## Brief Introduction

**Cement production line** is the production line composed of a series of cement production equipment, mainly involving Crushing stage, pre-homogenization, raw material preparation and homogenization, preheating and decomposition, cement clinker calcination, cement grinding, packing and so on.

Great wall machinery can provide the whole cement production line turn-key service (from design, manufacturing, installation, debugging and capacity and standard reaching) depends on years of experiences in equipment manufacturing and project construction. The technological process of turn-key service has been continuously optimized in order to achieve energy saving, reducing consumption and high efficiency.

## Production Process

### Raw material crushing

During the cement manufacturing process, most of the raw materials vitally need to be crushed, such as limestone, clay, iron ore, coal etc. However, among those raw materials, the limestone crushing plays a very important role for cement manufacturer, not only because of its largest consumption amount, but also its higher hardness and bigger grain size.


limestone


coal gangue


iron ore


gypsum

### Raw material preparation & Pre-homogenization

During cement manufacturing, for 1 ton Portland cement, it will takes 3 tons materials (including the raw materials, fuel, clinkers, mixtures and gypsum). According to the statistics, in dry cement production line, the power taken by grinding occupied more than 60% of the total power, including over 30% for meal grinding, about 3% for coal grinding and about 40% for cement grinding. Therefore, choose the suitable equipment and technology process, right operation and control system have great meaning to the quality control and power reduce.

Great Wall Machinery is a professional cement equipment manufacturer. We can provide the equipment of meal grinding, clinker grinding and **coal grinding**. In many customers' cement production line EPC projects, we equip the **GRM series vertical roller mill** designed and manufactured by us. Compered with ball mill grinding system, the vertical roller mill grinding system has the advantages like smaller occupied area, lower civil cost, higher effective grinding, lower power consumption, lower metal consumption and lower noise etc.


raw material yard


homogenization silo


batcher scale


bucket elevator

### Preheating and decomposition

Preheating and part of the decomposition of The raw materials are done by preheater, Instead part of rotary kiln, To shorten the length of kiln, At the same time, the heat transfer process of kiln are Moved to the preheater, Raw meal will blended with hot gas which discharged from kiln, Increase the contact area, Accelerate the heat transfer speed, High heat exchange efficiency, Improve the production efficiency of the kiln system, and Reduces the clinker calcining heat consumption

Heat transfer are happened in the entrance of the pipe, the Raw Material which was feed into preheater pipe, also get separated by the impact of high speed rising air

When the air flow into cyclone cylinder with powder, forced to do rotary flow In the annular space, and down while rotating movement, from the cylinder to the cone, can be extended to the end of the cone, then turned up the rise, then out from the exhaust pipes.

The emergence of precalcining technology is a technological leap of Cement calcining process, add decomposition furnace between the preheater and rotary kiln, set a fuel injection device, Make the fuel combustion heat release process and endothermic process of carbonate decomposition of raw meal, proceeds rapidly, Let the decomposition rate of raw meal increased to 90% or even more. Let the carbonate decomposition task which were Conducted in rotary kiln, move to the decomposition furnace, most fuel joining in from decomposition furnace, a few join from the kiln head， Reduce the heat load of kiln calcining zone， extend the working life of the lining, Conducive to large-scale production; Fuel and raw material mixing evenly, fuel combustion heat passed to the materials timely, the combustion heat and carbonate decomposition process was optimized, Thus has excellent quality and efficient of low consumption, and a series of performance and characteristics

### Cement clinker calcination

After preheating and precalcining , raw material will be burned into clinker by rotary kiln.Carbonate in the rotary kiln decomposed rapidly with a series of solid-phase reaction, and minerals of the cement clinker generated. As the material's temperature rise, the minerals will become liquid, dissolved in liquid phase to generate a large amount of clinker. After raw material burned into Clinker, temperature began to fall. Finally, the cement clinker cooler will cool the high temperature clinker discharged from the rotary kiln to a degree that can stand by the downstream conveyor, storage silo, cement mill. At the same time, it recycles the sensible heat of high temperature clinker, improves the thermal efficiency of the system and quality of clinker.

### Cement grinding

Cement grinding is the end process of the cement manufacturing , is also the most power consumption process. Its main function is grinding the cement clinker (and gelatinizer, performance adjustment material, etc.) to appropriate particle size (fineness against specific surface area), to form a certain size distribution, increase its hydration area, accelerate the hydration speed and satisfies the requirement of setting and hardening cement paste.

The Great Wall machinery's cement turnkey project line for the customer is equipped with our own cement vertical mill with advantages of simple process, easy to control, can use large amounts of waste gas from the preheater kiln tail, save energy consumption, high grinding efficiency.

### Packing & storage

The cement is housed in storage silos, from where it is hydraulically or mechanically extracted and transported to facilities where it will be packaged in sacks or supplied in bulk. In either case, it can be shipped by rail car, freighter truck or ship.

Packing system adopts a cement packing line produced. This system is arranged with packing machine, electric calibration scale, bag destroyer and bag air remover, and its strong points include high weighing precision, good sealing performance, little flying dust, high automation and easy operation.

There are many dust collection points in the packing system. This system is installed with four dust collectors , which collect dust from each dust collection point. The collected cement dust is returned to bucket-type elevator through screw conveyer .

## Configuration

| Output | Raw Meal Grinding | Coal Grinding | Clinker Calcining | Clinker Grinding |
|---|---|---|---|---|
| 300 t/d | Φ2.4 × 13m Raw Ball Mill | Φ2.2 × 3.3m Coal Mill | Φ2.7 × 42m Rotary Kiln | Φ2.2 × 11m Cement Mill (open grinding system) |
| 500 t/d | Φ3 × 9m Raw Ball Mill | GRMC12.21 Vertical Coal Mill | Φ3 × 45m Rotary Kiln | Φ2.6 × 13m Cement Mill (open grinding system) |
| 700 t/d | GRMR22.31 Vertical Raw Mill | GRMC12.21 Vertical Coal Mill | Φ3 × 48m Rotary Kiln | Φ3 × 13m Cement Mill (open grinding system) |
| 1000 t/ | GRMR26.31 Vertical Raw Mill | GRMC16.21 Vertical Coal Mill | Φ3.2 × 48m Rotary Kiln | Φ3.2 × 14m Cement Mill (open grinding system) |
| 1500 t/ | GRMR30.31 Vertical Raw Mill | GRMC16.21 Vertical Coal Mill | Φ3.5 × 54m Rotary Kiln | Φ3.8 × 13m Cement Mill (open grinding system) |
| 2500 t/ | GRMR38.41 Vertical Raw Mill | GRMC20.31 Vertical Coal Mill | Φ4.0 × 60m Rotary Kiln | Φ4.2 × 13 Cement Mill (closed grinding system) |
| Note: Different models for different processing | | | | |

### Choose Great Wall advantages

1. Our combined EPC and O&M solution can give you the return without the risk.

As a global supplier of grinding system, Great Wall are experienced in the product design, process control and energy efficiency management. We are confident to provide a high quality, integrated grinding solutions for the customer of cement industries.

2. The advantage of the fastest delivery

Our company possesses the large scale Steel Casting Room and very great Mechanical Processing ability for undertaking all kinds of casting parts or equipment orders. With the assurance of the high quality, a vertical roller can be promised to be delivered in 4-6 months. Meanwhile, the production cycle for a complete set of production line is as soon as 10-12 months.

3. Choose the decelerator, bearing and hydraulic key element of brands both in home and abroad to guarantee the sound operation of equipment.

4. Compliance with latest emissions standards and environmental regulations

Negative pressure system is utilized to reduce the chances of dust escaping outside the cement vertical roller mill, resulting in dust concentration less than 1 mg/m³ in the surrounding atmosphere. This assure the DUST EMISSION conform to the "Emission Standard of Air Pollutants for Cement Industry" (GB4915-2004); the NOISE CONTROL conform to the "Emission standard for industrial enterprises noise at boundary" (GB12348-2008).

## Case

| NO. | CUSTOMER | SEPC. | REMARKS | QTY |
|---|---|---|---|---|
| 1 | goldstone cements pvt ltd | 3200t/d cement production line | GRMR40.41 vertical raw mill / Φ3.0×(6.5+2.5)m ball mill / Φ4.0×60m rotary kiln | 1 |
| 2 | White Rose Chemicals & Minerals Private Limited | 3200t/d cement production line | Φ4.2×60m rotary kiln / Φ3.0×(6.5+2.5)m coal mill / Φ4.6×(10.5+3.5) / Φ4.2×13m cement ball mill | 1 |
| 3 | Neelkanth Tanzania Limited | 3000t/d cement production line | Φ3.0×(6.5+2.5)m coal mill / Φ4.2×60m rotary kiln | 1 |
| 4 | GRC Construction | 2500t/d cement production line | Φ4.0×60m rotary kiln / Φ3.2×(6.5+2.5)m swept coal mill | 1 |
| 5 | SKS Group of companies | 2500t/d cement production line | Φ4×60m rotary kiln / Φ3×(6.5+2.5)m coal mill / Φ4.6×(10+3.5)m raw material ball mill | 1 |
| 6 | Tosee & Tejarate Kish Shid Saze Co. | 2500t/d cement production line | Φ3.4×(6+3)m coal mill / Φ4.0×60m rotary kiln | 1 |
| 7 | Ostwal Group of Industries | 15000t/d NSP cement production line | Φ3.8×13m cement ball mill / Φ3.5×54m rotary kiln / Φ2.8×(5.75+2.25)m swept coal mill / Φ3.0×11m raw material ball mill | 1 |
| 8 | Mideast Integrated Steels Limited | 1200t/d cement clinker production line | Φ3.2×13m super-fine grinding mill / Φ2.4×(4.5+2)m coal mill / Φ3.2×50m rotary kiln | 1 |
| 9 | mecgale pnuematics pvt ltd | 1000t/d cement production line | Φ3.2×48m rotary kiln / Φ2.4×4.75m coal mill | 1 |
| 10 | Negros Dynamic Ventures Trading Corp | 2*1000t/d cement production line | Φ2.4×4.75m coal mill / Φ3.2×48m rotary kiln / Φ3.8×7.5m raw material ball mill | 1 |

## About Us

### Great-Wall history

**Xinxiang Great Wall Machinery Corporation**, located at National Sustainable Development Experiment Area, Mengzhuang Town, Huixian City, Henan Province, China, was initially built in 1958 and restructured into limited liability Company from township collective enterprise in 2002.

Covering an area of 330,000 m2 and having more than 1,100 employees, the company has a total asset of CNY 500 million and has passed ISO9001:2008 quality management system authentication and is a main specialized supplier for manufacturing large scale kiln mill. Possessing the experience of equipment manufacturing for more than half a century, the Company has formed the perfect operation and management system in design and development, product manufacturing, market promotion, equipment installation and after sales service.

Since the first ball mill produced in 1968, the company has produced more than 2600 sets of mills and rotary kilns in various specifications, and the products are sold to each provinces of China, and exported to America, Russia, Japan, Brazil, India, South Korea, Vietnam, Kenya, Iran and others, enjoys high market reputation.

### Order Online

**Demands**

***Name**

**Telephone**

***E-mail**

**Country**

***Message**

Please enter your demand such as raw material type, capacity, feeding material size, final product fineness.

Send Inquiry

☎ E-mail : vip@chaeng.co
Phone:+86-371-55019608
Skype:GreatWall1958