

What is a rotary kiln?

Your safe and durable rotary kiln solutions, Large rotary kiln manufacturer in China

Rotary kiln produced by PENGFEI can be divided into cement rotary kiln, metallurgical rotary kiln, chemical rotary kiln or active lime rotary kiln.





Working principle of rotary kilns:

The kiln is a cylindrical vessel, inclined slightly from the horizontal, which is rotated slowly about its longitudinal axis. The process feedstock is fed into the upper end of the cylinder. As the kiln rotates, material gradually moves down toward the lower end, and may undergo a certain amount of stirring and mixing. Hot gases pass along the kiln, sometimes in the same direction as the process material (co-current), but usually in the opposite direction (counter-current). The hot gases may be generated in an external furnace, or may be generated by a flame inside the kiln. Such a flame is projected from a burner-pipe (or "firing pipe") which acts like a large bunsen burner. The fuel for this may be gas, oil, pulverized petroleum coke or pulverized coal.

Structure of rotary kilns:

Cement rotary kilns are mainly composed of:

Kiln shell	Support roller device	Thrust roller device	Kiln inlet sealing
Kiln outlet sealing	Tyres	Kiln hood	Kiln driving system

Kiln shell:

It is a cylinder made by carbon steel plate which the diameter can be 6.9m and length can be 230m.



Support roller device

Support roller device is mainly composed of support roller, support roller shaft, bearing, bearing liner, bearing bush, etc. It is used to support the rotary kiln and the support roller will directly contact the tyres.



Tyres:

Tyres sometimes is called the riding rings, normally it is a single circular casting ring or forging ring with a smooth surface. They are installed to the outer surface of kiln shell via some ingenious design as the tyres shall attach to the kiln shell closely meanwhile it allows the thermal movement. Tyres will be supported by a pairs of support rollers which are also machined with smooth surface with the distance in half of the kiln diameter. This structure must allow rotation as nearly friction-less as possible.



Thrust roller device:

Thrust roller device mainly is divided into hydraulic thrust roller device and mechanical thrust roller device which are used for keeping the safety operation of rotary kilns.



Kiln inlet sealing and kiln outlet sealing:

Rotary kiln sealings are used at kiln inlet and kiln outlet, while kiln outlet is the high temperature side of rotary kilns with the temperature more than 300°C, however the temperature of kiln inlet is lower, but it is under the high negative pressure, thus sealing condition should be good for both kiln inlet and kiln outlet so that the heat consumption and power consumption can be guaranteed.

Kiln hood:

Kiln hood is an important part of rotary kiln mainly used for collecting clinker to prevent leakage, meanwhile the hot air from cooler via the exhaust fan will be sent into kiln to adequately use the waste heat and reduce the heat consumption.

Kiln driving system:

Kiln driving system is composed of girth gear, pinion, motor, reducer, etc. Girth gear is casting parts with two halves, pinion is forging parts, brand of motor and reducer depends on the customers' requirements.

