

Building materials industry: Flow rate measurement of filter dust in cement manufacturing



Application

The Swiss building materials group Holcim manufactures cement at the site Dotternhausen, Germany.

All dust, accruing in the production process, is centrally collected and returned back into the production specifically. The flow rate shall be measured continuously to increase the transparency and to improve the mass balancing.

After the dust separation, batches of around 700 kg are transported pneumatically from a pressure vessel to different silos and storage tanks.

A special fluidization at the pressure vessel affects the product stream to pulse heavily.

Facts

Product:	Cement dust
Location:	Central dedusting plant
Mass flow rate:	7-14 t/h
Installed systems:	1
Pipe diameter:	DN100 (4")
Challenge:	Pressure and bulk density are fluctuating, heavy pulsating product stream, conveying period: approx. two minutes



Solution

A competitor's microwave sensor could not provide a stable measurement under these process conditions. On the one hand a wavering bulk density influences that measurement principle negatively. On the other hand the conveying velocity is not constant due to the fluctuating pressure and the varying target silos.

Microwave flow meters are not suitable here.

However, the Dmass uses the capacitive measurement principle.

It reliably and separately measures the conveying velocity and the product concentration. Hence, the mass flow rate is continuously calculated by the system. After having calibrated the device, a measurement accuracy of 1% was achieved.



Benefits

- Contactless, reliable flow rate measurement
- Measurement accuracy +/- 1%
- Maintenance free and low-wear
- Robust technology
- Made in Germany



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