



DOPAG Mixer Element Monitoring for static-dynamic Mixing Systems



Hilger u. Kern / Dopag Group

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The Situation

Metering and Mixing Systems are often fitted with a static-dynamic mixer when processing materials that have certain exceptional features, such as:

- extreme metering ratios
- large differences in viscosity between the components
- Greater than normal mixing energy requirements

Until now, it has not been possible to reliably monitor the rotation of the mixer element in order to confirm that it is rotating at the correct speed, or even to establish if it has failed completely, which might be the case should the mixed material remain in the mixer beyond its pot life due to an extended interruption to production. Should production continue after the mixer has ceased to function, the resulting components would become expensive rejects.

The Solution

Hilger u. Kern / Dopag Metering Technology offers as an option on their metering and mixing systems a solution to this potential problem in the form of a mixer element monitoring system for static-dynamic mixers, which ensures that any failure of the mixing system will automatically be instantly detected, allowing the system to be shut down immediately, automatically or manually.



The System

Experience shows that approximately 99 % of all cases of mixer failure will occur on the inlet end of the mixing tube, as maximum torque is exerted at the drive end of the mixer tube. The monitoring device is therefore located in the area between the middle and the inlet end of the mixer tube.

The system observes the rotation of the mixer element in the mixing tube by impulse measurement. If this impulse is missing, it is generally a sign that the mixing element has sheared, in which case, the electronic circuit will report an alert. Additionally, the system can also be used for speed monitoring.

The system consists of:

- a special mixer element with solenoid
- a hall sensor
- monitoring software in the metering computer and corresponding software on the external monitoring unit



The Assembly

Assembly is similar to a normal mixing tube assembly:

- fix the mixing tube with the adapter onto the valve outlet
- push the sensor with its mounting over the mixing tube and screw together with the adapter.

The sensor is adjustable on its mounting in a defined area on the longitudinal axis in order to position the solenoid in an optimal position on the mixer element.



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The Hilger u. Kern / Dopag group, with more than 300 employees and 7 subsidiaries, is one of the leading manufacturers of machines for metering and mixing systems in the world for plural component polymers and single component media such as greases, oils and pastes.

For more than 30 years the group has developed machines, systems and components to suit your individual needs.