

EXHAUST AFTERTREATMENT SYSTEM



MINI-CYKLON

The basic and easiest dust removal system used by MetalERG. This is the so-called "collecting chamber"; aimed at removing the largest fraction of particulate matter in the exhaust gas. It operates on a principle of a cyclone (centrifugal force), which causes that greater solids in the exhaust gas are separated and fall to the ash reservoir and dedusted exhaust gas is directed to the stack. The applied guide vanes force proper flow with the greatest possible speed in order to achieve maximum centrifugal force. The efficiency of such a device is about 40% in the range of the largest fraction of particulate matter.

MULTICYCLONE

Extended - much more advanced version of the collecting chamber. The system operates similarly to the collecting chamber using a centrifugal force.

The device consists of a set (battery) of small collecting chambers, where the flowing exhaust gas reaches high peripheral speeds. Because the dimensions of individual „cyclones“ are small, the system creates several or more small „cyclones“. This design allows the achievement of much higher efficiency (up to 70%) and a much wider range of dust PM10 and PM2.5. This design causes that only clean (free of dust) exhaust gases are sucked in through the stack and the dust falls into the dust chamber. The carried out studies show a reduction of the dust content from about 450mg /m3 to about 150 mg /m3.



ELECTROSTATIC PRECIPITATOR

Electric precipitator is a kind of dust collector where dust removal from the flue gas occurs with a help of electrostatic forces acting on the particles of dust.

Voltage usually used is at 30-80kV, which is very effective (a level of 99%) for aerosol type dust. In our system we use a dual exhaust gas cleaning system, thereby obtaining an overall efficiency of over 90% (from the average emission of 370mg / nm3 the emission is obtained below 40 mg / mm3 and with the correct use and care of the fuel quality the results were obtained at 10-12mg / nm3