

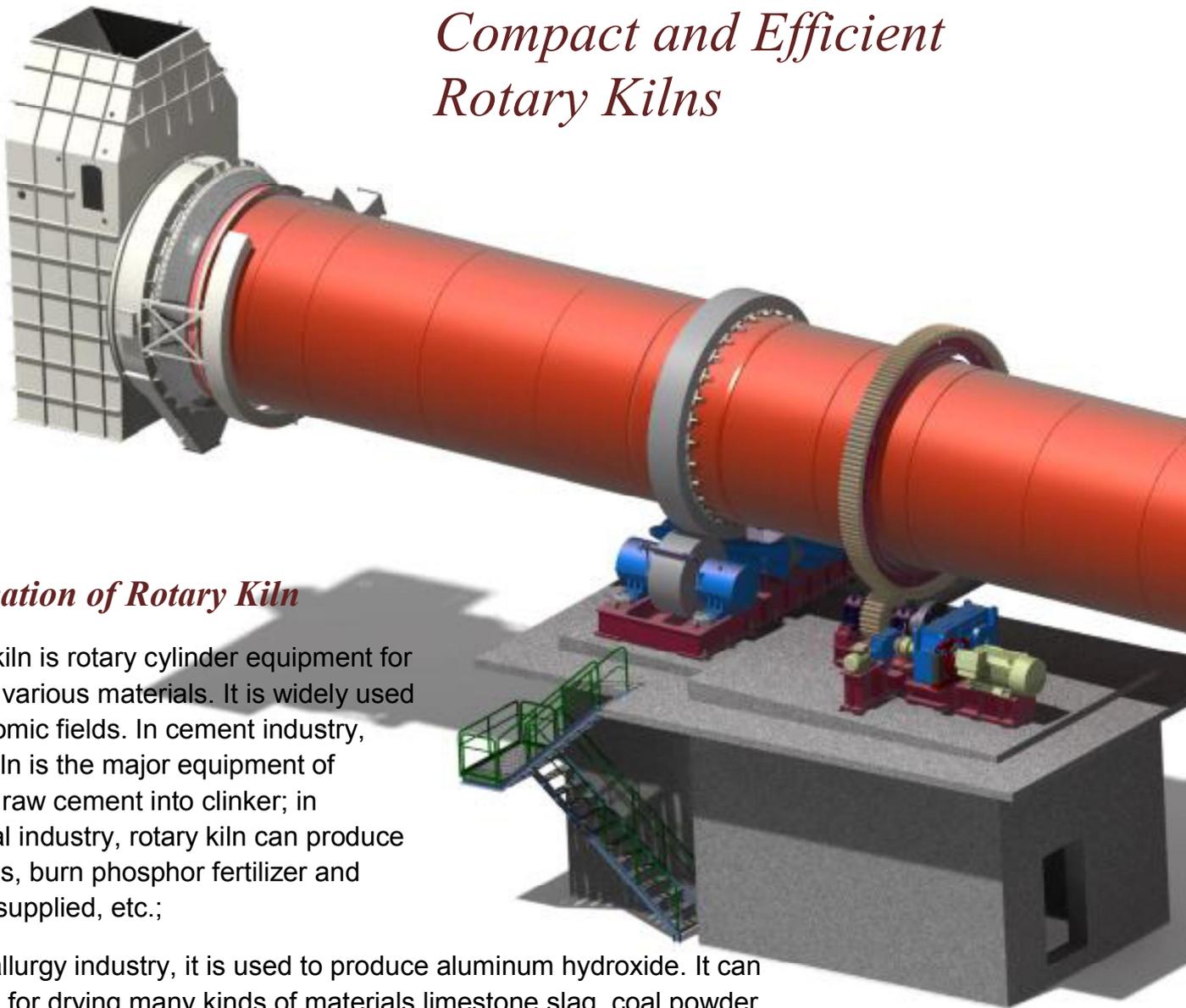
Green ID Rotary Kiln
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GREEN ID
TECHNOLOGIES

*GREEN ID's Rotary Kiln designer
and Manufacturer Company in Iran.*



Compact and Efficient Rotary Kilns



Application of Rotary Kiln

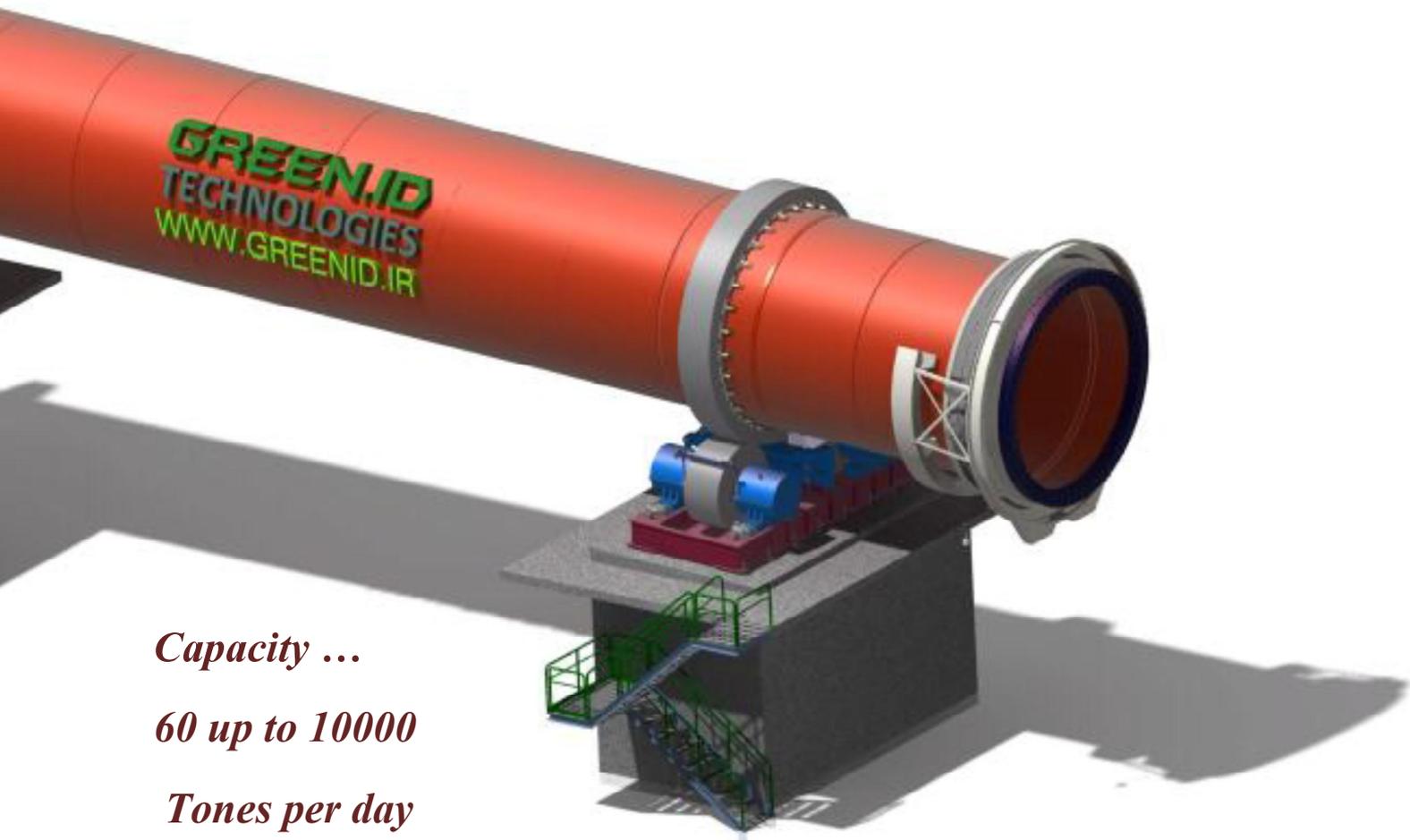
Rotary kiln is rotary cylinder equipment for burning various materials. It is widely used in economic fields. In cement industry, rotary kiln is the major equipment of burning raw cement into clinker; in chemical industry, rotary kiln can produce saleratus, burn phosphor fertilizer and barium supplied, etc.;

In metallurgy industry, it is used to produce aluminum hydroxide. It can be used for drying many kinds of materials limestone slag, coal powder, slag, clay stone. Its highest temperature can reach 1600-1700 degree.

In addition the GREEN ID® kiln offers:

- Investment costs approx. 15 % lower than three station kilns.
- The lower space requirements and lower weights lead to more favorable construction costs.
- Mechanical overloading is impossible. This results in higher levels of operational reliability and lower maintenance costs.
- Lower consumption of refractory lining.
- The reduced required power and lower radiation losses reduce energy costs.
- The tire at the kiln discharge is outside the sintering zone.

	Gear drive (form-fit)	Roller drive (friction-fit)
Function	Transmission of loads via tyres and rollers, transmission of torque via pinions and girth gear optimal separation of functions without reciprocal influence	Transmission of loads and torque via tyres and rollers bearing and drive function in one unit means: functional compromise
Design	Components are optimized for the relevant function	Additional drive forces requires stronger roller bearings
Efficiency	Maximum degree of efficiency, minimum wear and tear	Slipping and friction result in wear and tear to tyres and rollers and impair efficiency
Maintenance	Ensure lubrication	Ascertain friction values



Capacity ...

60 up to 10000

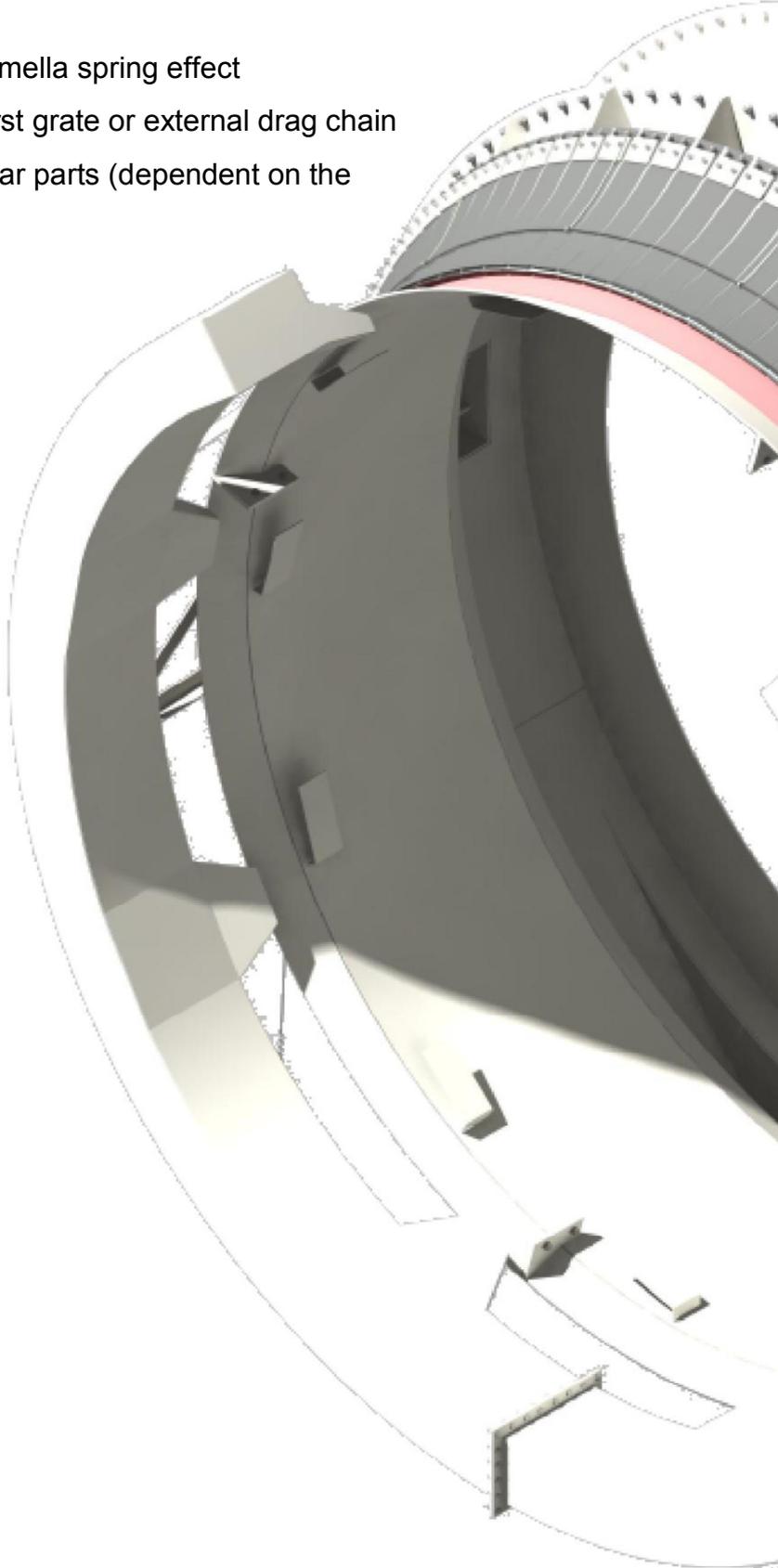
Tones per day

*Working Principle of
Green ID rotary kiln*

The rotary kiln can be divided into cement kiln, metallurgy chemical kiln and lime kiln according to the different materials processed. The cement kiln is mainly used to calcine cement clinker; In the process of non-ferrous and ferrous metallurgy, such as iron, aluminum, copper, zinc, sterner, nickel, wolfram, chromium, etc., the rotary kiln can be used to sinter and roast ore, concentrate, intermedium, etc.; The lime kiln is mainly used to calcine limestone.

Some of the advantages of Green ID Kiln Outlet Lamella Seals

- Extremely flexible sealing between kiln and cooler
- Independent of kiln rotation
- Insulation incorporated to protect the lamella spring effect
- Material return arrangement to either first grate or external drag chain
- 7,000 - 14,000 service hours for the wear parts (dependent on the process conditions).
- Rapid and easy maintenance
- Straightforward installation
- Dust retention curtain incorporated



Rotary Kiln Lamella Seal

The lamella seal consists of a non-rotating cylindrical ring of steel plates fitted around the kiln on the kiln hood. This cylindrical ring supports a number of special steel lamellae which slide on the circular cooling mantle surrounding the kiln outlet & inlet section.

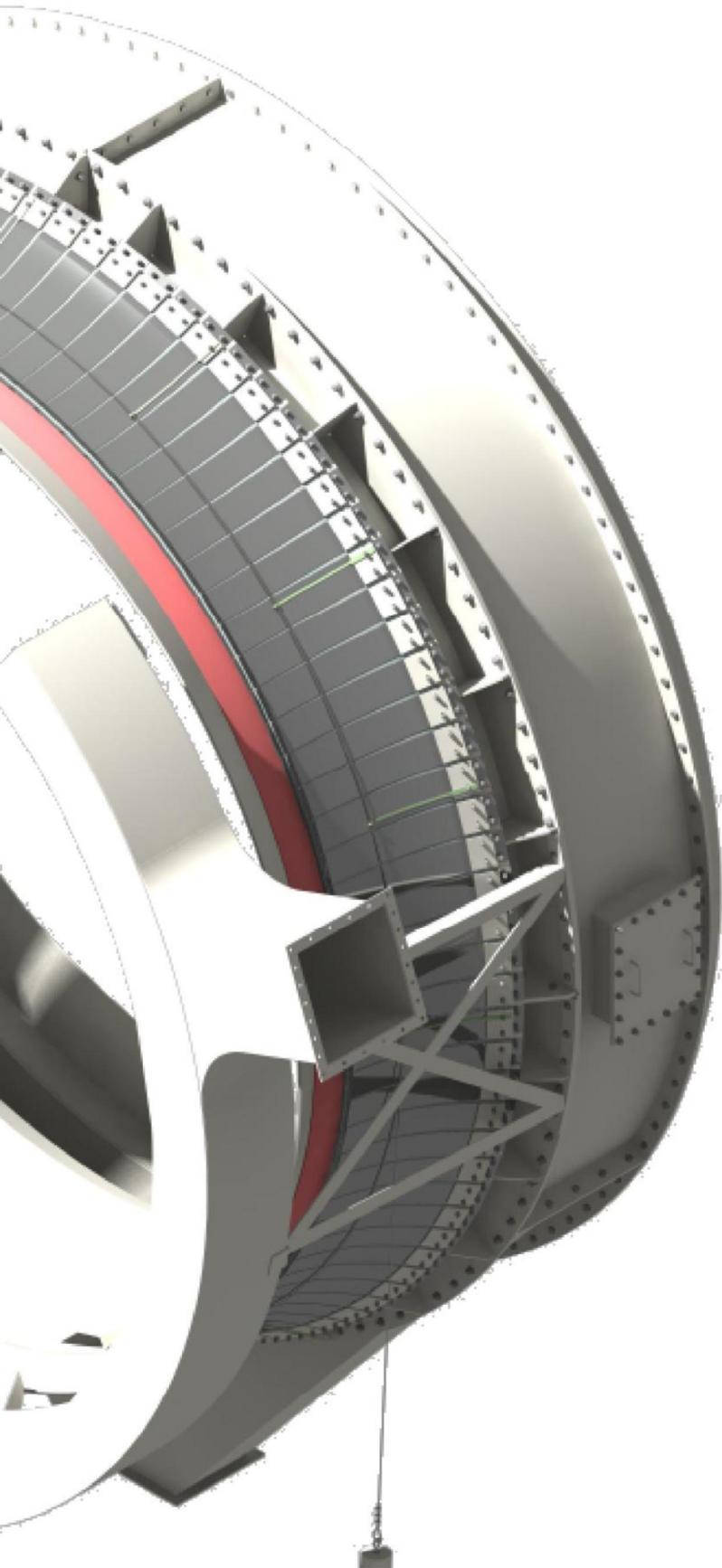
The lamella seal consists of two sets of spring lamellae and heat-resistant fabric.

The inner set of lamellae supporting the fabric is exposed to the intense heat of the kiln. Over a period of time the lamellae may lose their original spring characteristics. To protect the outer set of lamellae and enable them to maintain their resilience, a layer of heat-resistant fabric is positioned between the two sets of steel lamellae.

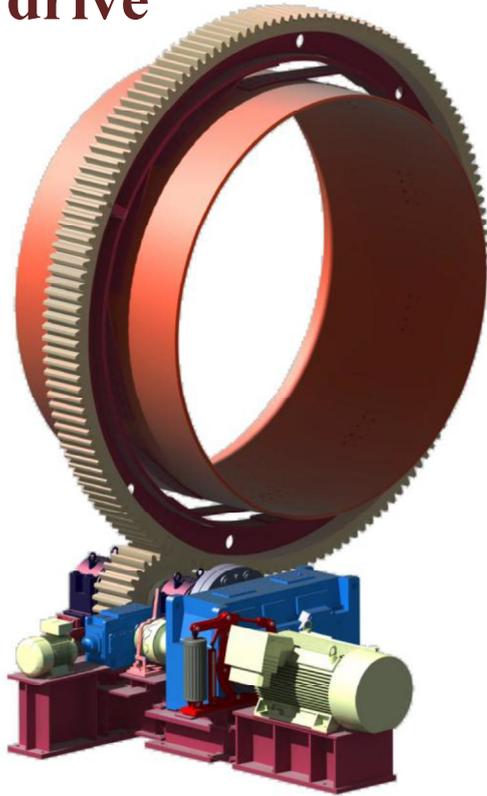
The cooling mantle is constructed from heat-resistant plate and is positioned on the kiln shell and fixed by a number of spring plates.

To prevent overheating of the outlet sectors and sealing parts, a separate fan supplies cooling air via a circular manifold to the space between the kiln shell and the cooling mantle.

In the concentric dust chamber the escaping dust is collected and is then returned directly to the cooler via a chute.



... The drive



Nothing can shake them

The event, smooth operation of the kiln and optimal contact pattern with the pinion is achieved by mounting the girth gear on the kiln shell using tangential springs. The centered action of the girth gear is adjustable.

Feel free to create friction

Alternatively, it's possible to transmit the drive torque from the rollers to the tire. This type of drive is only suitable for two station kilns. The characteristics of both types of drive are listed in the adjacent table.

Hydraulic drives – acting directly or via gears on the drive shaft – also permit smooth kiln operation but are less efficient. This is why they are also considerably less economical.



This is where the power is

The drive units consist of the main and auxiliary drive. Variable speed AC or DC motors are used as drive motors. The auxiliary drive is furnished with an electric motor and / or a combustion engine. In conjunction with multi-stage or planetary gearboxes and elastic, practically maintenance-free couplings, the drives offer maximum operational safety and outstanding efficiency.

This is our drive

The drives for all kilns are designed for the reliable operation of the kiln under any operating conditions. This means that even greater safety factors and torque reserve, are installed for nominal operation. All drive components are designed for the installed motor torque plus all safety factors and not only for effective torque generated at nominal capacity. The installed reserves and safety factors ensure the extremely flexible operation of the kiln, including higher clinker throughput, without overloading the drive.

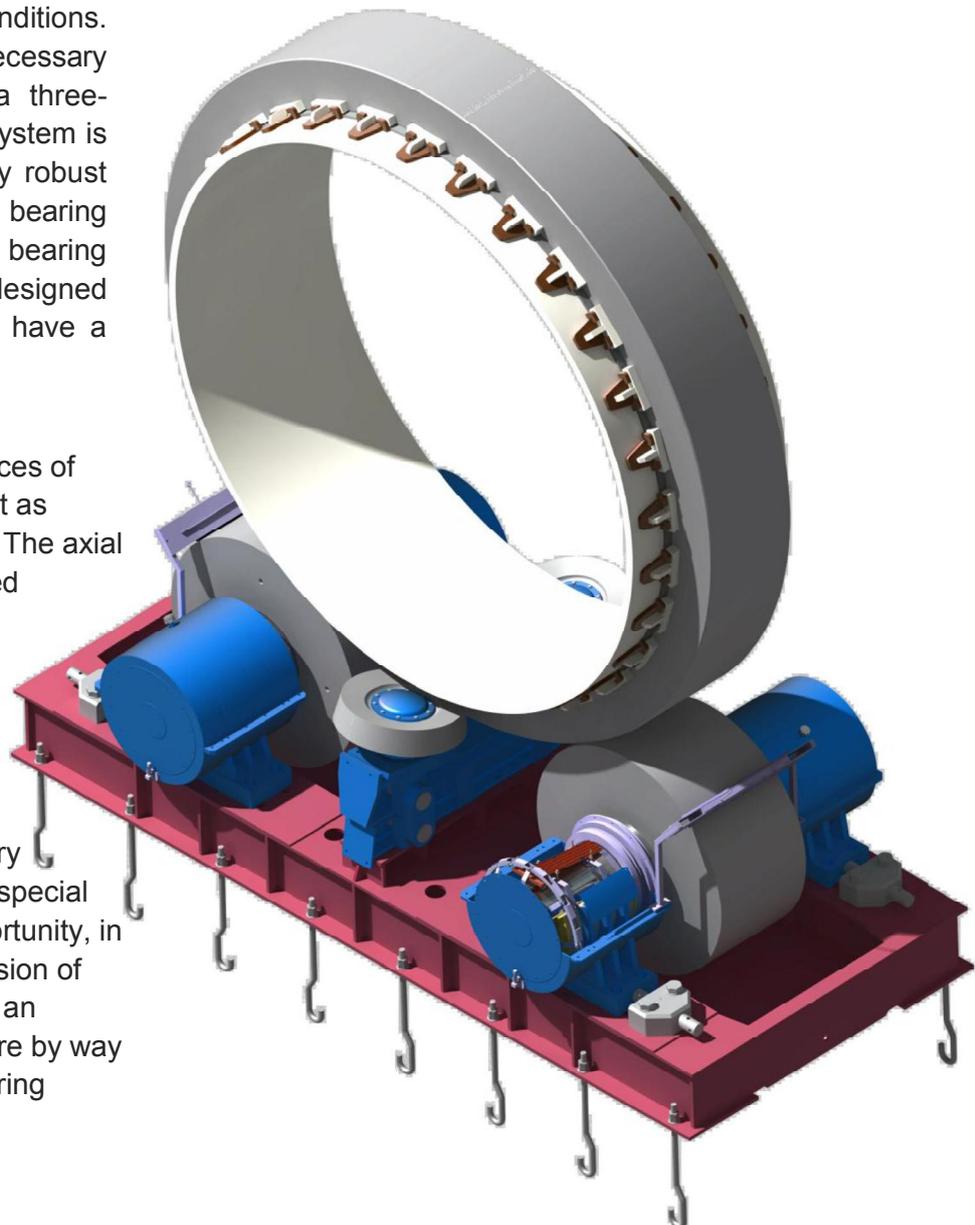
Roller & Tire

The forged rollers and cast tires have solid rectangular profiles. They are manufactured without relief or drilled holes to ensure that no notch stresses or stress concentrations occur. One special feature is the constraint free and low-maintenance tire fastening system, which reliably transmits all loads via large contact surfaces at low surface pressure from the kiln shell to the tire. This connection also maintains a perfect contact pattern between the tire and rollers.



They are dimensioned to ensure they are not affected by any types of load resulting from various operating conditions. However, in the event that it is necessary to straighten a bent shell of a three-station kiln during operation, the system is equipped to do so. The extremely robust and solid construction of the bearing arrangement, with double slide bearing blocks which remain aligned, is designed to ensure that the roller stations have a centering effect on the kiln.

They absorb the reestablishing forces of the distorted kiln and do not deflect as flexible or moving bearings would. The axial forces are also effectively controlled and do not result in indefinable changes to the ratio of forces. This controlled absorption of the axial forces is easy to recognize at all times. It helps to precisely adjust the bearing position and to make any necessary corrections during operation. One special advantage is that it offers the opportunity, in the event of changed linear expansion of the kiln shell, to return the roller to an optimal position in relation to the tire by way of the linear adjustment of the bearing block.



No fear of contact

In order to ensure uniform use of the contact surfaces between tires and supporting rollers, as well as the girth gear and pinion, the axial motion of the rotary kiln is hydraulically controlled. The hydraulic thrust roller mechanism counteracts the forces which are generated by the slope of the kiln. It operates automatically and is controlled by non-contact measurement.



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