

KTS – kiln temperature measuring system and combustion chamber camera

– state-of-the-art measuring system for a comprehensive picture of kiln & cooler.



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Monitor your process visually or thermographically, or even both at the same time, using the KTS measuring system. The kiln scanner records the temperature of your kiln shell continuously and in a non-contact manner, even at places that are difficult to access. The combustion chamber camera gives a complete view of the thermal process both in the kiln and in the clinker cooler visually and thermographically.

The kiln shell temperature scanner records the temperature of the rotary kiln surface continuously and in a non-contact manner by means of thermal radiation. Special sensors ensure a high thermal and geometric resolution even at places that are difficult to access. Interfering shadows are a thing of the past.

The measurement data are thermographically visualised, either as two-dimensional or three-dimensional diagrams. In addition, the maximum, minimum and average temperature profiles across the longitudinal kiln axis and for selected sections of the kiln periphery are shown. Critical or abnormal areas can be monitored selectively via freely definable monitoring zones, and measures can be initiated automatically. An integrable camera provides additional information on the condition of the kiln and the measuring system.

All measurement data are stored on a cyclic basis in a database. This means that all information regarding the state of your rotary kiln shell is available to you at any time and from any location within your network.

The measuring system can be installed as an independent standalone solution or can be integrated into your network. For integration into existing master control systems, an OPC server is available.

A database for easy administration of your refractory lining including wear calculation is integrated even in the basic version.

Advanced refractory lining management and modules for the comprehensive analysis of heat losses are optionally available. A tyre slip measuring system can be installed for a rotary kiln with loose tyres.

The **kiln combustion chamber camera** offers you a view of the inside of the rotary kiln. So, you always have your burner under control and can assess the flame shape, the clinkering zone and the flow of material. You observe the inlet zone of the clinker cooler

with the aid of the **cooler combustion chamber camera** up, to the end of the recuperation section. You can therefore constantly monitor the clinker distribution and can initiate adequate safeguards in the case of abnormal operating conditions, such as in the case of "blowthroughs" or the formation of a "red river" or a "snowman".

Depending on the task to be fulfilled, you can choose video cameras or thermographic cameras. Application-specific selection of the spectral sensitivities in the wavelength range from 320 nm (UV) to 14000 nm (LWIR) achieves the optimal quality of the image and measurement data. Combinations of up to three spectrally different cameras are possible. Here too, you can observe critical or abnormal areas via freely definable monitoring zones and can automatically initiate measures.

Advantages of the kiln shell temperature scanner:

- Continuous temperature monitoring of the rotary kiln shell
- Detection of "hotspots" and refractory lining damage
- Detection of possible coating rings
- Continuous storage of thermographic images and temperature profiles
- Upgradable at any time, thanks to modular design

Advantages of the combustion chamber camera systems:

- Inspection of the process at any time
- Early detection of abnormal operating conditions, e.g. coating rings, "air blowthroughs", "snowman" or "red river"
- Combination of video and thermographic cameras possible

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