

Conversion of an electrostatic precipitator into an INTENSIV-EcoJet-Filter for dedusting of cement kiln exhaust gases



Mighty solutions for tiny particles.



Old electrostatic precipitator prior to conversion.



On site erection of the new bag filter.



Positioning of the bag filter on the overhauled dust hopper.

The EcoJet- bag filter in operation.



INTENSIV-EcoJet-Filter for dedusting of a cement kiln

The previously utilised electrostatic precipitator technology can no longer keep within current emission limit values. Rotary kiln exhaust gases are nowadays dedusted by modern bag filters. The installation is designed for two different operation modes. It enables combined operation with the raw meal grinding plant or direct operation via a cyclone preheater and gas conditioning tower.

At the old location of the electrostatic precipitator a completely new housing was positioned on the dust hopper. All existing dust transport systems can continue to be used as before. The pre-erection of the new filter housing took place during operation and reduced the downtime to a minimum.

As „intelligent cleaning control“ a JetBus-System is used at INTENSIV-FILTER by using microprocessor technology. The modular construction of the system enables a flexible control structure which is easy to change or extend retrospectively.

The filter can be operated either in ON or OFF-line mode. Here, the JetBus-Controller controls the cleaning pre-pressure and drives the pneumatically operated clean-gas valves. The coupling to higher-level systems occurs via standard-coupling modules which are activated between controller and process-control system.

When using the JetBus-Controller the compressed air pressure needed for cleaning is set by the unit's parameters. The operation of the unit is automatically adapted to the prevalent conditions by regulating the cleaning level. The regulating factor here is the filter resistance. Within a predetermined „measuring period“ the cleaning system checks the unit's parameters and sets itself to self-changing data. The operational data of the dedusting unit are permanently adapted in this way. Filter resistance and compressed air consumption are minimised and the life of the filter bags increased.

The INTENSIV-EcoJet-Filter offers the following advantages:

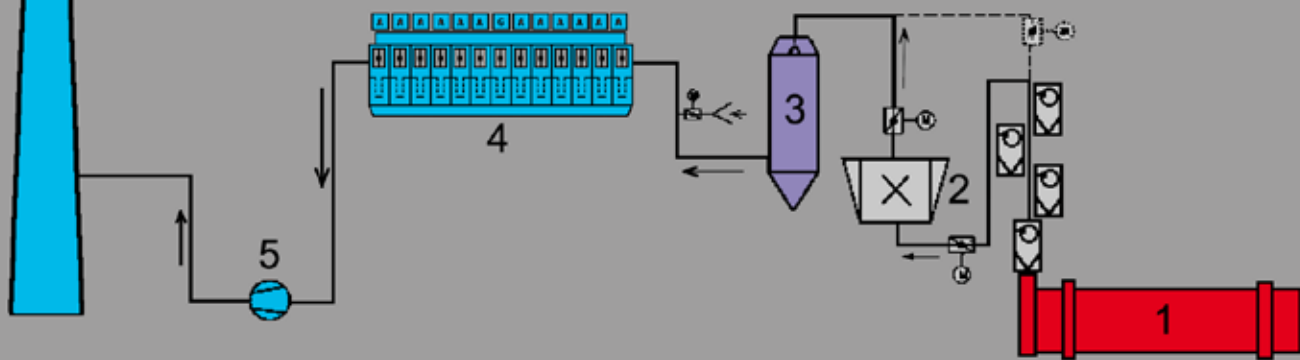
- Reduction of operational costs (filter resistance, compressed air consumption, longer filter bag life),
- Adapts to changing demands (e.g. combined and direct operation),
- Construction of a defined filter-cake,
- Utilisation options of efficient but sensitive filter media,
- Use of filter bags of up to 8 m in length to reduce investment costs.

The reference installation operates with 7 m long glass-fibre bags. At cleaning pressures of 1.5 to 3.5 bar a pressure loss of 10-11 mbar is self-set during stationary mode.

Glass bags with PTFE-membrane were utilised as filter-media.

Test results show that the required emission limit values of < 10 mg/m³ i.N., tr. are undercut significantly.

Design data of the EcoJet-Dedusting unit	
Exhaust gas flow volume (operation mode)	240,000 m ³ /h
Temperature	120 °C – 230 °C
Raw gas dust content	100 g/m ³
Dust type	Raw meal, kiln dust
Residual dust content (design)	< 10 mg/m ³
Bag length	7 m



Legend for the flow sheet:	
1. Rotary kiln with cyclone preheater	4. EcoJet-Filter
2. Raw meal grinding plant	5. Exhaust fan
3. Gas conditioning tower	

