

KilnCooler Hot Spot



Control your kiln shell temperature on hot spots.
Infrared controlled water cooling of kiln shell.

Due to the increasing usage of secondary fuels, there are more fluctuations in the burning process. This leads to increased burden for the refractory and the kiln shell—hot spots may occur.

In order to reduce this burden, large cooling fans, which are blowing ambient air, are widely used.

Unfortunately, fan based cooling shows some disadvantages:

Ineffective—low heat capacity of air; selective cooling is impossible; loud—fans emit a substantial amount of noise; high energy consumption.

Benefits of KilnCooler Hot Spot:

- expansion of kiln’s operation time
- reduced mechanical tension
- almost no noise emission
- fast, but carefully cooling down
- very low energy consumption (2-50W)
- energy savings



Efficiency by water cooling

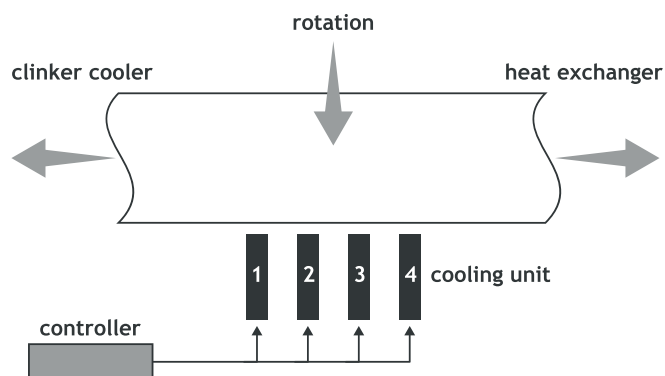


To overcome fan based cooling disadvantages KIMA’s KilnCooler uses waterspray nozzles and precise dosing valves, which are controlled by an infrared temperature sensor. The waterspray of an individual nozzle is switched on only, while its infrared sensor detects a hot spot.

‘The water spray cooling is efficient and on the spot.’

Flexibility due to modular set-up

The KilnCooler Hot Spot is developed as a stand-alone mobile unit especially for hot spots.



Basic set-up



Temperature Sensor

Continuous temperature monitoring by infrared pyrometers.

Control Panel

Change of temperature settings. Mode selection and trends.

Controller

Due to sophisticated control scheme the kiln's shell temperature is kept at the desired set point.

Water Nozzle

Adjustable fan nozzles for optimised surface coverage at minimised water consumption.



control panel



controller



temperature sensor



water nozzle

'Only the hot spot is cooled down, not necessarily the entire circumference.'

The waterspray is controlled by a FUZZY-controller which uses infrared sensors to precisely locate hot spots on a circumference. The "hot spot temperature" can be set individually for every nozzle.

Cooling down a hot spot

A hot spot can be cooled down rapidly but careful, avoiding any shrinkage of the kiln shell. The cooling rate is up to 2 Kelvin/min.

After cooling down, the shell temperature is kept on its nominal value, thus eliminating mechanical tensions.

