the field of solar sludge drying
- Largest solar sewage sludge drying site in Southern Germany fully equipped by HUBER
- HUBER Solar Sludge Dryer SRT – unique in variability of sludge feeding and removal
- HUBER Solar Active Dryers offer sustainable technology for maximum drying performance
- Cold weather cannot stop the HUBER Solar Dryer SRT
- Solar dryers are in demand worldwide even for big and medium-sized wastewater treatment plants
- Solar sewage sludge drying – a reasonable solution if based on intelligent and sustainable design
- HUBER installs its first combined solar and regenerative sewage sludge drying project

Benefits

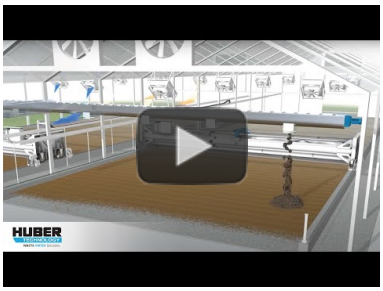
ADVANTAGES OF SLUDGE DRYING WITH SOLAR AND REGENRATIVE ENERGY

- Dry, granular and safe to handle product with over 65 % solids content
- Moderate drying temperature - no odour nuisance
- Little dust generation - safe operation
- Use of solar energy and low-temperature (waste) heat
- Independent of season and climate
- Small footprint
- Low operation and maintenance costs

Media

Animation: HUBER Sludge Turner SOLSTICE® for large quantities of sludge

https://www.youtube.com/watch?v=T-FUbjSzMZE



Animation: HUBER Sludge Turner SOLSTICE®

https://www.youtube.com/watch?v=gOkKQhmA4uM

Video: HUBER Sludge Turner SOLSTICE®

https://www.youtube.com/watch?v=QdWhhrCOkug

Video: Solar Active Dryer SRT at STP Gunstett

https://www.youtube.com/watch?v=JqflpsD16VM

Video: Solar Active Dryer SRT at STP Marktbergl

https://www.youtube.com/watch?v=ZajIn8OGxpk

Products

- HUBER Solar Active Dryer SRT
- HUBER Screw Press Q-PRESS®
- HUBER Screw Conveyor Ro8 / Ro8 T

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