



HUBER

Disc Dryer RotaDry®

Contact dryer for sewage sludge

- ▶ Partial drying of sewage sludge for recycling in fluidized bed incineration plants

More information,
downloads and
current news



Contact drying of sewage sludge

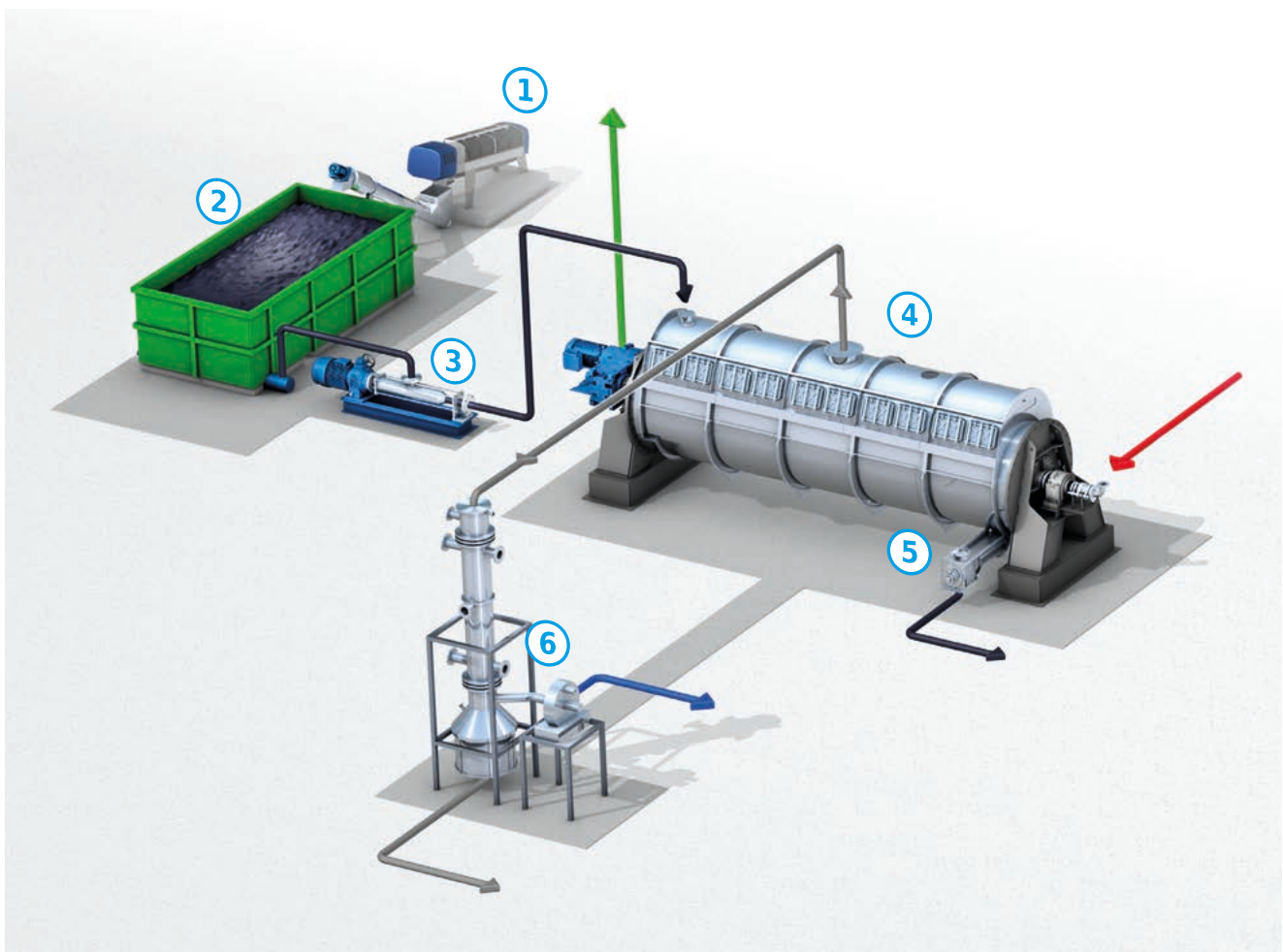
The HUBER Disc Dryer RotaDry® is designed for homogeneous partial drying of dewatered sewage sludge. Due to its compact design and high specific water evaporation, it is not only ideally suited for use in new sewage sludge mono-incineration plants, but also for capacity expansions of existing plants. The dryer can dry exactly to the required DR content and thus enable a self-sustaining combustion in the fluidized bed incinerator. The HUBER RotaDry® is available in different sizes, so that a water evaporation of about two to six tons per hour and dryer can be achieved. By using different disc diameters and numbers of discs, the heating surface can be optimally adapted to the amount of generated sludge and the dryer can be operated in the ideal capacity range.

Thermal drying of sewage sludge is an indispensable process component to ensure the sewage sludge has the right dry residue. The subsequent mono-incineration of the sewage sludge achieves an enormous reduction in volume and mass and provides for the recovery of phosphorus. At the same time, the heat required for drying is

provided and, depending on the size of the plant, electricity is also generated by means of a steam turbine.

A reliable condensate removal system, an innovative concept for moisture control, an optimised feed and a steam control line with minimised pressure loss characterise the HUBER Disc Dryer RotaDry® as the perfect sewage sludge dryer in combination with a mono-incineration plant.

i We would be pleased to advise you individually, and you are also welcome to send your inquiry to sludge@huber.de.



- | | | |
|--------------|---------------------------|--------------------|
| 1 Dewatering | 3 Sewage sludge transport | 5 Discharge screw |
| 2 Bunker | 4 Disc Dryer | 6 Vapour condenser |

HUBER Disc Dryer RotaDry® with upstream and downstream peripherals.

The benefits of the disc dryer

► Compact design

The HUBER Disc Dryer RotaDry® convinces by its compact design, which allows the dryer to be installed even on a small footprint or to be integrated into existing plants.

► Proven and durable technology

The many years of successful use of disc dryers in combination with sewage sludge incineration plants demonstrate the robust technology of the process.

► High specific water evaporation capacity

By heating the rotor discs and optionally the jacket, a high volume-specific water evaporation can be achieved.

► Uniform and homogeneous drying

The sludge is mixed by the rotation of the rotor and blades mounted on the outer end of the discs.

► Heat recovery through use of condensation heat

The water evaporated from the sewage sludge can be precipitated again in the vapour condenser, whereby part of the energy used for thermal drying can be recovered.

► Long service life

By using a special welded construction for the discs, the minimum permissible residual wall thickness can be reduced. The service life of the rotor is thus extended to a maximum.

► Optimised dryer control through online DR measurement

The control of the disc dryer is dependent on the detected DR content at the inlet and outlet. This provides the possibility to react to fluctuating DR contents of the dewatered sludge



A disc dryer is lifted into place with the help of a heavy-duty crane.



Preparations for lifting a disc dryer.



Disc dryers being placed in the building.

Vapour condensation

The overall dryer system always includes the condensation of the vapours produced by the disc dryer. Depending on the project-specific conditions, there are various possibilities here.

- ▶ **Tube bundle condenser** (indirect condenser)
Compact design to maximise the extraction steam for district heating, as heating water is raised to the required temperature level directly in the condenser.
- ▶ **Injection condenser** (direct condenser)
Circulating and cooled vapour condensate is sprayed in the head of the condenser to knock down the condensable vapours. Robust and universal design.
- ▶ **Multi-stage condensation system**
Consisting, for example, of a sludge preheater (for energy optimization and polymer consumption reduction in the dewatering process) and an injection condenser as residual condenser.

Steam and condensate system

In order to operate the dryer as efficiently as possible, the use of saturated steam is essential. Depending on the concept in the water-steam cycle, steam cooling is therefore necessary in addition to steam pressure control. Due to the ideal configuration of the controlled system, both pressure-loss-minimized operation at nominal load and reliable regulation to the required steam pressure can be achieved. Even after it has passed the dryer, the liquid steam condensate does not remain energetically unused and is returned to the water-steam system. It is advisable to utilise the flash steam.

Vapour condensate treatment

Due to the high contact temperatures of the disc surface and sewage sludge, a high load of ammonium as well as particulate and dissolved COD (Chemical Oxygen Demand) is produced in the vapour condensate, which does not allow for immediate indirect discharge into the municipal sewage network and requires separate treatment. On request, HUBER SE can develop a project-specific solution for the treatment of the vapour condensate.

Technical data

- ▶ **Water evaporation per dryer:**
2 to 6 t/h
- ▶ **Dewatered sludge throughput per dryer:**
6 to 12 t/h*
- ▶ **DR throughput capacity per dryer:**
1.5 to 6.0 t/h*
- ▶ **Heating medium:**
Saturated steam up to 10 bar(a)

**dependent on inlet and outlet DR*

Unit sizes / performance

Size	1854	2050	2064	2264
Maximum water evaporation	3,300 kg/h	4,000 kg/h	5,000 kg/h	6,000 kg/h
Disc diameter	1.8 m	2.0 m	2.0 m	2.2 m
Number of discs	54	50	64	64

**All dryers are optionally available with jacket heating.*

HUBER SE

Industriepark Erasbach A1 | 92334 Berching
Tel.: +49 8462201-0 | info@huber.de

www.huber.de

HUBER Disc Dryer RotaDry®

Subject to technical modification | 0,1 / 4 – 5.2022 – 6.2020