

Technology Portrait:

Doosan Lentjes Technologies for Particle Separation

Solid particulate removal systems are an essential component of modern flue gas cleaning and are essential for compliance with applicable emission regulations. Depending on specific project requirements, we offer state-of-the-art fabric filters or electrostatic precipitators for your process.

Fabric filters

Our fabric filters are used to separate the finest particulate pollutants. In addition, they act as a fine filter stage for gaseous acidic substances such as SO_x, HCl and HF as well as heavy metals, dioxins and furans in conjunction with our Circoclean® and FER-DI® system. Clean gas values of 5 mg/Nm³ particle concentration and also significantly below can be permanently achieved.

Fields of application

Applications are possible in the field of waste, sewage sludge and biomass incineration, downstream of boilers fired with RDF, coal or oil, as well as in the industrial sector. Low dust emissions are reliably maintained even with changing fuel qualities and load conditions.

The fabric filters are usually designed with several chambers so that the plant components can be easily separated from the flue gas flow for inspection and maintenance purposes.

The process

The particle-laden flue gas enters the filter chamber from below via the raw gas inlet. The low inflow velocity promotes the pre-separation of coarse particles and ensures uniform flow distribution. The gas flows through the filter hoses, in which the solid particles stick, from the outside to the inside. The filter cake that forms on the hoses is removed by means of compressed air cleaning, falls into the filter funnels and can be discharged.

We have a reference list of more than 50 fabric filters installed in different types of plants worldwide.

Low-pressure pulse jet (LPPJ) fabric filter

For installations of a certain minimum size, we mostly apply our low pressure pulse jet (LPPJ) fabric filter.

The main advantage of this type of filter is that the low purge air supply pressure is less than 1 bar (g), as opposed to 2 to 7 bar (g) for conventional systems, which means that significantly less energy is required for the cleaning process. In addition, the required compressed air can be generated with a simple rotary piston blower.

High-pressure pulse jet (HPPJ) fabric filter

For smaller flue gas volumes, we typically use our high-pressure pulse jet (HPPJ) fabric filter, which in this case can be constructed more cost-effectively from small chambers.



DOOSAN
Lentjes

Electrostatic precipitators

With our proven electrostatic precipitators, we can remove particulate matter from the flue gas and achieve clean gas values below 8 mg/Nm³.

Fields of application

Applications are possible in sewage sludge, waste and biomass incineration plants, downstream of steam generators fired with RDF, coal or oil, and in the industrial sector.

Phosphorus recovery

In mono sewage sludge incineration plants, electrostatic precipitators usually form the first stage of flue gas cleaning downstream of the boiler. The pre-separation of particulate matter in the electrostatic precipitator ensures low-pollutant ash, which serves as the basis for the phosphorus recovery required by law.

The process

After the flue gas enters the electrostatic precipitator, dust particles are negatively charged using spray electrodes (cathodes). The particles pass through a strong electric field where they are attracted to positively charged collecting electrodes (anodes) and stick. Periodic tapping cleans the precipitation electrodes, causing attracted dust to fall into the ash hoppers of the electrostatic precipitator. The gas cleaned of dust particles leaves the electrostatic precipitator via the clean gas hood.

