

MagixX

Exhaust air treatment for digestate drying systems

Clean air is becoming more and more important – not only in the industrial sector but also in the agricultural sector. To get a licence to build a drying system for digestate, public authorities might require an exhaust air pollution abatement facility. The main purpose of such a system is to reduce ammonia, dust and odour emissions to a minimum. With MagixX, BD AGRO offers a solution to these emission problems. The MagixX system was originally developed for livestock management where it has been well tried and tested.

Before the exhaust air leaves the digestate drying tunnel, it is pushed through the MagixX exhaust air washer. The system consists of one or more treatment stages - depending on the application. Water is sprayed through a group of nozzles on to the front of the first filter. This keeps the filter from drying-out and ensures that the filter remains free of dust. Furthermore, the air humidity increases and improves the absorptive properties of the moistened filter. The air passes through the first filter through which water flows constantly from top to bottom. This causes any dust to be washed out into the water basin.

Since ammonia and odorous substances are attached to dust, a large proportion of these emissions are already filtered out of the air. The solids precipitate in the basin, which has to be emptied at regular intervals. If a higher degree of NH_3 precipitation is necessary, the air is led through a second filter which is used mainly to separate ammonia, fine dust and odorous substances.

With acid added (e.g. sulphuric acid) the separation of ammonia is increased significantly. In the wash water the ammonia combines chemically as ammonium sulphate which also prevents the evolution of ammonia gas. Dependent on the pH value of

the wash water, the addition of acid is accomplished by an automatic dosing pump. The chemical substances should be stored in a separate service room.

For an exceptionally high odor reduction, a third treatment stage can be employed. This treatment stage consists of root-timber and is used for microbial transformation of the odour-carrying agents.





Nozzle groups spray water onto the front of the filter so that dust cannot cling to the filter. The doors of the individual filter



chambers have to be closed during operation of the filter. A filter inspection aisle lies between the first and the second



filter. The third treatment stage consists of root timber and is used for the microbial transformation of odour-carrying agents.



The electronic control system provides operational and functional reliability of the entire system. The operational data can be displayed and monitored on the integrated visual display. Furthermore, all data can be transmitted to any PC or laptop computer via modem or Ethernet. Thus a convenient remote inquiry is always available. All recorded data can be saved on a long-term basis. Weekly or monthly creation of a management report is also possible.

Daily monitoring of the recorded operational data can be carried out at the touch screen at any time = easy menu navigation.

The following information can be displayed in detail:

- pH value of the circulating water;
- static pressure difference of the individual filter stages;
- temperature and air humidity of crude gas and clean gas;
- flow rate of fans;
- water and electric power consumption

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