
Coal burning lime kiln

Full name: fully automatic mechanized coal burning vertical steel-shell lime kiln

Kiln type: vertical cylindrical

Technical parameters of production line:

Capacity (t/d)	Effective volume	Effective height	Effective section	Limestone grain size	Heat consumption
	(m ³)	(m)	Diameter (m)	(mm)	(kJ/kg)
100	120	15	φ 2.5	40-80	<4600
150	200	18	φ 3.5	40-80	<4500
200	300	24	φ 4.0	40-80	<4500
300	380	26	φ 4.5	40-80	<4400

Technical parameters of metallurgical active lime kiln:

Model	120m ³	200m ³	300m ³	380m ³
Capacity	60-80tpd	110-135tpd	150-180tpd	200-240tpd

Calculation basis: CaO content>55%, limestone grain size of 30-70mm, anthracite, product activity>300ml

1. Introduction

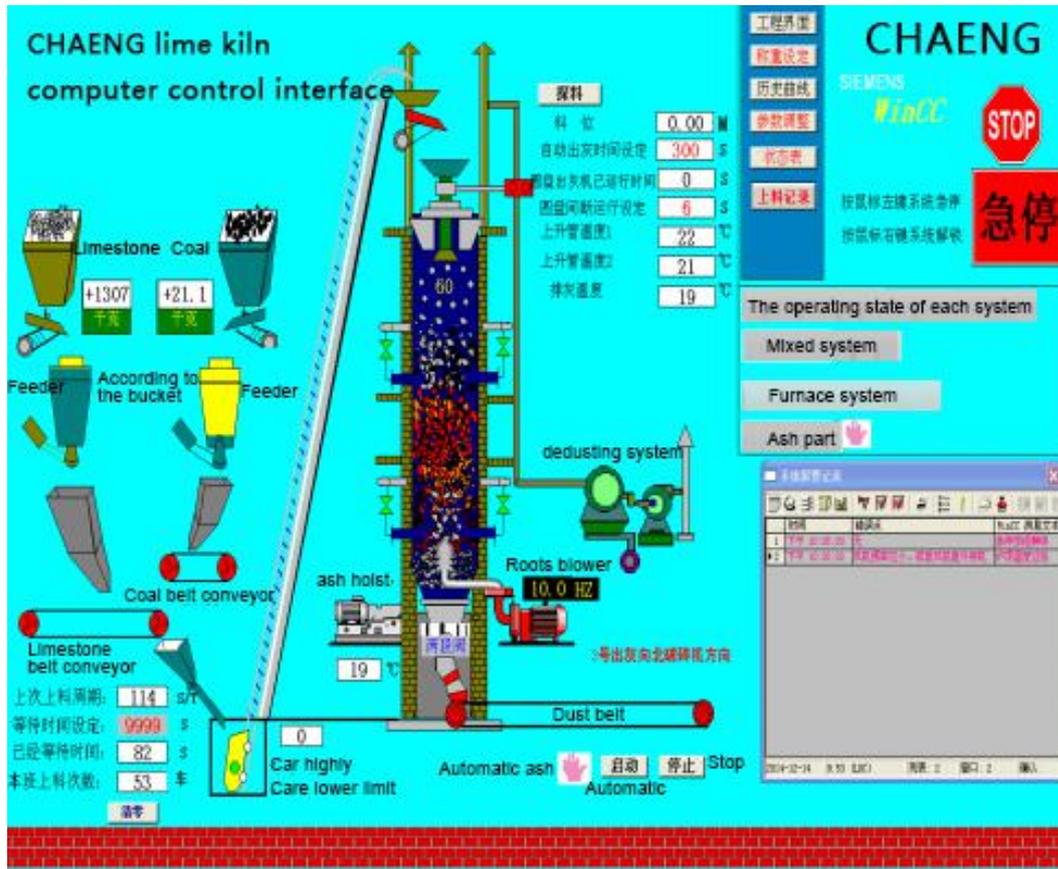
Production process:

Limestone and coal are respectively fed into the storage bins by forklift. The lower parts of the bins have automatic weighing hoppers. After weighing according to the amount set by the computer, the limestone and coal are mixed. The mixed material is lifted by the skip car through the inclined bridge to the top of the kiln, and then is evenly sprinkled into the kiln through the loading equipment and the feeding equipment.

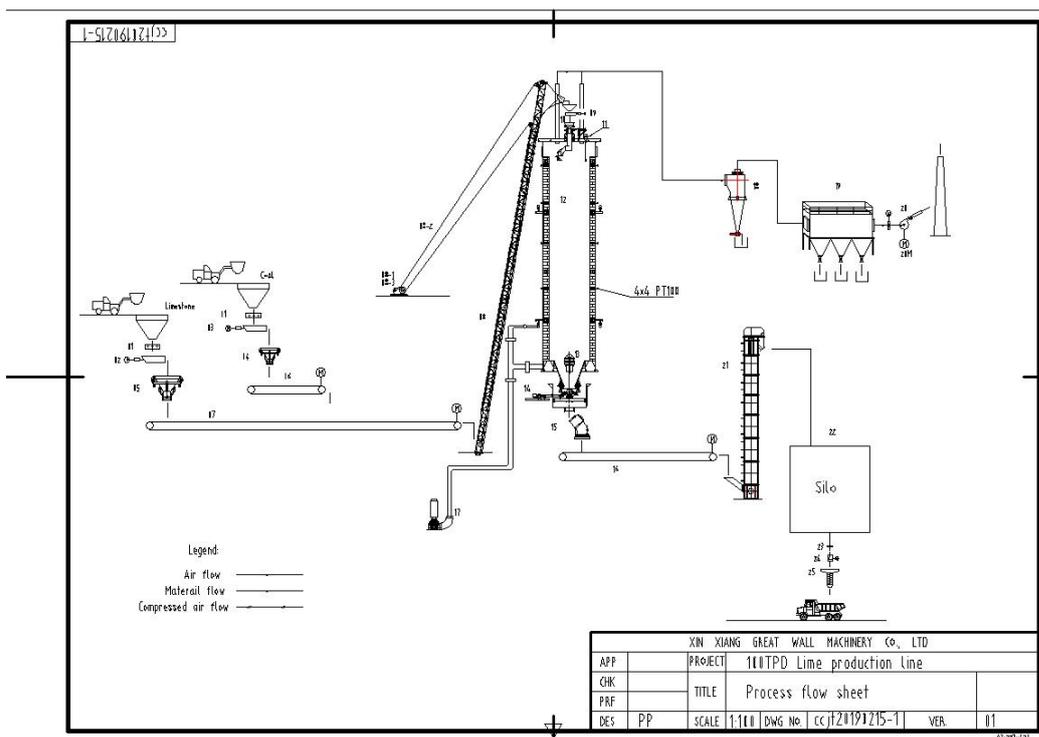
The raw material descends under the action of its own gravity in the kiln. At the bottom of the kiln, a roots blower cools the lime at the bottom of the kiln. The wind from the bottom exchanges heat with the lime and enters the calcining zone as fuel after its temperature reaches 600 degrees.

The Limestone from the kiln top passes the preheating zone, the calcining zone, and the cooling zone, and complete chemical reaction under the action of high temperature to decompose into calcium oxide (lime). After that, it is discharged from the kiln bottom by the disc ashing machine and the ash discharging device with the function of sealed discharge, to realize the non-stop wind unloading.

computer control interface



Process flow chart:



Scene photos:



Finished product:



Indicator parameters of production line

Limestone grain size: 40-80mm (The raw material >80mm can not exceed 5%, <40mm can not exceed 5%)

Fuel: available solid fuels such as coke, bituminous coal, anthracite, briquette. Grain size: 20-40mm for the best

Finished products can be used in metallurgy, construction, agriculture, calcium carbide, environmental protection and chemical industries.

序号 No.	指标名称 Index	单位 Unit	数值 Value	备注 Remarks
1	炉子有效容积 Effective volume of the kiln	m ³	100-300	
2	炉子的有效高度 Effective height of the kiln	m	15-26	
3	炉子的有效内径 Effective inner diameter of the kiln	m	2.5-4.5	
4	炉子的利用系数 Utilization factor of the kiln	t/d*m ³	0.7-1.1	
5	日历作业率 Calendar work rate	%	<97	
6	日产石灰量 Daily output	t/d	100-300	
7	石灰生过烧率 Overburning rate of lime	%	5-12%	
8	石灰石消耗 Limestone consumption	t*石/t*石灰 t*limestone/t*lime	1.78	
9	燃料能耗 Fuel consumption	KJ*kg 石灰 KJ*kg lime	<4600	
10	电能消耗 Power consumption	KWH/t*石灰灰 KWH/t*lime	<15	
11	出窑废气温度 Exhaust gas temperature	°C	<180	
12	成品石灰温度 Finished lime temperature	°C	<80	
13	废气排放浓度 Exhaust gas	Mg/Nm ³	<50	

	concentration			
14	烟气中 Co2 浓度 Co2 concentration in exhaust gas	%	30-42%	

Features of the production line

Mainly complete the automatic weighing compensation and control for the processes of mixing, kiln calcining and lime discharging.

(1) Automatic and manual system are both equipped. Except for the manual operation of the on-site operation box, all of them can be controlled by computer operation in the central control room.

(2) The data of all instruments (such as pressure gauge, flow meter, temperature instrument) is displayed on the computer and can be printed by the printer.

(3) Perfect WINCC human-machine interface operating system.

(4) Complete Siemens intelligent weighing module batching, weighing and compensation system.

(5) Reliable lime kiln material level gauges, smart masters and other proprietary equipment.

(6) Perfect on-site camera monitoring system. Real-time live images and central control computer data, accurately grasp every link of the production line.

(7) Reliable Siemens PLC system, inverter and industrial computer two-level microcomputer intelligent system.

(8) Environmentally friendly. According to environment protection policies and production needs, it can be equipped with a soot treatment system and a desulfurization system to achieve legal emission.