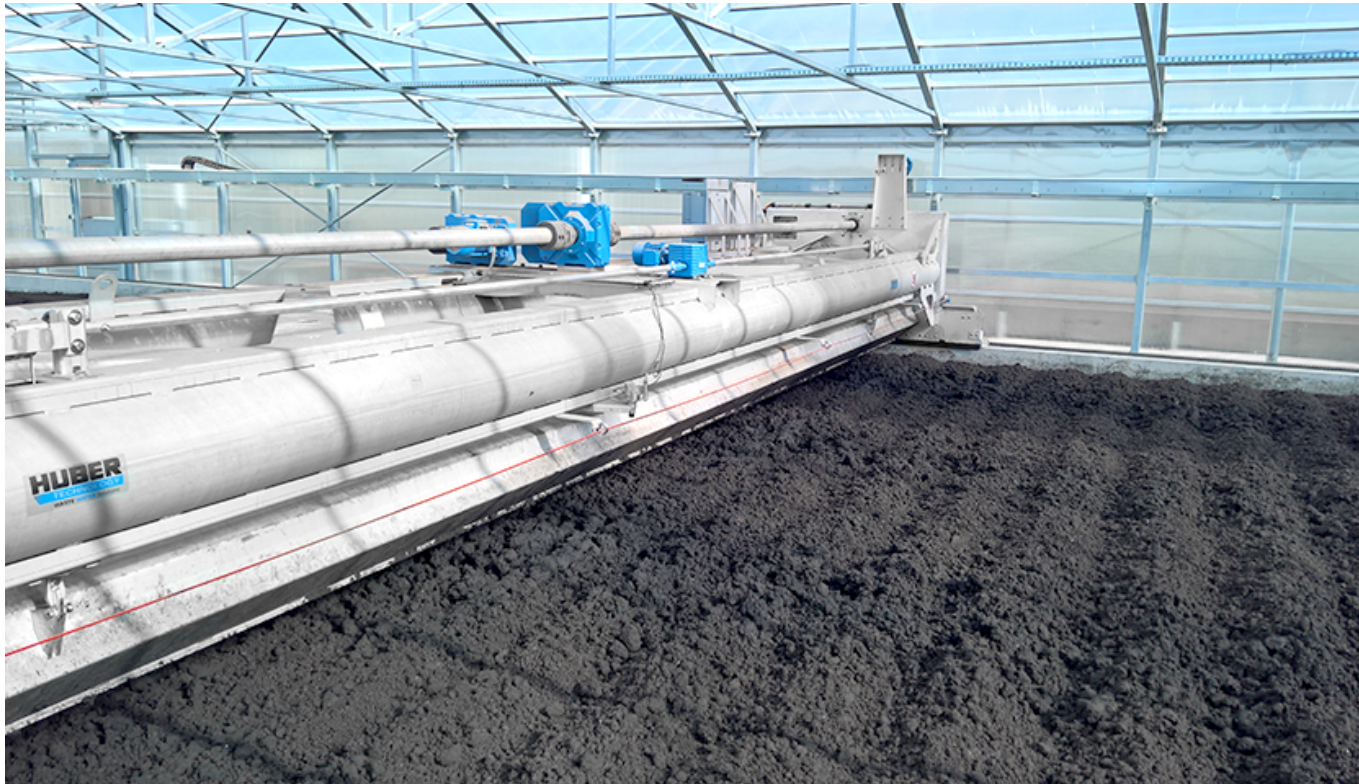




HUBER

Sludge Turner SOLSTICE®

Solar sewage sludge drying with the HUBER SRT system

- ▶ Sustainable and eco-friendly
- ▶ Fast and even sludge drying
- ▶ Easy and economical operation
- ▶ Fully automatable

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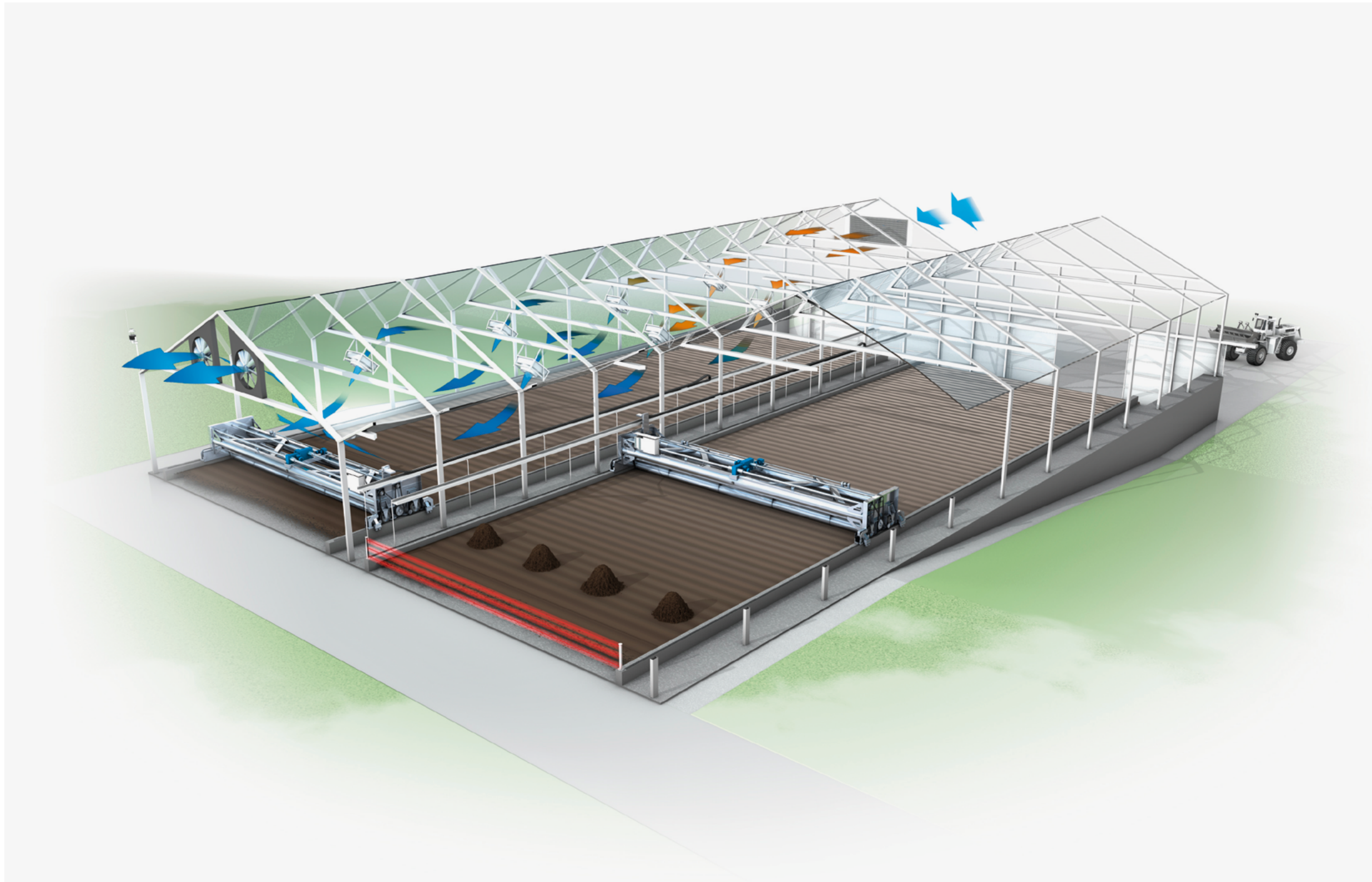
Touch panel for plant control.



Parallel operation of HUBER Sludge Turner SOLSTICE® units.



Recirculation air ventilators ensure improved evaporation.



HUBER SRT system solar sewage sludge drying with the HUBER Sludge Turner SOLSTICE®.



Dry sludge for removal by wheel loader and truck.



Dewatered sludge is transported in through gates.

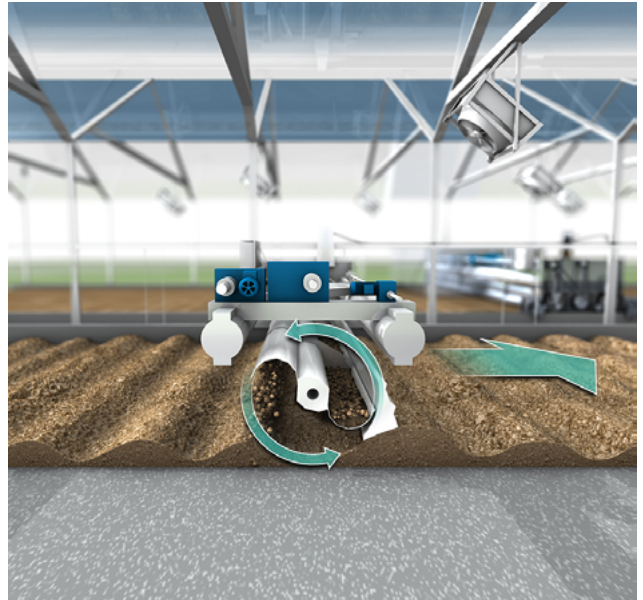
Solar drying of sewage sludge

Dewatered sludge to be dried is spread out on the floor inside a greenhouse structure.

What are the reasons to dry sludge with the HUBER SRT solar sewage sludge drying system?

- ▶ Reduction of disposal costs due to energy provided for free by the sun
- ▶ Homogeneous, stable, dry sludge for versatile use
- ▶ Many years of operation due to robust machine technology with easy maintenance
- ▶ Suitable to handle even problematic sludge – due to unique sludge bed management

Operating costs are low and plant operators profit from a sustained reduction of disposal costs.



A double shovel ploughs through the sludge bed and turns the sludge as the machine is moving through the greenhouse.

HUBER SRT system for solar sewage sludge drying

The HUBER Sludge Turner SOLSTICE® is the heart of the HUBER SRT system. The machine spreads, granulates, aerates, turns and mixes the sludge.

The HUBER Sludge Turner SOLSTICE® has two motors: one drive moves the machine longitudinally to the drying area, the second turns the double shovel during forward travel in order to tip the sludge over its axis back into the sludge bed.

- ▶ The intensive mixing of the sludge minimises odour-producing processes in the sludge and intensifies drying.
- ▶ Round and mechanically stable granules are formed due to the rotary motion inside the shovel.
- ▶ As the machine travels forwards from one end to the other with the rotating double shovel, the sludge is completely restacked.

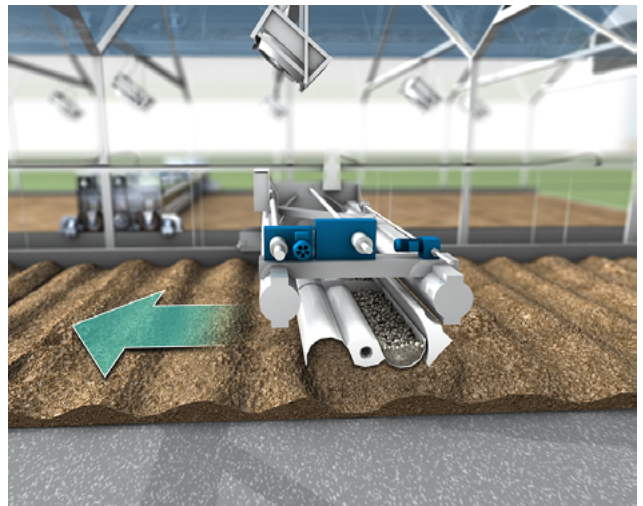
The HUBER Sludge Turner SOLSTICE® can optionally use its double shovel to transport dried sludge. The machine can transport dry sludge back to the sludge feeding area and mix it into the freshly dewatered sludge, which results in the following advantages:

- ▶ Backmixing of dry sludge reduces odour-generating biological processes within the sludge due to the reduced water content.
- ▶ Pasty sludge becomes easier to handle – less force is needed to move the sludge.
- ▶ Quicker sludge drying – dry sludge increases the surface due to the open-porous structure.

Optionally, the machine can be equipped with a blade that adjusts to the level of the sludge bed during sludge turning. A motor raises or lowers the blade depending on the measured sludge bed level. Large sludge lumps break between the rotating shovel and the blade. The sludge bed can also be adjusted more precisely in terms of height and dry residue with the blade.



The HUBER Sludge Turner SOLSTICE® ensures an optimal drying bed – the sludge is spread, granulated, aerated, turned and backmixed.



With its shovel positioned horizontally, the machine can transport the sludge back.

Feeding of wet sludge and discharge of dry material

It is possible to fill the drying hall all at once, but the drying plant is preferably fed continuously:

- ▶ No shock loads for exhaust air
- ▶ The drying system is always ready to receive sludge.
- ▶ If sludge is fed in by wheel loader, this is done in daily to weekly batches.
- ▶ Automation of sludge feeding via screw conveyors in the roof of the drying hall
- ▶ The sludge dewatering system can deliver sludge without intermediate storage – fully automated, unmanned operation of the entire sludge treatment system.

Dry sludge removal can be adjusted depending on the operation on site:

- ▶ The dry granulate can be stored in depressions accessible for a wheel loader to empty these into trucks or dumpers.
- ▶ The sludge is transported directly into containers by screw conveyors embedded in the ground.
- ▶ The dry granulate can be removed or stored either on the same gable side where the wet sludge is fed or on the opposite gable side.



Automated sludge feeding with screw conveyors.



The screw conveyor installed in the floor collects the dry sludge.

Safety during the SRT process

The safety system of the HUBER SRT process protects operators from crushing hazards that might be caused by the self-acting, automatically starting HUBER Sludge Turner SOLSTICE®.

- ▶ The maintenance doors and seldom used gates on the dry sludge removal side are equipped with electronic non-contact safety switches.
- ▶ A special light grid can be installed at frequently used access doors on the sludge feeding side. Unobstructed visual control is guaranteed.
- ▶ Operators can monitor the HUBER Sludge Turner SOLSTICE® from the touch panel location outside the operating area of the machine and start individual drives in manual mode or set the plant into automatic mode.
- ▶ An enabling button is available for maintenance diagnosis if close inspection is necessary.



Enabling button for safe maintenance.

HUBER climate control system

The HUBER climate control calculates the water evaporation with different settings of the ventilation system; it then selects the scenario where evaporation and energy consumption are in an optimal ratio. The following values are included in the calculation:

- ▶ Global radiation, temperature and humidity outside the greenhouse, measured with a weather station
- ▶ Air humidity and temperature inside the greenhouse, measured with robust sensor technology
- ▶ The turbulence of the air on the sludge bed generated by ventilators, determined by measurement campaigns

The fans in the roof of the greenhouse also provide air movement longitudinally through the greenhouse. The air streams in through the weather protection gratings in the dry sludge area. The air absorbs moisture above the dry sludge, and its drying potential in this area is also increased by the greenhouse effect. This increased drying potential is utilised by the system – the fans blow towards the wet sludge and charge the air with moisture. In the gable side at the sludge inlet, fans suck the saturated air out of the greenhouse.



Fresh air enters the drying hall via weather louvres.



The weather station delivers measurements for an automatically regulated climate control system.

Plant concept

Depending on the individual situation, we work out a plant concept for the customer and can provide the following services if requested:

- ▶ Calculation of the required drying surface and process-engineering options
- ▶ Reasonable arrangement of the dryer on the given available space
- ▶ Forecast values for the potential odour through analysis of specific sludge samples in our own laboratory
- ▶ Budget prices and operating costs for all plant components

Our 20 years of experience and more than 250 dryer lines sold on all continents are proof of the high quality of the HUBER system and its suitability for application worldwide.



Exhaust fans remove saturated air from the drying halls.

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HUBER Sludge Turner SOLSTICE®

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