polysius®
loose tyre fastening system

thyssenkrupp

Tyre fastening system in operation

Pre-assembled tyre station

It's the gap that's key

There are basically two different systems that can be used to fasten kiln tyres to a kiln shell: the splined or the loose tyre fastening system. The tyre fastening system transfers the load to be supported from the rotary kiln shell into the kiln tyre by means of floating tyre pads.

Design and function
The loose tyre fastening system essentially consists of tyre pads, shim plates, radial and axial stops and the lateral limit rings. The shim plate floats on the kiln shell and is secured in position by means of the axial stops welded to the kiln shell. If required, compensation plates can be inserted under the tyre pads for fine adjustment of the tyre clearance and secured with small hold-downs welded to the kiln shell.

The axial limiters of the tyre fastening system absorb the axial force, resulting from the expansion of the rotary kiln shell, the skewing of the supporting rollers and the action of the rotary kiln axial thrust system. The axial limiters are supported by the limit rings at the side walls of the kiln tyre and are welded to the tyre pads.

The rotary kiln shell is fastened as near to the centre of the kiln tyre as possible by the tyre fastening system. As the outside diameter of the tyre fastening system is smaller than the inside diameter of the tyre, they do not migrate the same distance circumferentially, resulting in a relative movement of the tyre versus the rotary kiln shell (slippage). The amount of slippage, measured in mm per kiln rotation, provides key indications of the condition of the rotary kiln shell and the tyre fastening system.

Your service advantages

- Protection of refractory lining from excessive ovality
- Easy replacement of both tyre pads and shim plates, which makes the radial tyre clearance easy to adjust and the ovality controllable by means of tyre pads
- Cost-effective system
- Proven over decades
- Low welding stresses of axial and radial stops

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