

Multiple Shaft Preheater



The art of modernizing lime kilns

Proven design – good access during operation – best product qualities

The Multiple Shaft Preheater (MSP) is a highly specialized kiln application used for **drying, preheating and precalcining lumpy limestone**. The aggregate is designed for installation upstream of a rotary kiln. By adding the MSP into an existing kiln plant, the burning process is optimised with respect to energy consumption while the rotary kiln volume utilization is enhanced.

The MSP uses the counterflow principle for heat transfer in a modular design: Hot kiln exhaust gases are transported through individual shaft modules, thus ensuring a controlled heat transfer. The unique design provides for an extended exposure time of the material in the hot environment ensuring uniform precalcination. With respect to the projected kiln capacity thyssenkrupp Industrial Solutions recommends rectangular or circular arrangements of the shaft modules.

Since the bulk of hot limestone inside the shafts of the preheater works as a packed bed filter, dust and gaseous emissions are retained. In comparison to traditional long-kiln operation, impurities cycles develop and cause increased

contamination of the kiln system and, consequently, of the lime product. To influence the required product quality, thyssenkrupp Industrial Solutions offers a sulphur bypass system that reduces the sulphur content in the lime. The core component of this system is a roller grate that works as a hot screening device, separating the sulphur-laden dust from the lime.

A positive side-effect by installing a sulphur bypass is the massive reduction of build-ups due to impurities like alkalies and chlorine, which are removed by the bypass as well.

Multiple Shaft Preheater



Fields of application

Preheating and precalcining of lumpy limestone and dolomite

Reduction of the sulphur content in the product (in connection with the thyssenkrupp Industrial Solutions sulphur bypass)

Main features

Residual CO₂ content well below 1%

Use of high sulphur fuels possible (in connection with a thyssenkrupp Industrial Solutions sulphur bypass)

Reactivity of the product adjustable from soft to hard burnt lime

Maintenance and cleaning work is possible during operation

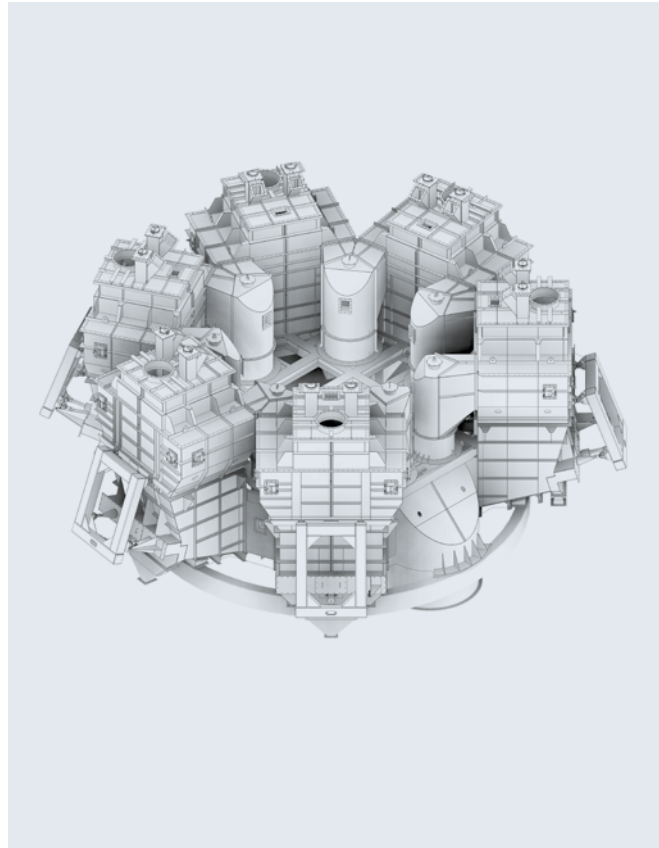
Shock blower driven automated cleaning system

Design parameters

Specific heat consumption: approx. 1200 to 1400 kcal/kg

Daily output: 400 up to 1200 tons

Feed material size: 10 to 50 mm



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