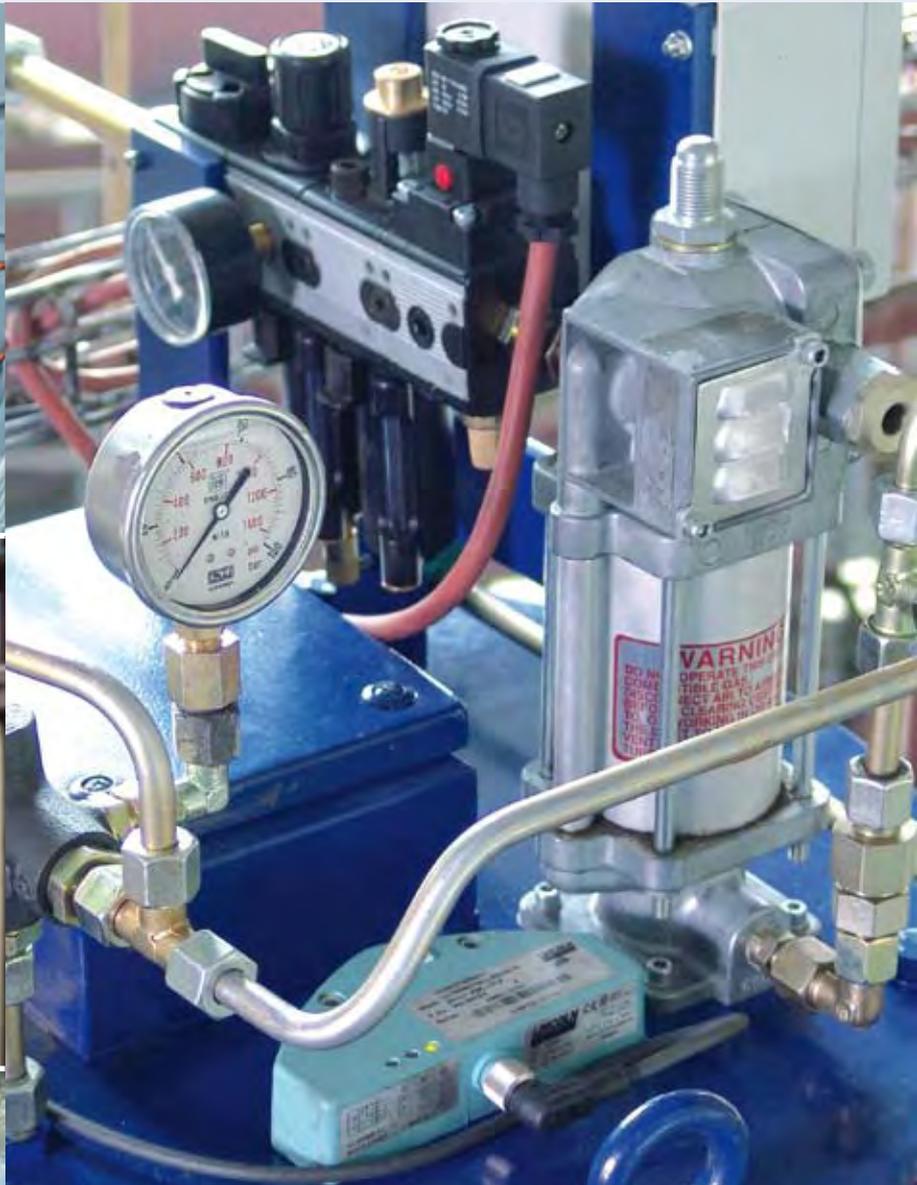


Automated Riding Ring Lubrication for Rotary Drying Kiln Applications

The new Generation



Fully Automated Lubrication System

- No accident danger resulting from manual intervention
- Reduced time for maintenance tasks
- Precise and metered spraying of lubricant on the slide plates
- Reduced lubricant consumption

Automated Riding Ring Lubrication for Rotary Drying Kiln Applications

Why is it necessary to lubricate the Riding Ring Tracks?

Due to the heat radiation, rotary drying kilns are supported by a riding ring. The riding ring and the kiln drum have different operating temperatures and move at different speed.



Both components must be able to compensate for thermal expansion. For this reason, the riding ring and the kiln drum are matched with a loose tolerance. Slide plates are often located between the kiln shell and the ring.

Insufficient lubrication causes an excessive force due to the relative movement to be exerted on the bearing support of the ring. This may lead to a deformation of the kiln shell. The manufacturers prescribe a daily lubrication. Depending on the tolerance, 1 to 3 cm³ of a special emulsion should be applied.

Conventional systems comprise a manual lubrication with a hand-spray unit

Conventional systems use hand-spray devices with lances to apply the lubricant. Such systems often use pressure-pumps, as found in garden services, to apply the lubricant, thereby forcing maintenance personnel to climb on ladders and squeeze between the gaps while being subjected to the heat of the kiln.

The rotary motion of the kiln often leads to a feeling of dizziness which increases the accident danger. This method often results in un-lubricated spots or leads to under- or over-lubrication.

Advantages of automated Riding Ring lubrication

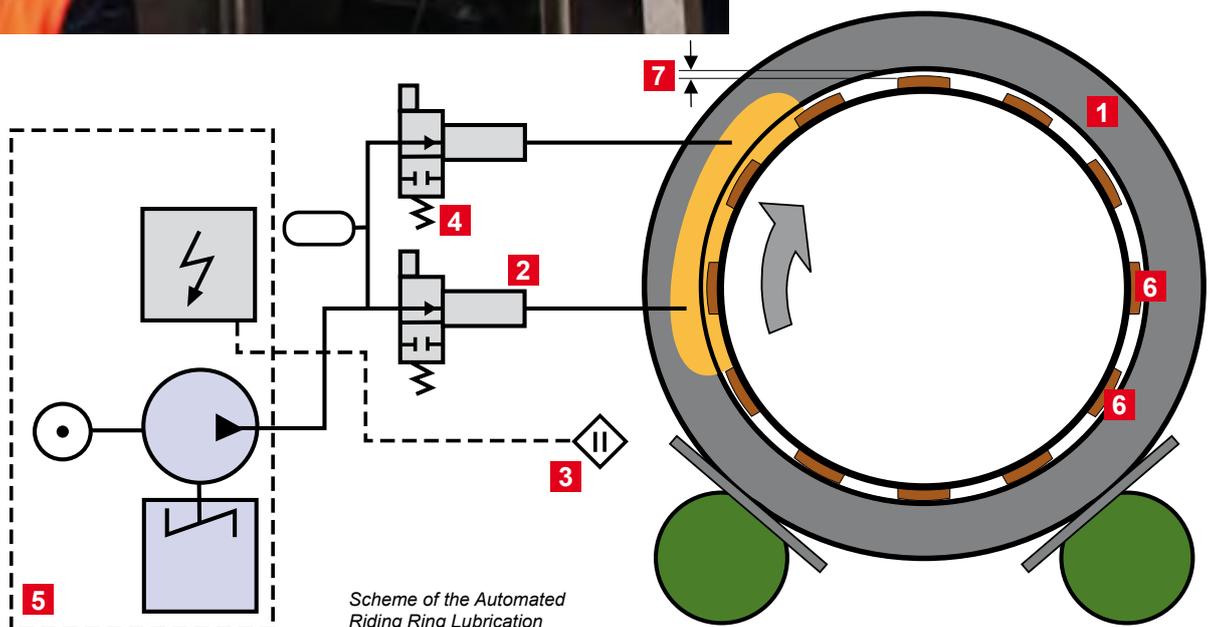
The fully automated lubrication enables a precise and metered spray of lubricant to the contact area. A sensor counts the gaps and controls the spray impulse. The number of cycles is adjustable, and a distance of up to 1 meter can be accommodated between spray nozzle and lubrication point.



Pump unit complete with controller



A precise application of lubricant reduces the overall required amount. The pump station, complete with controller, is fully preassembled such that manual intervention is not required. The risk of an accident that is always present with conventional manual applications is avoided. In addition, the time required for maintenance tasks is drastically reduced.



- 1** Riding ring
- 2** Spray nozzle
- 3** Sensor

- 4** Accumulator with solenoid
- 5** Pump unit complete with controller

- 6** Slide plates
- 7** Gap
 $\delta = DL - Do$

The Fully Automated Riding Ring Lubrication Provides a Precise and Metered Spraying of all Slide Plates



Function

The pump fills an external accumulator via a mainline. A pressure switch that is mounted on the accumulator enables a primary pressure of around 90 bar and a filling pressure of 60 bar.

The accumulator ensures that lubricant is available during operating times. The lubricant delivery is initiated by a sensor that signals the solenoid valve to open, allowing the lubricant to be supplied to the spray nozzles. The spray nozzles spray the lubricant into the voids of the rolling race. After a predetermined number of cycles, which is adjustable on the controller, the pause time begins and the system is completely vented via the 2/2 way solenoid on the pump station.

System Benefits

- Fully automated system
- Patent pending
- Precise and metered spraying of slide plates
- Spray distance of up to 1 meter
- A sensor counts the voids and signals the spray impulse
- Number of cycles are adjustable
- Complete preassembled pump station with controller (plug and play)

Environmental Information

The oven shell of rotary kilns uses a riding ring bearing. Normally there are guide plates between the riding ring and the oven shell that require lubrication.

Conventional systems use hand-spray devices with lances to apply the lubricant. Maintenance personnel are forced to climb on ladders to lubricate while being subjected to the heat of the kiln. The rotary motion of the kiln often leads to a feeling of dizziness which increases the accident danger.

- The Lincoln riding ring lubrication system fully automates the process. The risk of an accident resulting from manual lubrication is completely avoided.
- The lubricant consumption is reduced as the automated system applies the lubricant in a more precise manner.



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