

DORSET BIOMASS DRYING SYSTEM

- Drying of digestate
- Drying of poultry manure
- Purification of Exhaust Air
- Drying of Sewage Sludge
- Drying of Wood / Sawdust
- Separation
- Pelletising plants



Purification of Exhaust Air

Dorset also offers suitable technology for the purification of exhaust air after drying.

In the last 20 years, the company has also made its mark in that field – after comprehensive tests, the Dorset chemo-washers and bio-washers were even certified for stables by the DLG and have passed the DLG - signum test. Dorset's customer benefit from the company's technical know-how and its long-term experience resulting from many installed drying plants for drying digestate. Dorset Air Cleaning guarantees air emissions of dust, ammonia and smell according to the local country laws and regulations. In particular cases, the application of iron inside the biogasplant or a trickle-bed reactor might be successful if the residues have not been well-digested.



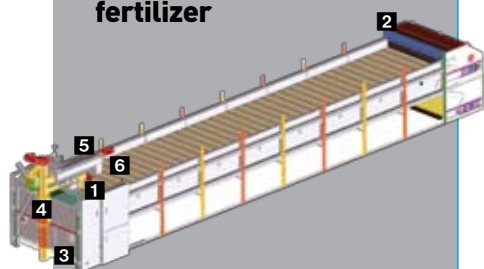
Band Dryers hardly consume more Energy than an Emergency Cooler

The low electric energy consumption is a decisive advantage of the Dorset drying plant. Only 12 kWh are consumed in average when operating a 500 kWth drying plant. This value even includes the purification of the exhaust air and the energy consumption of the fans. For air movement, solely two axial fans of 3.4 kWh each are applied which move 40,000 m³/h of air through the plant when operated in full load and at summer temperatures of maximum 30 degrees Centigrade. They are mounted behind the dryer or behind the exhaust air washer respectively.

For the concrete layout of a drying plant, the air amount at a certain temperature is an important criterion because the heat has to be transformed into drying energy and not "destroyed" by an emergency cooling system, also in summertime. The speed of the air should be as low as possible due to the lower relative density of the digestate – otherwise there might be an undesired dust emission.



Unique back-mixing procedure for reducing the volume and producing valuable organic fertilizer



- 1 The pendular mixer provides for a consistent feeding of the plate band
- 2 At the end of the first level, the drying goods fall on the level below
- 3 If the drying goods come back to the beginning, they fall in the collection tank for dried product
- 4 An inclined feeding screw conveys the digestate into the pendulum mixer
- 5 In the pendulum mixer, the dried goods are mixed with the raw fermentation residues
- 6 Excess drying goods are transported by a screw to the final storage tank

So 1.000 kg. of liquid digestate will become 100 kg. dry organic fertiliser

Self-developed and manufactured Drying Technique



Drying of Poultry Manure

Also poultry manure is a highly valuable fertilizer. Costs for transportation and spreading are saved if the manure is first dried and upgraded as pellets or granulate which can then be used as fertilizers or fuels.

Drying of Sewage Sludge

For the drying of sewage sludge, Dorset constructs complete plants with a reception pit and a biological purification of exhaust air (trickle-bed reactor). Those plants are also offered as container-solutions.

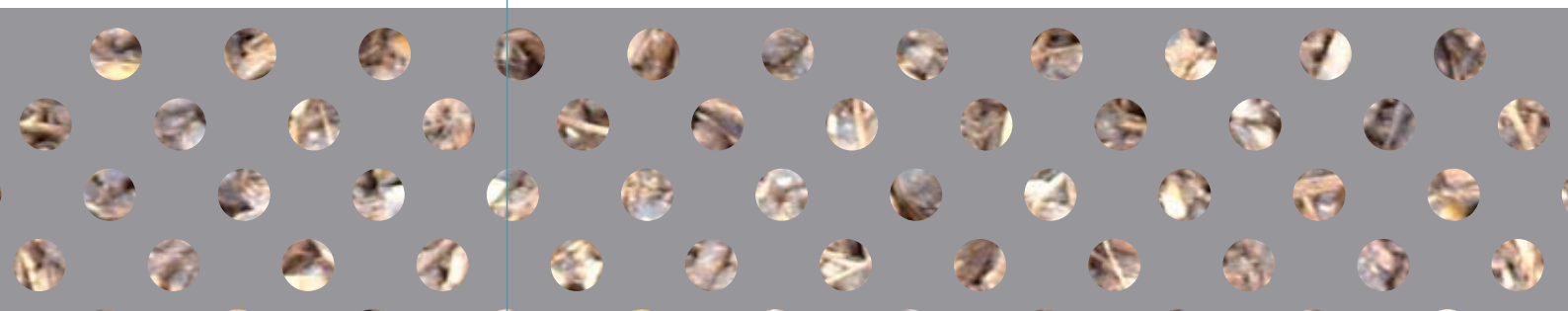


Drying of liquid

Liquid with a minimum TS-content of approx. 8% can be dried without prior separation in order to use the excess heat. This is an excellent way of producing fertilizers.

Drying of Solid Substances from a Separator

The dried goods are particularly suitable for the production of fuels and as bedding material in dairy farms.





Concentration of Liquids CASCATA Type E

The Cascata dryer dries liquids by moistening rotating disc plates which are dipped into a buffer container that is mounted below again and again. Thus, the air that is heated by the heat exchangers streams through the disc plates and dries them. In that way, the concentration of the substrate increases, the sludge gets more viscous and finally has a DM-content of between 8 and 14%.

Cascata is usually combined with an exhaust air purification plant which filters the ammonium content from the air. When binding ammonium with acid washing water, an ammonium sulphate results which is a salty water solution. The heat exchangers are connected to the circuit of the CHPs. Fans suck the drying air through the heat exchanger, Cascade and exhaust air purification.

Drying Procedure

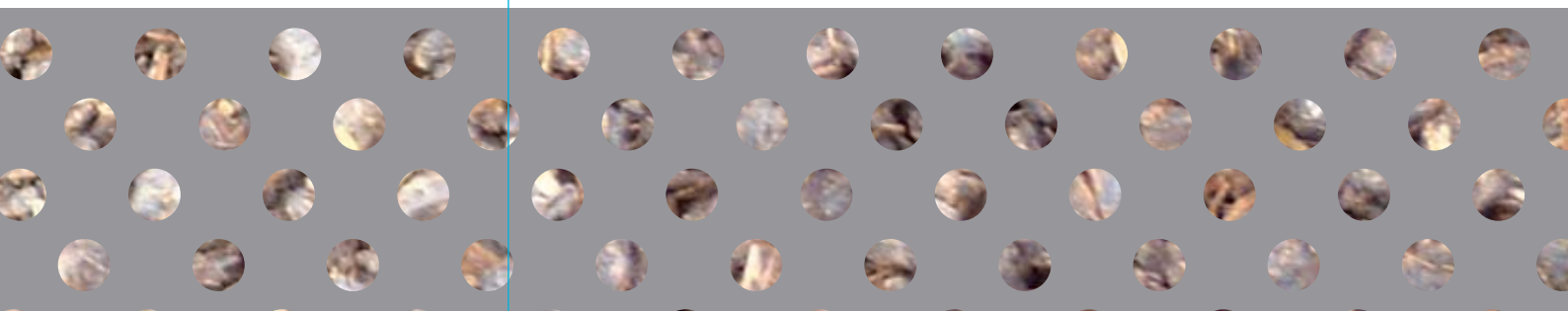
Dry Substance

From	4%	->	12%
From	8%	->	85%
From	12%	->	85%
From	25%	->	85%



Piccolo

Now, the Dorset Green Machines also offers a smaller dryer, which is completely mounted in a container and based on the well-proven technology of the bigger, stationery plants, as a heat utilization concept for smaller biogas plants with a thermal performance of up to 100 to 400kW. The „Piccolo“ dryers can do almost everything – digestate, luzerne, wood chips, crop, maize, maize silage – all that can be treated with this concept. And what if the exhaust air smells or dusts? Dorset delivers an integrated purification station for the exhaust air. Also this technology has well proven to be successful in many Biogasplants.





Drying of sewage sludge

Sewage sludge, which contains substances that may be detrimental to the environment, are becoming less popular as fertilizers; in some cases they are even prohibited. They are still, however, being used as fuel for special-purpose furnaces, for instance in the cement industry.

The product needs to be supplied as a dry substance. Normally the dry matter content after separation is approx. 22 to 25%. After drying it contains 90% dry substance and has a positive energy value.

Dorset Green Machines B.V. specializes in drying with low-value heat. For this purpose, air at a temperature of 25 to 90 degrees may be used. Besides, warm water may be converted to warm air at 50 to 90 degrees. Thus, this heat may be utilized to advantage. The drying system operates at minimum power consumption.

The functional principle of the

DORSET belt driers

At first, the supplied sewage sludge may be stored in a bunker featuring a walking floor. A conveyor belt or a conveyor chain is used to fill the drier. The drier is equipped with a pendulum conveyor distributing the sludge over powder-coated perforated sheets. The product must be drip-free. Product that is too wet may be optionally mixed with dried product.

The sewage sludge is processed repeatedly while drying, giving rise to a grainy structure. This guarantees a uniform drying effect. The drying process is controlled by temperature sensors in the incoming and outgoing air flows.

Conveyor screws are used to transfer the dried product to a reservoir. Additional structure rolls, during the drying process gives the product a final regular structure. Therefore no hammermill is necessary.



Processing Poultry manure:

Drying, sanitation, pelletising, see our special brochure.

DORSET GP

DORSET GROUP

Manufacturer of RFID- technologies
for the electronic identification

DORSET ID

IDENTIFICATION

Manufacturer of drying plants for the
utilization of excess heat

DORSET GM

GREEN MACHINES

Purification of exhaust air and
sorting systems for agriculture

DORSET FS

FARM SYSTEMS

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