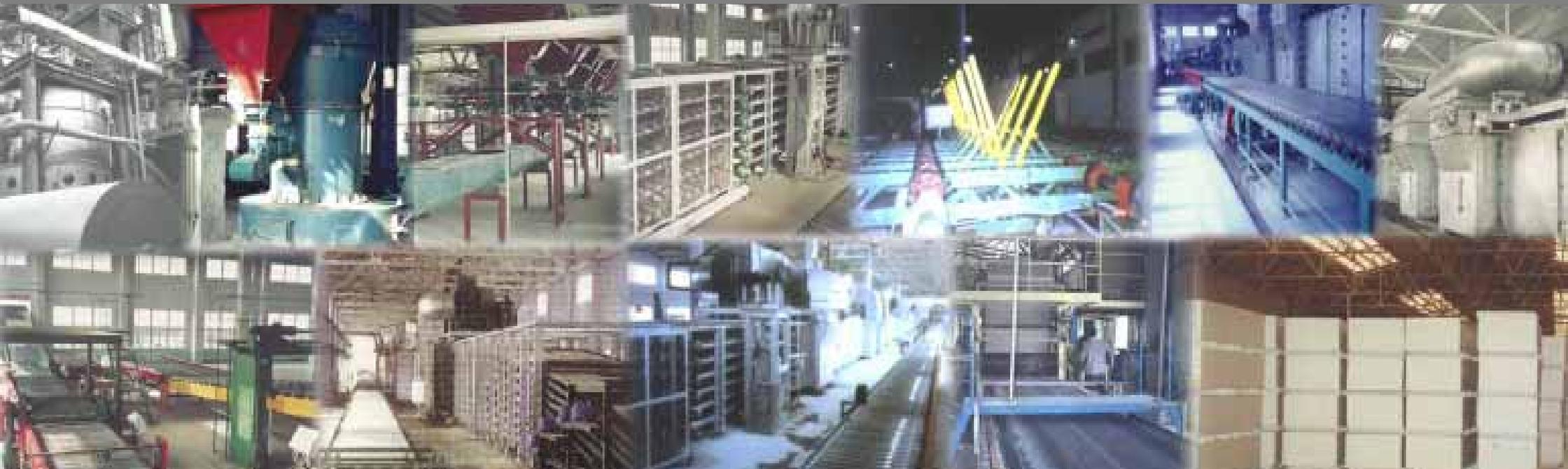


# Gypsum Products Plant



Allbest Creative Development Ltd. (ALLBEST)

# Technology Portfolio

<b>No.</b>	<b>Description</b>	<b>Capacity</b>
<b>1</b>	<b>Plasterboard production line</b>	<b>1-25 million M<sup>2</sup>/Y</b>
<b>2</b>	<b>Fiber gypsum board production line</b>	<b>6 million M<sup>2</sup>/Y</b>
<b>3</b>	<b>Gypsum block production line</b>	<b>140,000-190,000 M<sup>2</sup>/Y</b>
<b>4</b>	<b>Stucco production line</b>	<b>15,000 T/Y</b>
<b>5</b>	<b>Building plaster production line</b>	<b>30,000-75,000 T/Y</b>
<b>6</b>	<b>High strength plaster production line</b>	<b>30,000 T/Y</b>
<b>7</b>	<b>Plaster particle board production line</b>	<b>15,000-30,000 M<sup>3</sup>/Y</b>
<b>8</b>	<b>Others</b>	

# Plasterboard Production Line

## Product characteristics and application

Paper-covered plasterboard takes building gypsum and the facing paperboard as main raw materials. Mixed with suitable fiber, starch, accelerator, foaming agent and water, building gypsum and the facing paperboard will produce light and thin building plasterboard after mixing, forming, setting, edge-trimming, drying, snapping etc. This paper-covered plasterboard has following advantages: lightweight, fire-proof, seismic resistance, thermal insulation, good workability, convenient construction, easiness to assemble & disassemble, good decoration effect, and increase of using area etc.

If paper-covered plasterboard and light steel stud are adopted as nonbearing internal partition wall in buildings, compared with traditional hollow clay brick, they have the following advantages:

- Lightweight, low consumption of cement and steel; high-speed construction, low labor consumption; increase of usable floor area of building.



- Saving of cultivated land, lower production energy consumption and reduce transportation expenses.
- Convenient construction, dry construction work, low work intensity.
- It can meet different requirements of buildings such as thermal insulation, acoustic insulation, fire proof, moisture resistance, and so on.
- Convenient maintenance, easiness to assemble & disassemble. It can change the dimensions of the room area according to requirements.

Paper-covered plasterboard is widely used in all kinds of industrial and civil buildings. Especially in high-rise building, it can be used as material for interior wall and decoration such as nonbearing wall, interior face board and suspended ceiling in frame and light board structure; water-proofing paper-covered plasterboard can be used in washing room and kitchen; fire-proofing plasterboard can be used in elevator shaft; paper-covered compound plasterboard can also be used as slab of the floor base.

### **Products dimension**

**Length: 2400mm~3600mm;**

**Width: 900mm~1200mm;**

**Thickness: 9.5mm~18mm**



## Main raw materials and consumption (kg/m<sup>2</sup>, thickness: 9.5mm)

(taking natural gypsum as example)

Gypsum rock	9.72	Covering paper	0.7	Modified starch	0.07
Accelerator	0.18	Water for forming	5.6	Paper fiber	0.06

## Associated Items

Annual capacity ( $\times 10^4$ m <sup>2</sup> )	100~200	400~800	1000~2000
Water consumption (m <sup>3</sup> /d)	200~300	450~600	600~800
Compressed air (Nm <sup>3</sup> /min)	~2.0	3.0~5.5	~6.5
Coal consumption (t/d)	4500~6600	7000~25000	12000~25000

Installed power of the equipment (kW)	350~600	1650~2000	2300~2600
Factory building floor area (m <sup>2</sup> )	1000~2100	5500~7500	9000~10000
Area of stockyard (m <sup>2</sup> )	500~1000	1500~2500	2000~3500
Manpower requirement	100~120	100~180	200~300

# Fiber Plasterboard Production Line

Fiber plasterboard is a kind of large board manufactured by mixing and pressing building gypsum and cellulose, which are two main raw materials for it. It has the following advantages: lightweight and high strength, strong nail-holding ability, fire proof, moisture proof, and acoustic insulation. It can be planed, sawed, drilled and milled and is easy for secondary processing. It can also adjust indoor air humidity and does not harm people's health. Therefore, it has properties of environmental prevention. Fiber plasterboard uses waste paper instead of high-quality covering paperboard of paper-covered plasterboard and its usability is better than that of paper-covered plasterboard. It has homogenous elastic structure. Its crushing load is 1.2~3 times higher than that of paper-covered plasterboard. And it has high bending strength, nail-holding ability, and it can resume the strength of plasterboard after drying and it won't deform.

The application range of fiber plasterboard is similar to that of paper-covered plasterboard. Fiber plasterboard is better than paper-covered plasterboard in the following aspects: strength, construction & installation, nail-holding ability, acoustic insulation, fire resistance, use of waste paper etc. It is widely used in interior partition wall (especially partition walls of frame structure), reconstruction of old houses, and decoration. It can be processed as ceiling board and acoustic board with or without hole. It can also be used as material for floor, ships, passenger train carriage, oil-drilling platform etc. It is one of the new

## Product dimensions

Length: 2000mm~3750mm, width: 1250mm, thickness: 6mm~25mm

**Main raw materials and consumption** (thickness: 12.5mm, width: 1250mm, volume weight: 800kg/m<sup>3</sup>) kg/m<sup>2</sup>

Gypsum rock	8.75	Waste paper	1.6
Pearlie	1.5	Potassium sulfate	0.18
Calcium oxide	0.04	Starch	0.05
Sealing glue	0.04	Water	4.5

## Associated Items

Water consumption	410m <sup>3</sup> /d
Coal consumption	16500t/a
Installed power of equipment	3000kW
Factory building floor area	10000 m <sup>2</sup>
Area of stockyard	1000m <sup>2</sup>
Manpower requirement	200

# Gypsum Block Production Line

Gypsum block can be used as material for interior nonbearing wall and partition wall. Its characteristics are: lightweight, thermal insulation, acoustic insulation, fire proof, smooth surface, and dustless etc.

## Main technical parameters

(1) Consumption of raw materials	1.8~2.2 t/h
(2) Water consumption	1.6~1.8 m <sup>3</sup> /h
(3) Installed power of the equipment	~20 kW
(4) Occupied land area of equipment	6m × 6m × 6m

## Production process and main equipment

Natural drying is adopted after the gypsum block is formed.

Raw materials adopts calcined hemi-hydrate gypsum

## Main equipment

The machine unit for gypsum block production consists of forming machine, stirrer, central hydraulic station, feeding and dosing system, space automatic clamp, and mechanic clamp etc.

## Dimensions of gypsum block

666mm × 500mm × 80mm, 666mm × 500mm × 60mm,

666mm × 500mm × 10mm, and 666mm × 500mm × 120mm

This machine unit for gypsum block has the following advantages: advanced production equipment, high product quality, low investment and fast investment return. It is suitable for extension of small and medium-sized enterprises.

## New Production Process for Stucco

Based on 30-year experience in designing, production, development and research of gypsum industry and its products and the accumulated practical experiences and the advanced patent technology , we recommend a new stucco production process to small and medium-sized stucco-production corporations at home and abroad. This process has following advantages: low investment, low energy consumption, advanced technology and simple operation. The core technology of this process is to adopt the patent product of our institute—the boiling kiln—for gypsum calcining.

The gypsum rocks are primarily crushed in jaw crusher and fine ground by centrifugal self-grinding mill. Compared with the traditional mill—Raymond mill, the energy consumption and price of centrifugal self-grinding mill is similar, but its production capacity is 20%~50% higher than that of the Raymond mill. And the gypsum can be sent to the self-grinding mill directly, no need to be intermediate crushed. Self-grinding mill has the following advantages: simple structure, convenient maintenance and long service life.

Boiling kiln is adopted to calcine gypsum powder. Compared with traditional calcining equipment, the heat transfer coefficient of the boiling kiln with fluidizing technology is 10 times higher than that of the traditional one. The boiling kiln has the following advantages: compact structure, high production capacity, and no movable parts on the kiln body, saving of energy, little maintenance and long service life. The heat source of the boiling kiln is thermal oil, which is supplied by thermal oil boiler fired with coal. After flowing into the boiling kiln, the high-temperature thermal oil exchanges heat with gypsum powder indirectly in which dehydrate gypsum are dehydrated. After its temperature becomes low, thermal oil returns to the thermal oil boiler for heating again. The calcined stucco will be discharged automatically and continuously. After cooled by the cooler, the stucco will be sent to stucco silo for subsequent packing or direct use.

Production capacity (t/h)	2-3	5-7	12-15
Factory building floor area (M2)	378	1100	1800
Installed power (kW)	180	500	800
Consumption of coal (Kg/t. stucco)	50	50	50

# High Strength Plaster Production Line

$\alpha$ -type hemi-hydrate gypsum has good crystal structure and high strength. It is widely used as mold material for ceramic and foundry industry, as well as gypsum product such as gypsum marble, artistic ornamentals, decorative plasterboard etc.

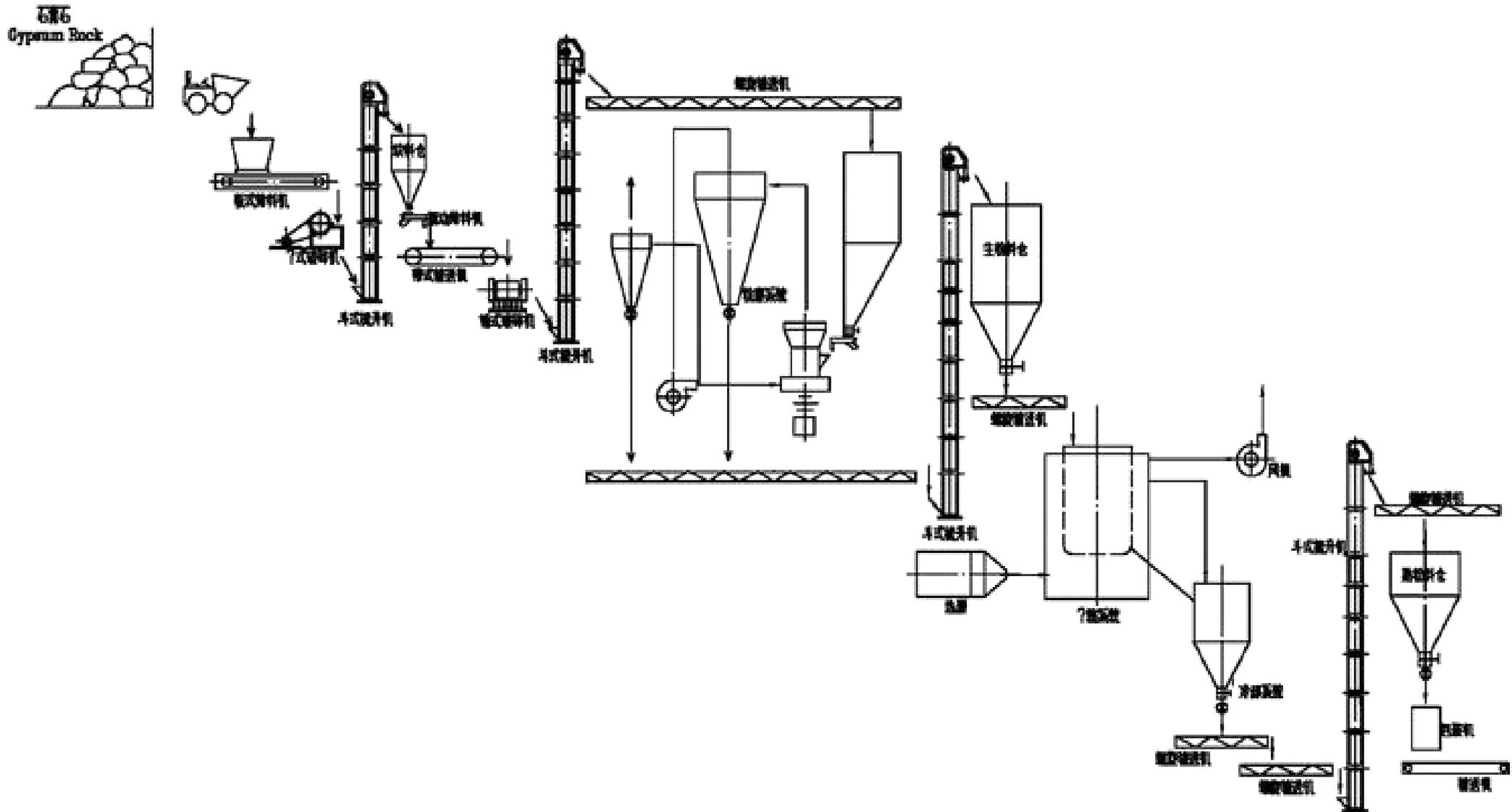
## Main raw materials and consumption

Gypsum rock: 35000 t/d: Other additives 300 t/d

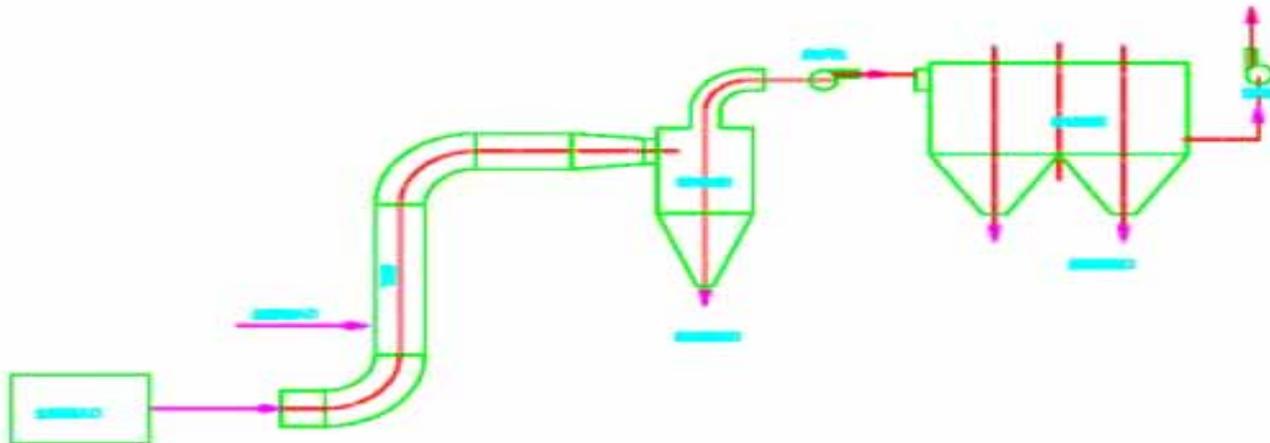
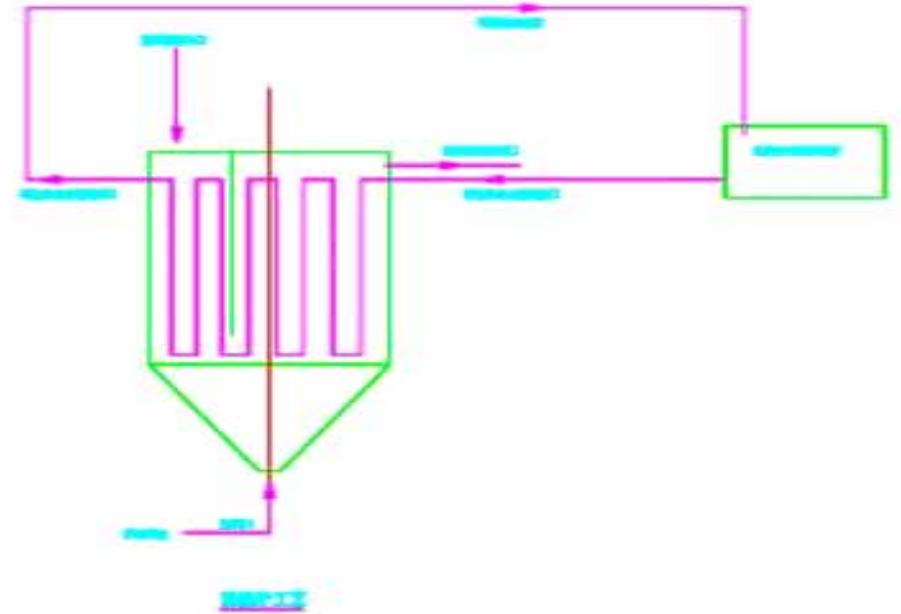
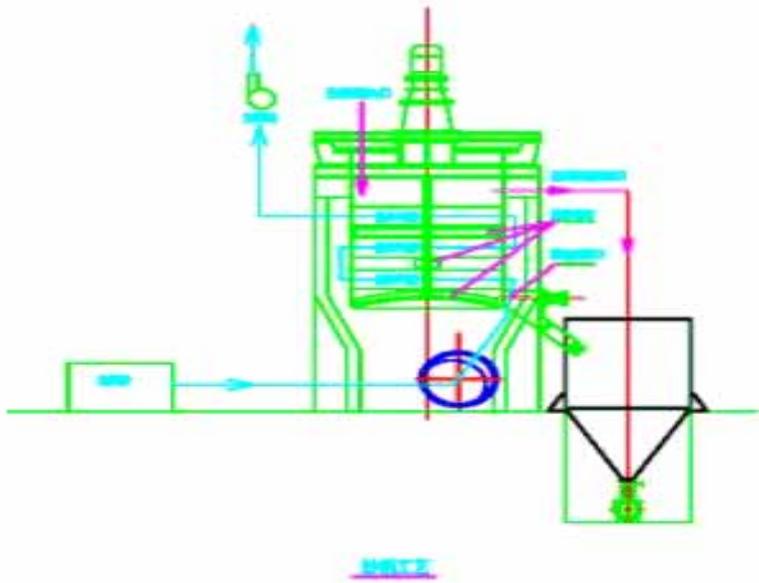
## Associated items

- Consumption of water 100 t/d
- Installed power of the equipment 400 kW
- Factory building floor area 2000 m<sup>2</sup>
- Manpower requirement 60

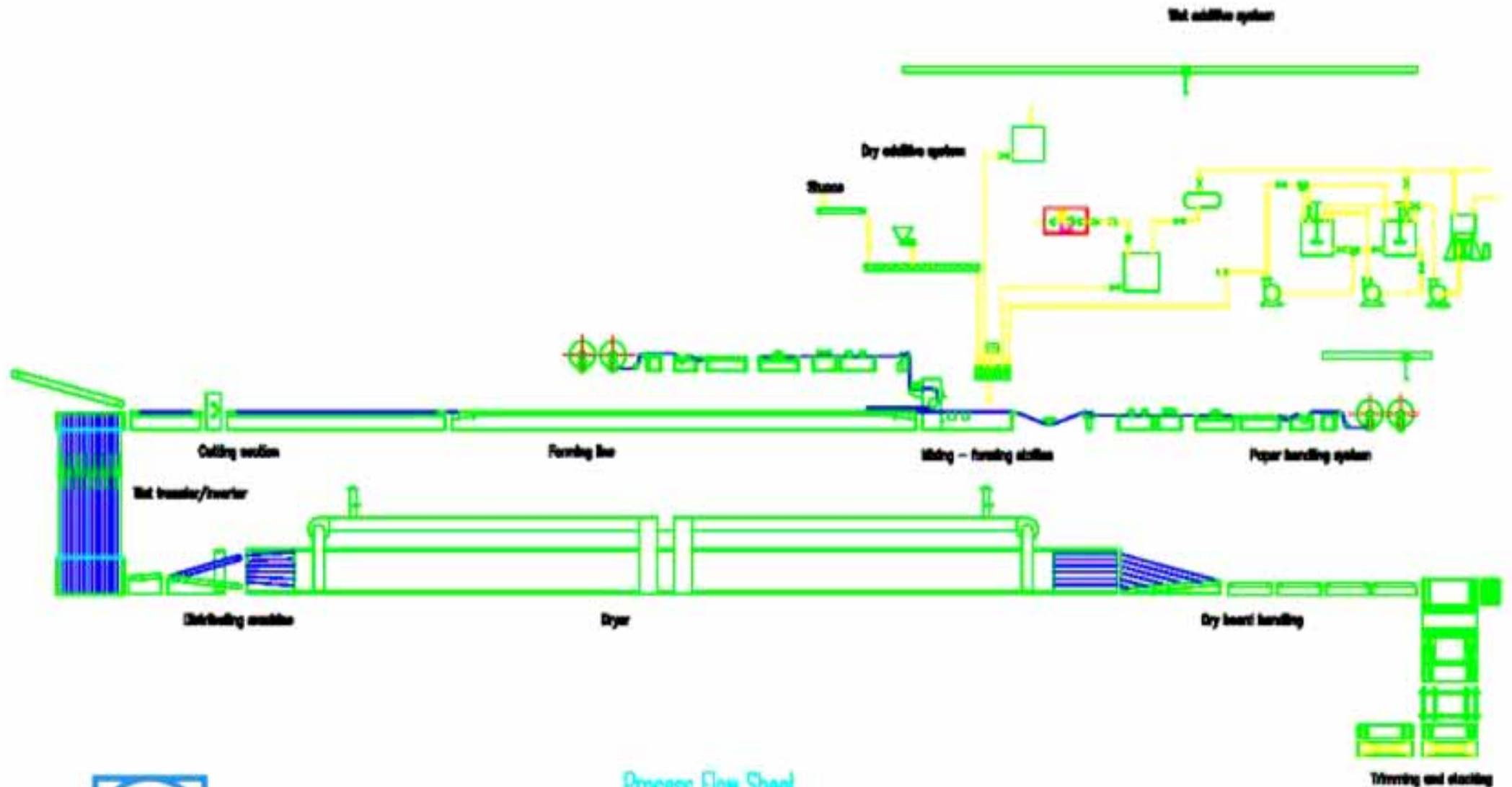
# Process of Gypsum Powder Making



# Type of Gypsum Powder Making



# Process of Plasterboard production Line



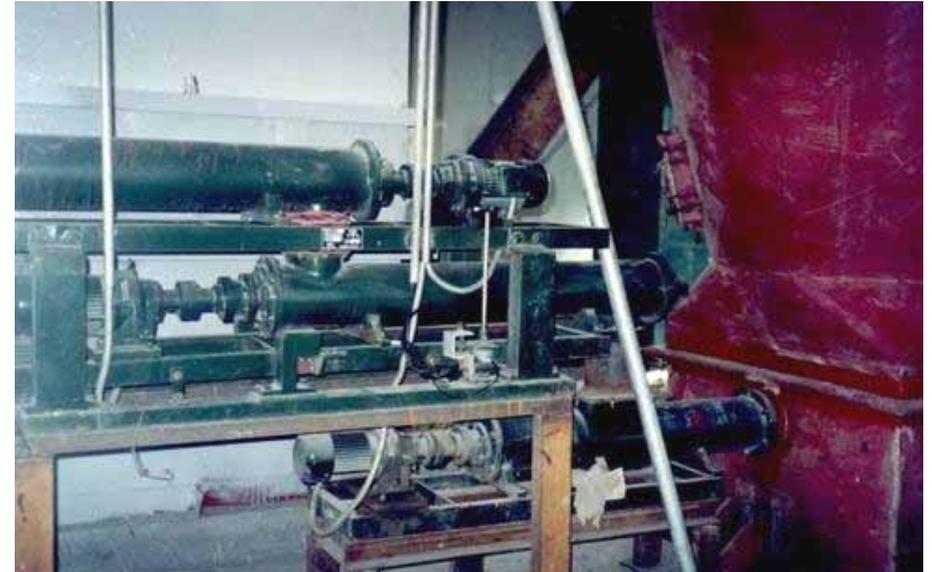
Process Flow Sheet



## Photo Gallery of Plasterboard Production Line



4R swing type mill (Raymond bowl mill)



Electronic screw weigher for the fluidized kiln



Electrical dust collection for fluidized kiln



Electronic screw weigher for dosing



Vertical mixer and vibrating table



Conveyer roller, cutter, etc



Transverse conveyer



Conveyer roller, cutter, and distributor, etc



Transfer conveyer



Dryer

干燥机-1



Dryer



Closed part of the dryer



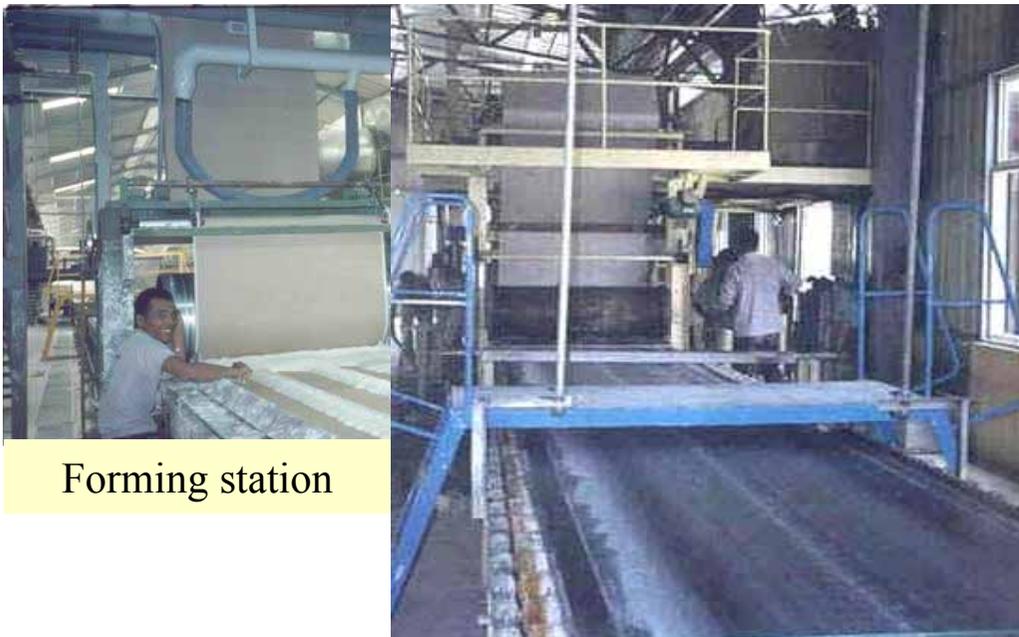
Open part of the dryer



Open part of the dryer, and counter balance of the drive chain



Transfer conveyer and splicing machine



Forming station



Finished product warehouse



Kettle



Kettle system

# Plasterboard Production Lines in China



## Plasterboard Production Line in Indonesia



## Gypsum Block Machine Unit



# Plaster Particle Board Production line



# Service

- **Advanced and reliable technology & engineering**
- **Procurement, manufacture, and delivery of the goods**
- **Project management**
- **Construction, installation, and commissioning**
- **Technical service**
- **Training program**
- **Service after completion of the project**
- **Financing assistance and export credit**
- **Other services and functions upon request**

# **CREATE THE FUTURE**



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