

HUBER Solar Active Dryer SRT



- True backmixing of sludge for a perfect drying bed without any odour or dust
- Maximum flexibility of sludge feeding and removal, optionally even on the same gable side of the hall
- Modular system providing for the option of a fully automatic plant
- Optimally suitable to be combined with a floor heating

➤➤ Solar sewage sludge drying

There are many good reasons for drying sludge:

- Reduce disposal costs due to mass reduction
- Generate storable and easy-to-handle dried sewage sludge
- Open up a new field of disposal routes

Solar drying combines ecology with easy and safe system operation.

➤➤ HUBER SRT system

The basic principle of the HUBER SRT system is drying of sewage sludge in a glasshouse using the incident solar radiation and artificially generated wind to evaporate the water contained within the sludge. A special sludge turning system performs spreading, granulation, turning, mixing and backmixing of the sludge as well as its transport from one side to the other.

This solution allows for continuous system operation so that the sludge bed in the greenhouse remains constant. Due to the special features of the sludge turning assembly, particularly the backmixing function, an open-pored and slightly wet sludge bed is generated that causes neither odour problems nor unnecessary dust loading. The sludge is dry enough to stop odour-generating biological processes but still wet enough to prevent the generation of dust under mechanical stress.

The sludge feeding options can be adjusted to suit customer-specific requirements. The dewatered sludge can be fed into the greenhouse either manually, i.e. with a wheel loader, or automatically by special conveying units, directly from the dewatering system. The dried sludge can be stored at the end of the drying hall or mechanically transported directly to a loading station.

The produced granulate is easy to handle due to its high dry residue. The pea-sized granules are completely dry and free-flowing.



The sludge turner on its way through the greenhouse



Free-flowing dried granulate



Automated sludge feeding with a screw conveyor

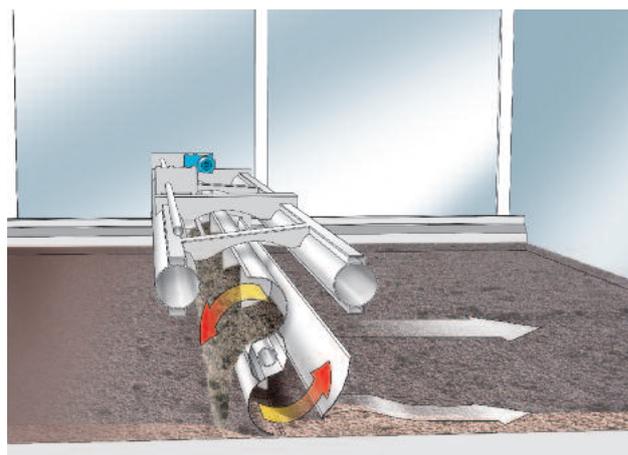
➤➤ Sludge turning device

The sludge turner is the core of the drying system and consists of a rotating double shovel mounted on a travelling frame. The double shovel fulfils two functions:

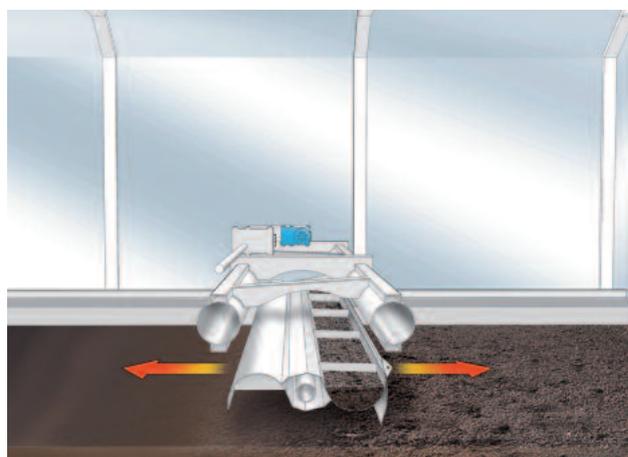
- **Sludge turning:** As the sludge turner travels forwards with the rotating double shovel, the sludge is being mixed, broken up, aerated and transported. The sludge is completely restacked as the sludge turner travels from one hall side to the other. Each individual sludge grain inside the greenhouse is moved within a short period of time. This is ideal for a good drying result and prevents odours.
- **Sludge transport:** The sludge turner takes up some sludge at a defined point and transports it inside its shovel to another point. This ensures that dry sludge is backmixed into wet sludge and sludge feeding and removal can take place at the same gable side of the hall if requested.

Maximum flexibility of sludge feeding and removal gives freedom of design. It is for example possible to build up to the boundaries of the WWTP grounds and save space for roads or turning curves.

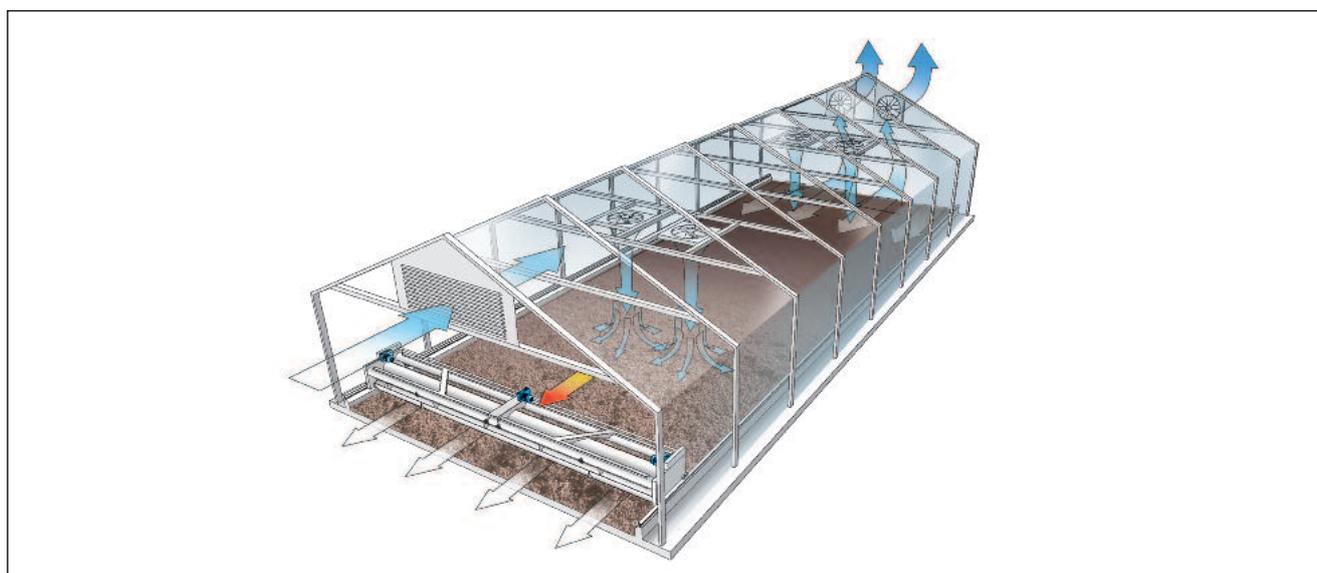
The sludge turner is made of corrosion resistant stainless steel and travels on low driveway walls to avoid shadows. The machine pulls itself through the hall along chains and is safely guided due to the chain tension. The electrical control system measures and records all relevant parameters. If requested, these data can be transferred to the main control station or made available for remote access via internet.



The rotating shovel of the sludge turner takes up the sludge and transports it along the granulation plate. As the turning device travels forward, the sludge is being transported.



Sludge transport from one place to another



General view of the system: sludge and air flows

►► Climate control

Climate probes, ventilators and ventilation flaps are installed in the drying plant to ensure ventilation at the right time and generate sufficient air flow on the sludge surface. Plant ventilation is regulated on the basis of the continuously measured water absorption capacity of the outside and inside air temperature, and excessive condensate build-up is prevented. The ventilators blow dry air over the bed of freshly turned sludge. The climate control system uses not only theoretical calculations but also empirical operation and measurement values.

►► Seasonal climate and external heat sources

Drying efficiency depends directly on the climatic conditions with less water being evaporated in winter than in summer. Different strategies are applied to handle continuously generated sludge volumes.

- The customer accepts greatly varying dry residues and selects according sludge disposal options.
- A sludge buffer tank is used for sludge storage in winter and emptied in summer when the dryer performance is high.
- Solar drying is supported with external energy sources in winter.
- Several solutions are combined.

An ecofriendly method of supplying additional energy is the use of a heat pump, which brings the thermal energy present at the WWTP outlet to a higher level so that it can be used for sludge drying. If other heat sources are available (e.g. exhaust heat), these can be used as well.

The intake of additional heat energy by means of a high performance floor heating ensures maximum heat transfer with minor losses. More efficient evaporation rates permit a more space saving system design.



Backmixing and aeration of sludge



Ventilators blow dry air over the sludge bed.



Greenhouse with ridge flap and climate control station

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