

Cement Plant Optimization with McOn Air by PROMECON

Holistic efficiency Increase with only one precise, digital and completely maintenance-free Measurement

The key to a lean and efficient cement production process is gas flow analysis. Usually, energy and time are wasted without being recognized. Plant operators need to know, what is going on in their pipes and ducts. When it comes to cement plant optimization PROMECON offers effective measurement solutions that have convinced customers for decades.

Example: grinding section of a mill

Too high or too low? Problems of mill gas flows: Even in modern plants it is a common problem that mills are overdrafted because of unknown gas flows. The result is a different particle size spectrum than desired and also an increased fan power consumption of the mill. However, a gas flow which is lower than specified can lead to a trip of a mill which for a large raw mill creates an outage in order to clean out and restart the mill – waste of time, energy and resources. So the right gas flow is key for the efficient and safe operation of the mill.

Estimating was once - now it's knowing!

McON Air provides detailed process data which enable plant engineers to optimize these kinds of processes in a very efficient and easy way. This is the solution to many problems in a cement plant based on incomplete information, e.g. NOx emissions, dust emissions, CO₂ emissions or CO₂ control. By an accurate knowledge of the gas flows the particle size spectrum can be monitored and controlled. By readjusting the fan speed, mill trips as well as overdrafting are prevented effectively. This results in an efficient and smooth production process, which is predictable and holds no surprises.

Key benefits:

- Forget calibration and maintenance efforts – **McOn Air** is plug & play, absolutely drift-free and easy to mount
- No permanent repairs – not affected by dust, very robust and gas temperature resistant (up to 1,000 °C)
- Versatile all-rounder – McOn Air can support you in up to 8 possible applications in your cement plant
- Its worth a try – usual payback period is three months

This accurate measurement will allow operators to adjust fans more precisely and achieve an overall reduction of process noise, which will keep the process more steady and reduce auxiliary power consumption as well as dust emissions.

In comparison to other measuring equipment, McON Air is very suitable even in hot conditions and its good to use in dusty flow processes.

How it works

The airflow measurement system uses a cross correlation technique to measure the velocity of particles flowing in a gas stream. A measurement point requires the installation of a pair of sensors aligned parallel to the longitudinal axis of the pipe. Each sensor is simply a metal rod electrically isolated from the duct, extending across the gas flow stream. Electrical signals, created by particle clouds passing over the sensors, are analyzed by the instrument. Charge patterns detected by the first sensor are cross-correlated with patterns detected by the second sensor. Knowing the time shift of the signals and the distance between the sensors, the velocity can be very accurately determined. Using the cross-sectional area of the pipe, as well as the pressure and temperature of the stream, the volume and mass flow can be calculated.

The PROMECON McON air system has been used in Cement plants worldwide in order to optimize the plant and make it more efficient. For the great future obstacles such as NOx and CO₂ reduction a reliable air flow measurement will be a key component.