Reference Plant

# Dedusting of a rotary kiln

## CombiJet bag filter semi-offline cleaning

| Basic data | |
|---|---|
| **Project** | CombiJet bag filter with semi-offline cleaning for dedusting kiln exhaust gas |
| **Contractor** | Dyckerhoff AG |
| **Location** | Geseke cement plant |
| **Construction time** | 5 weeks |
| **Commissioning** | 03/2007 |
| **Task** | Reduction of dust emissions for the rotary kiln/raw mill |

Reducing dust emissions with the CombiJet bag filter

At the reference plant, „Dyckerhoff AG, Geseke“, the existing electrostatic precipitator behind the rotary kiln was no longer able to comply with the legally specified limits. In order to ensure that future cement production could continue to keep within the limit values under any conditions, an optimised procedure was required for reducing dust emissions. A new filter housing for the bag filter installation was attached to the dust collection hopper of the old electrostatic precipitator. The new filter housing was preassembled while the plant was in operation, thus reducing conversion time to a minimum. All the existing dust discharge systems were re-used.

The new bag filter system adheres to the limits under any conditions and its differential pressure remains at the same level as that of the electrostatic filter.

**CombiJet bag filter in the Geseke plant**

| Process data | Dedusting rotary kiln/raw mill |
|---|---|
| Gas volume | < 240.000 m³/h |
| Temperature | 230 °C |
| Intensiv-Filter type | IF JCN 85/13 7000 Eco |
| Filter area | 4,010 m² gross<br>3,701 m² net (semi-offline cleaning) |
| Filter medium | Glass bags with PTFE diaphragm |
| Dust type | Raw meal, kiln dust |
| Raw gas dust content | 100 g/m³ a.c. |
| Residual dust content | < 10 mg/m³ n.c. |
| Pressure loss | 10-11 hPA |
| Cleaning pressure | ~ 2.5 bar MPa |
| Compressed air consumption | < 45 m³/h n.c. |
| Cleaning method | Semi-offline |

## Reduced pressure loss

The JetBus Controller® automatically adjusts the operation of the filtering installation according to the prevailing operating conditions. This unit regulates cleaning pressure and controls the shut-off dampers when necessary. The filter bags are cleaned periodically by a compressed air pulse at pressures of 1.5 to 3.5 bar, depending on the differential pressure of the filter. In the cement plant in question, a nozzle system specially developed by Intensiv-Filter was used. The Intensiv-Filter nozzle system provides optimal and economic cleaning of filter bags at a length of up to 8 m. As a result, there is less wear on the filter media, thus prolonging their service life.
The results in the diagram below demonstrate the lower pressure loss.

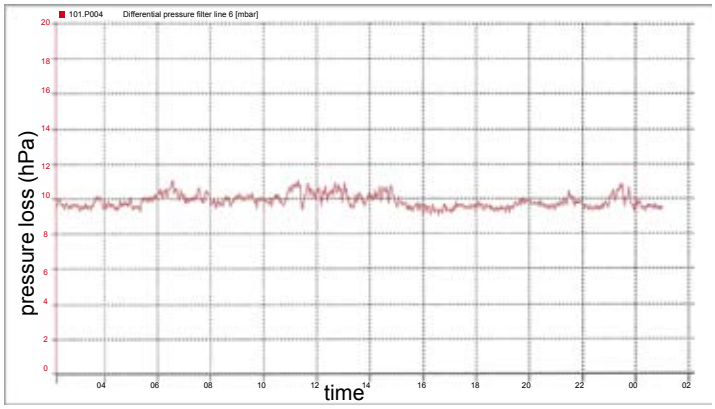


Chart of the low pressure loss

## First Class Quality

Intensiv-Filter has carried out the dust removal and gas cleaning for the commitment of modern implementation changes at the cement-works. Based on the specific customer conditions, the dust removal represents a complex waste gas cleaning installation, which required the implementation of process engineering solutions.

## Structural design

In the same position as the old electrostatic precipitator, a completely new housing was attached to the dust collection hopper. All the existing dust discharge systems could still be used. The time for the retrofit was kept to a minimum due to prefabricated modules and a pre-assembled filter housing. The equipment was installed, connected and commissioned within the space of five weeks, during downtime that had already been scheduled.

## Customer benefits

- ✓ Compatible with alternative fuels
- ✓ Reduction of dust and $CO_2$ emissions
- ✓ Increased extraction power
- ✓ Improved dust separator perfor mance, as secondary air is fed through during the cleaning phase

Filtering dusts is the task Intensiv-Filter has been addressing itself to since its foundation in 1922. As a specialist in filtering installations we have a leading position in the international markets. This applies both to new installations and to conversions in various business areas.

Intensiv-Filter GmbH & Co. KG
Voßkuhlstraße 63 • 42555 Velbert-Langenberg
Deutschland / Germany
✆ +49 2052 910-0 • 🖷 +49 2052 910-248
if@intensiv-filter.com • www.intensiv-filter.com


RA.10.154 GB • 03.11-1000 HD