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BE BEIER BE GREENER

## Intelligent Powder / Particle Compounding Conveying System

[www.beierpm.com](http://www.beierpm.com)

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## COMPANY BRIEF

### THE GLOBAL PLASTIC MACHINERY BRAND STRIVING FOR A BALANCE BETWEEN LIFE QUALITY AND EARTH SUSTAINABILITY

Jiangsu Beier Machinery is an integrated equipment supplier that advances plastic extrusion to recycling technology for green recycling. Committed to sustainability, Jiangsu Beier Machinery integrates three business units of plastic extrusion, compounding, and recycling systems to offer the global market a comprehensive solution that balances life quality with earth sustainability.

Since 1998, Beier's highly efficient and energy-saving European-style PE/PP/PP-R/PVC pipe, sheet and profile production lines, PVC blending and dosing systems and plastic solid waste recycling lines have served more than 130 countries and regions worldwide, creating value for more than 600 plastics companies with stable and sustainable production benefits and forming partnerships to develop a circular economy in various industries, including public works construction, construction markets and plastic recycling.

Innovation is one of Beier's core values that guides Beier's continuous evolution and growth, building its reputation through further technological upgrades, product service, customer satisfaction, and giving back to the community. Importantly, it is used to achieve the brand's mission, "Innovation for sustainability, pride in customer success".



BEIER HEADQUARTER (Zhangjiagang)

### DEVELOPMENT OF PLASTIC MACHINERY BUSINESS GROUP TO IMPROVE THE QUALITY OF HUMAN LIFE

Beier is conveniently located in Zhangjiagang National Economic and Technological Development District, Jiangsu Province, and is a national high-tech enterprise, a national torch plan enterprise, a provincial famous trademark, a provincial export base enterprise for plastic machinery products, and a provincial contract-abiding and credible enterprise.



BEIER INTELLIGENT (Nantong)

For Beier and its global business partners, they will benefit from the Beier Machinery's vision to improve the quality of human life. In addition to plastic extrusion, compounding and recycling solutions, they will also have the professional resources and services of Bestar Blow Molding Machinery and Macquarie Import and Export Co., Ltd.

### PROPOSING A PLASTIC RECYCLING STRATEGY IN ACCORDANCE WITH PROTECTING THE COEXISTENCE OF HUMAN BEINGS AND ALL THINGS

Beier has established R&D platforms such as the Engineering Technology Research Center for Waste Plastics Utilization Machinery, Postdoctoral Workstation, Thousand Talents Program Workstation, etc. It has more than 80 national patents and has been recognized as a demonstration unit for the introduction of overseas intelligence. Beier Machinery attracts high-end professional and technical talents from Europe and China to integrate the essence of industrial technology, meeting the needs of customers in different market segments.

Beier Machinery consistently considers how to enhance production efficiency and environmental friendliness, aiming to cultivate core competitiveness for sustainable development. It contributes to the global endeavor of energy conservation, emission reduction, and green economic development, striving to create a happier and better life.



27  
years of experience

500+  
Personnel

160+  
Country



## ACQUIRING AND EXPLOITING INNOVATION IN THE PLASTIC INDUSTRIAL SPHERE

The sustainability we seek for is an innovative solution that allow us to live better and happier. To ensure this, we have continued to challenge and innovative ourselves with Beier Team and Clients. Beier will keep striving for our challenge and innovation toward future.

- 

**40+**  
Are innovation patents
- 

**60+**  
Patents for utility model
- 

**40+**  
Authorized patents





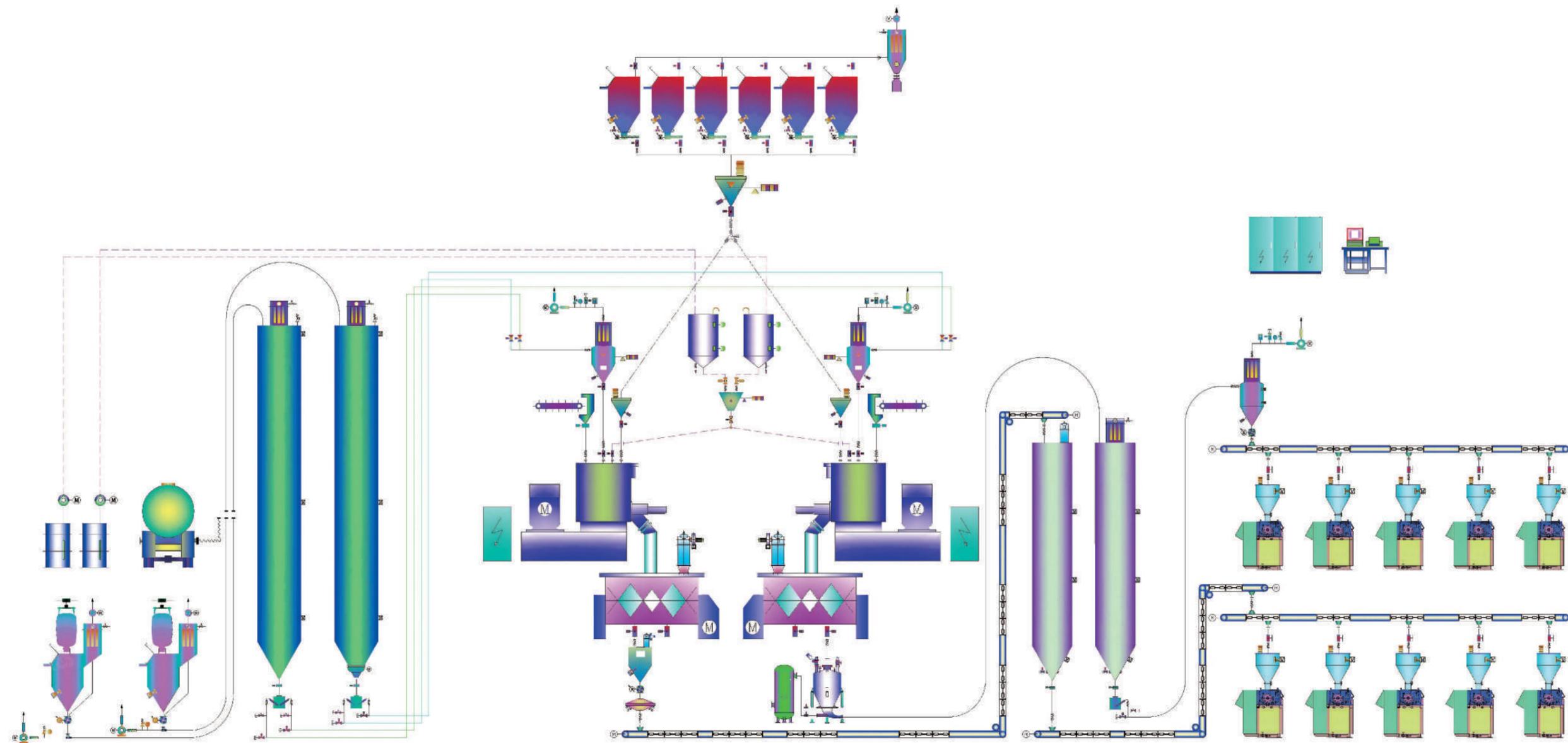
## Features:

- Adopt central control system, higher precision of material feeding with automatic feeding system, and solves the problems of manual feeding, material loss, and chemical hazards.
- Efficient conveying system replaces the heavy labor and improves production efficiency.
- The material feeding process is completely carried out in a closed pipeline, which avoids dust pollution to the workshop environment and harm to workers.
- The material preparation and feeding process is more concentrated, more efficient, and the output is higher, which can fully meet the needs of mass production.

## Flow chart of automatic compounding system



360° weldless silo

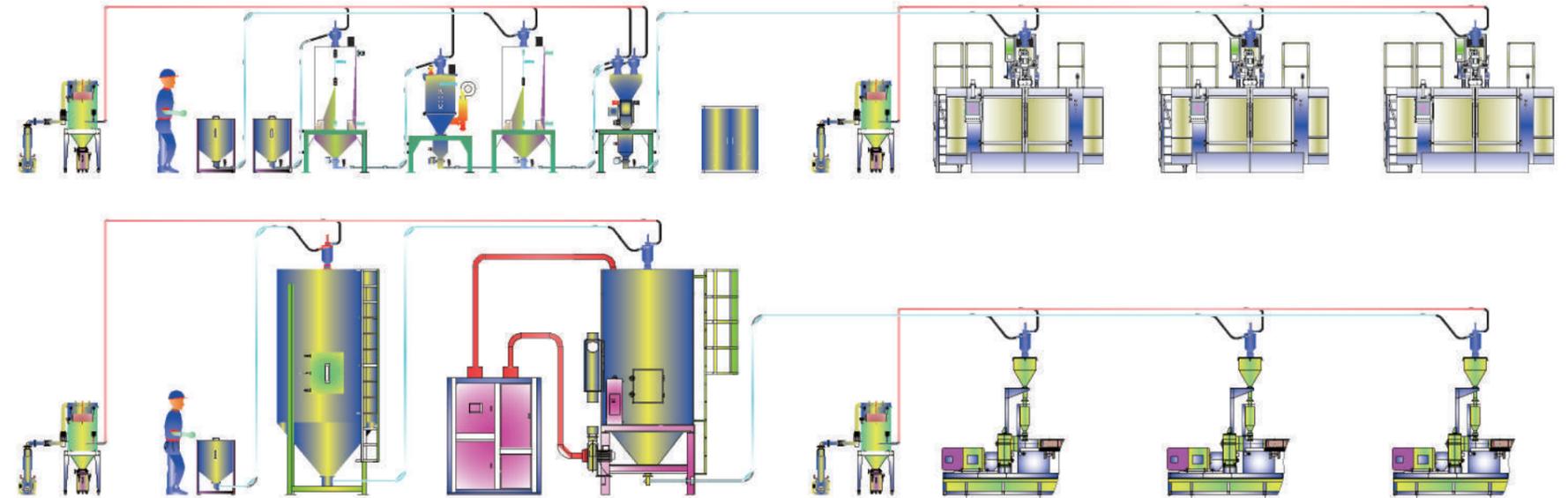
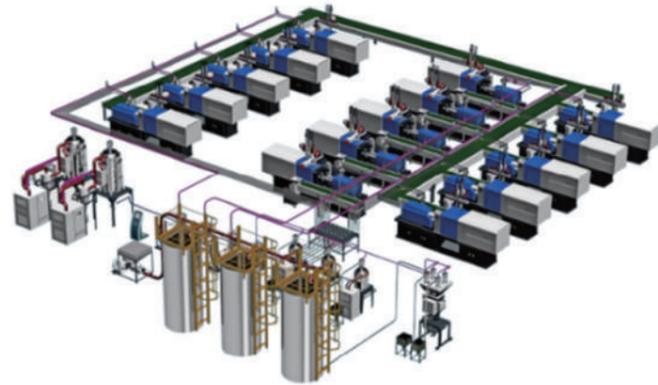


# PELLETS COMPOUNDING AND CONVEYING SYSTEM

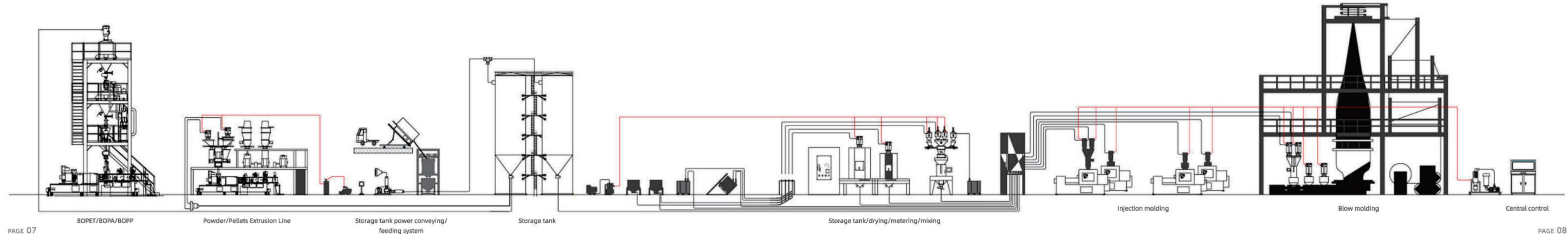


## Features:

- The central control system can realize remote control operation, and one vacuum pump can feed multiple machines.
- Central storage & stacking of raw materials and dust improves the cleanliness of the environment and ensures that the raw materials are not polluted.
- The central feeding system can reduce workers' feeding times, and the raw materials do not need to be handled manually, which reduces labor intensity.
- Pellets are dehumidified and dried centrally, and the raw materials are conveyed in a closed type.
- Plastic central feeding system can realize the conveying of many different raw materials, reasonably distribute the processed raw materials according to the set types, and quickly switch the raw materials.



## Flow chart of pellet feeding system



# COMPOUNDING SYSTEM PROCESS



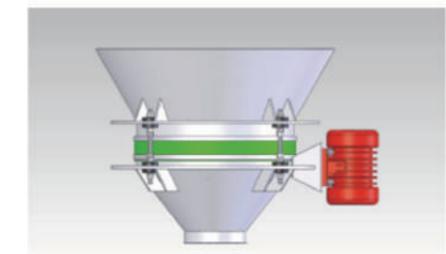
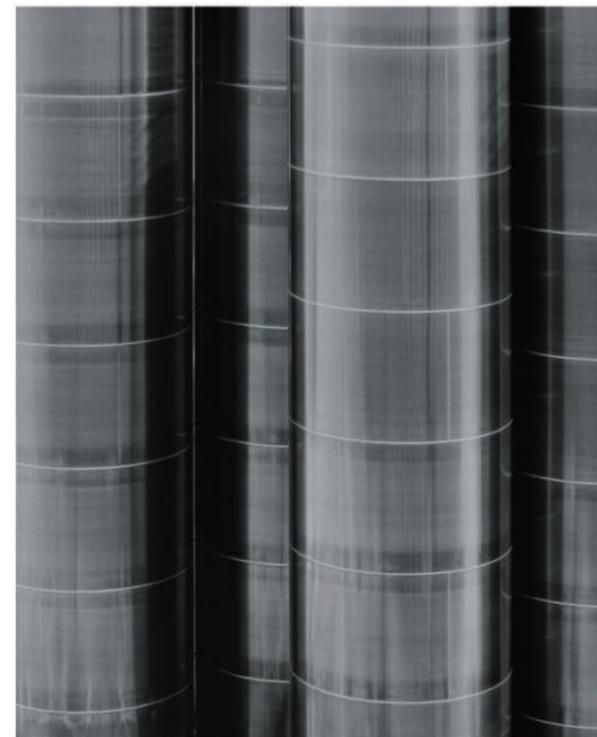
## Material collection system

Provide according to the packaging of the customer's raw materials

- ① Manual feeding station
- ② Ton bag unpacking system
- ③ Standard bag unpacking and feeding system
- ④ Tank truck feeding system
- ⑤ Additive materials feeding system



## Material storage equipment



Material storage equipment mainly refers to various silos used for the storage of raw materials and finished materials

- PVC raw material storage silos
- Anti-bridging CaCO<sub>3</sub> storage silo
- Additive material storage silo
- Liquid storage silos
- Finished materials storage silos

## Material conveying system

Material transportation is the key to the automation of the compounding production line

- ① Pneumatic conveying system
- ② Pipe chain conveyor system
- ③ Screw conveyor system
- ④ Bucket lifting conveyor
- ⑤ Pipeline liquid transportation
- ⑥ Pneumatic conveying system



## Material collection system

Under certain conditions, airflow is used as a carrier medium to transport powder and granular solid materials in a pipeline. The system is mainly composed of sending equipment, conveying pipeline, material and gas separation equipment, gas source and purification equipment, etc.

### Dilute phase pneumatic conveying

- ① Adopt positive pressure (pressure feed type)
- ② Negative pressure (suction type)
- ③ Positive and negative pressure combination
- ④ Dense phase pneumatic conveying

### Dense phase pneumatic conveying

- ① Dense phase conveying is also called sending tank or warehouse pump conveying
- ② There are two ways of sending tank transportation:  
sending tank (storage pump) positive pressure honey phase transportation,  
sending tank combined full load transportation

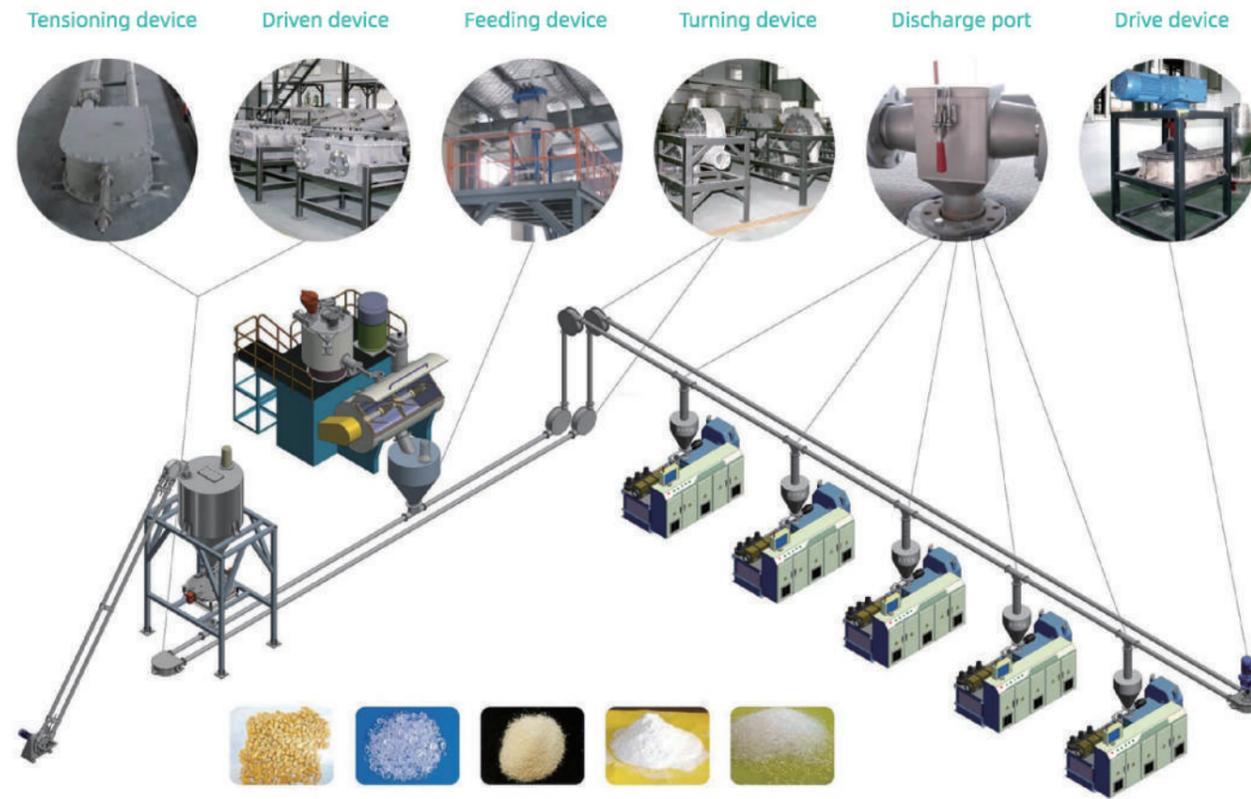


## Pipe Chain Conveying System

Pipe chain conveyor is continuous conveying equipment for conveying powder, small particles, and small blocks in a closed pipeline with chainplates and chains as transmission components. It can be a conveying device that can be combined horizontally, inclined at any angle, and vertical.

Conveying capacity: 0.4-300m<sup>3</sup>/h

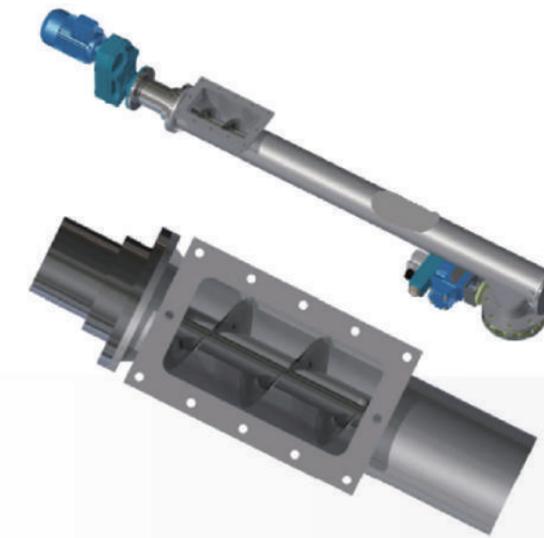
Conveying distance: horizontal 60-80m  
vertical 40-50m



## Screw Conveying System

Screw conveyor is a kind of machinery that uses a motor to drive spiral rotation and push materials to achieve the purpose of conveying.

- Tube screw conveyor
- U-shaped groove screw conveyor
- Horizontal screw conveyor
- Vertical screw conveyor
- Inclined screw conveyor



# POWDER AND GRANULES AUTOMATIC METERING AND MIXING SYSTEM



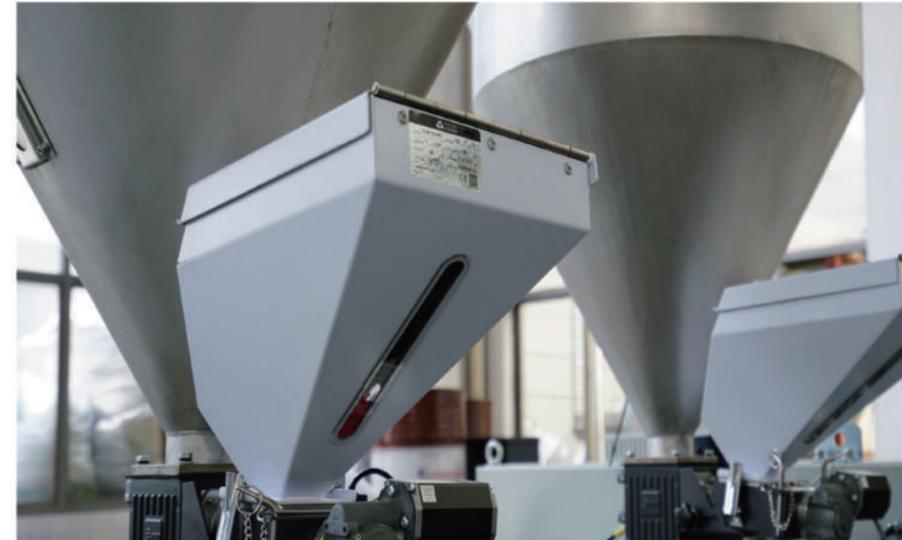
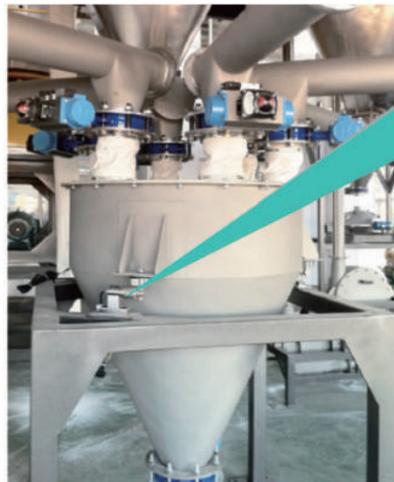
In automatic compounding system, the weighing and the batching system is normally composed of two independent sub-systems. The main material weighing and batching system and a supplementary material weighing and batching system. Each batching system is loaded by each material in the silo. Corresponding screw conveyor, batching scale, and other parts.

### Superposition measurement method

- Multi-component screw type
- Multi-component vacuum type

### Weightlessness measurement method

- Multi-component simultaneous continuous type
- Multi-component simultaneous interrupted type



# MIXING UNIT SERIES

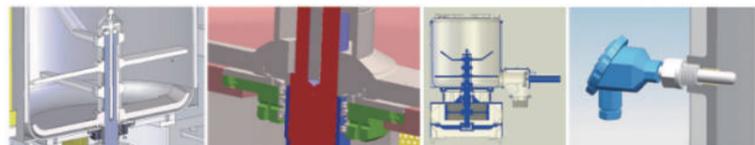


## BRL-LN Series Vertical Mixing Unit

Function and Structure:

BRL-LN series mixer units are widely used for mixing, drying, coloring for all kinds of resin such as PVC, PP, PE. They can also be used for drying and devolatilization of engineering plastics, like ABS, polycarbonate etc., and mixing of phenolic resin.

This unit is composed of hot mixer and cooling mixer, the material from hot mixer will enter in the cooling mixer automatically, so it can eliminate gas and prevent caking.



Main Technical Parameter

BRL-LN	Heat/cool	Heat/cool	Heat/cool	Heat/cool	Heat/cool
Total volume(L)	100/200	200/500	300/600	500/1250	800/2000
Effective capacity(L)	65/130	150/320	225/380	330/750	600/1400
Stirring speed(rpm)	650/1300/200	475/950/130	475/950/100	430/860/70	370/740/70
Mixing time	8-12	8-12	8-12	8-12	8-12
Motor power(kW)	14/22/7.5	30/42/7.5	40/55/11	55/75/15	83/110/22
Output(kg/h)	165	330	495	825	1320

## BRL-WN Series Horizontal Mixing Unit

Function and Structure:

It is used for mixing, stirring, drying, coloring of plastics, rubber, and chemical etc. It is an ideal equipment for processing plastic board, pipe, profile and degradation plastics.

We digest and absorb foreign advanced technology for making the mixer. It adopts the principle of negative pressure mixing. We adopt imported famous brands electrical elements and PLC control. It has the characters of high automation, and high efficiency. The blade is cast of stainless steel and passed the dynamic and static balance test. The blades of cooling mixer adopt the advanced spiral stirring structure, which avoid the dead angle, and make sure the complete discharging and great cooling effect.



Main Technical Parameter

BRL-WN	Heat/cool	Heat/cool	Heat/cool	Heat/cool	Heat/cool
Total volume(L)	500/1500	800/2500	1000/3000	1300/4500	1500/4500
Effective capacity(L)	330/1000	600/1750	700/2100	900/3100	1050/3100
Stirring speed(rpm)	430/860/60	370/740/60	300/600/50	300/600/50	500/50
Mixing time	8-15	8-15	8-15	8-15	8-15
Motor power(kW)	55/75/18.5	83/110/30	110/160/30	220~250/45	280~315/45
Weight(kg)	5500	7500	8500	13000	15000
Output(kg/h)	825	1320	1650	1900	2100

## BR-HR Series High-speed Mixer

### Function and structure:

BR-HR series mixers are mainly used for mixing, coloring, drying of plastics, rubber, food, chemical industry and so on.

BR-HR series mixers adopt advanced design and can be operated easily, safely and reliably. They have characters of small size, low weight, high efficiency, low energy consumption and low noise.



### Main Technical Parameter

Model	Volume (L)	Effective volume (L)	Motor power (KW)	Rotary speed (rpm)	Heating method	Discharge method
BR-HR10	10	7	3	2000	Self-friction	Manual
BR-HR50	50	35	7/11	750/1500	Electric heating	Pneumatic
BR-HR100	100	75	14/22	650/1300		
BR-HR200	200	150	30/42	475/950		
BR-HR300	300	225	40/55	475/950		
BR-HR500	500	375	55/75	430/860		
BR-HR800	800	600	83/110	370/740		
BR-HR200C	200	150	30/42	650/1300	Self-friction	Pneumatic
BR-HR300C	300	225	47/67	475/950		
BR-HR500C	500	375	83/110	500/1000		
BR-HR1000A	1000	700	160	600		
BR-HR1300A	1300	900	220	580		
BR-HR2000A	2000	1400	315	500		
BR-HR3000A	3000	2100	500	370		

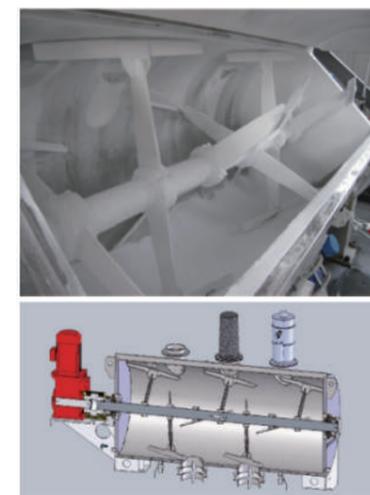
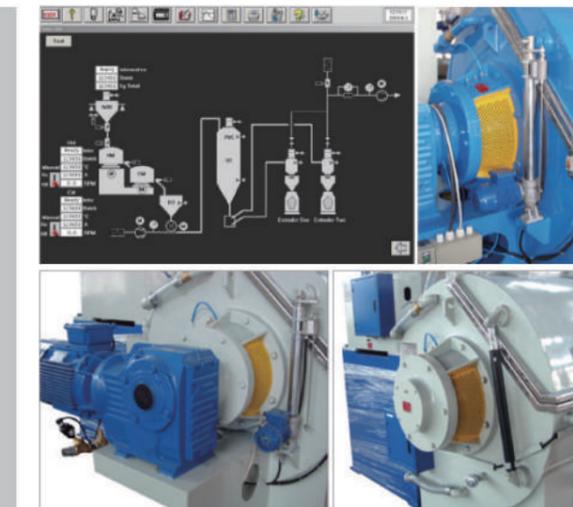
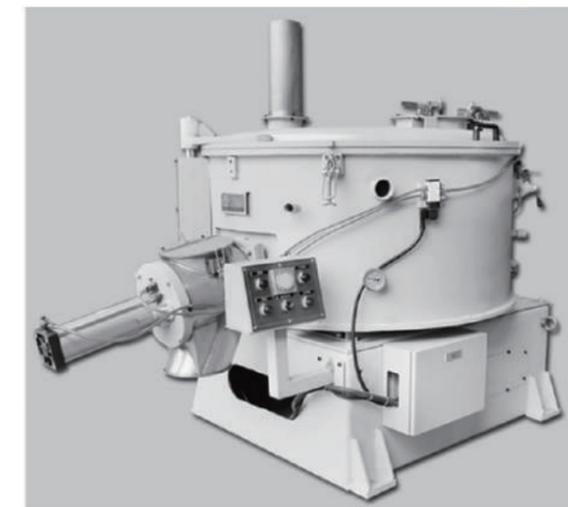
## BR-DL Series Cooling Mixer

### Performance and structure:

The BR-DL series cooling mixer is matched with the BR-HR series high-speed mixer, which can be widely used for mixing, drying, coloring and other processes of various plastics.

The cooling mixer can cool down the material very fast and vent out the residual gas after hot mixing, which is convenient for the storage, transportation and subsequent processing of the material. It is necessary in the plastic processing industry.

BR-DL series cooling mixer has the advantages of easy operation, safety, small size, low weight, high efficiency, low energy consumption, low noise, and corrosion resistance. It is your ideal choice.



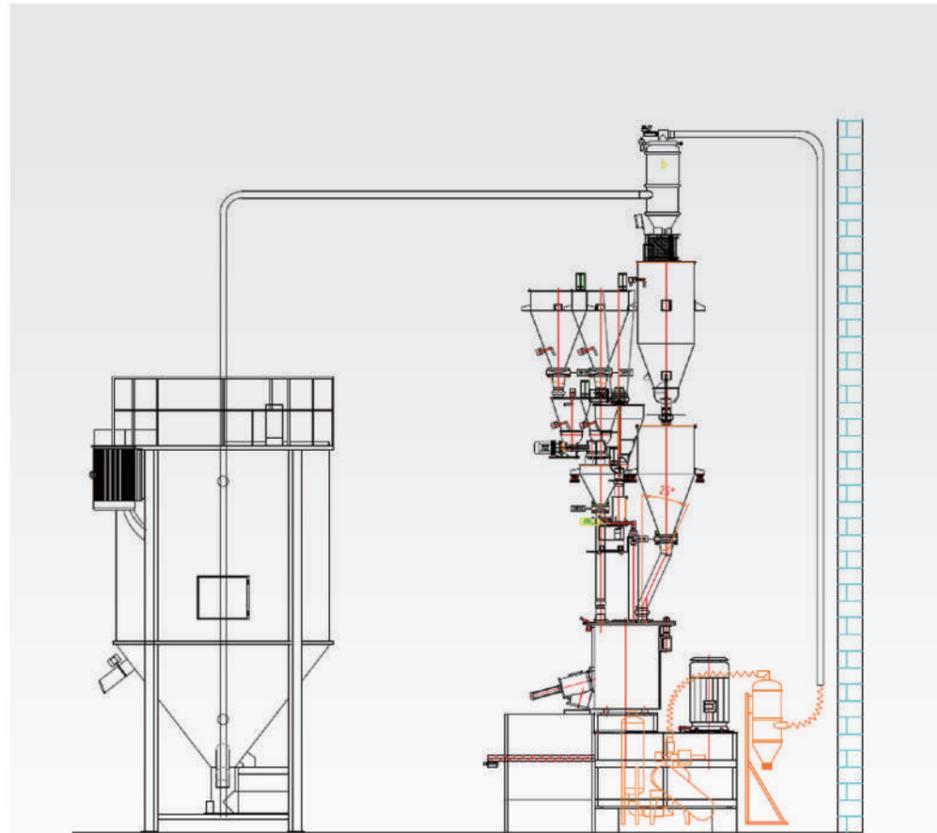
### Main Technical Parameter

Model / Parameter	Total volume (L)	Effective volume (L)	Motor power (KW)	Rotary speed	Cooling method	Discharge method
BR-DL200	200	130	7.5	200	Water cooling	Pneumatic
BR-DL500	500	330	7.5	130		
BR-DL600	600	380	11	100		
BR-DL1250	1250	850	15	70		
BR-DL1500	1500	1000	18.5	60		
BR-DL2500	2500	1500	30	60		
BR-DL3000	3000	2100	30	50		
BR-DL3500	3500	2500	37	50		
BR-DL4500	4500	3100	45	50		

# DEHUMIDIFICATION AND DUST REMOVAL SYSTEM



## Dehumidifying Drying System



### Working Principle:

The dryer is a kind of dehumidification equipment that can dehumidify objects with moisture, and the dehumidification dryer is a kind of dryer with stronger dehumidification ability, which can dehumidify objects with relatively strong humidity, with great effect of dehumidification.

## Dust Collector

### Application:

The dust collection system is used for ventilation and dust removal in various industries such as chemical, plastic, cement, building material, metallurgy and power plants etc.



### Features:

Fully automatic compressed air backflush cleaning integrated filter.

Standardized design module, more than 40 kinds of filters can be optimized and combined according to requirement.

In filter unit, we can choose filter bag or filter element according to requirement.

The design of the filter housing can bear a certain negative pressure.

Can be made of carbon steel or stainless steel according to requirement.

High-efficiency filtration and cleaning efficiency benefits from the specially designed back-blowing system and filtering system.

Online (rotary valve/screw conveyor) or offline (ash hopper) cleaning method can be chosen.



### Main Technical Parameter

Model	DC-24-32-4	DC-36-48-6	DC-48-64-8	DC-60-80-10	DC-72-96-12	DC-84-112-14
Air volume	1500-2000	2100-3200	2900-4300	4000-6000	5200-7000	6000-9000
Total filtration area	24	36	48	60	72	84
Number of filter bags (bars)	32	48	64	80	96	112
Inlet gas temperature	≤120℃	≤120℃	≤120℃	≤120℃	≤120℃	≤120℃
Equipment resistance	≤1200	≤1200	≤1200	≤1200	≤1200	≤1200
Outlet emission concentration	≤30	≤30	≤30	≤30	≤30	≤30
Cleaning pressure	0.5-0.7	0.5-0.7	0.5-0.7	0.5-0.7	0.5-0.7	0.5-0.7
Compressed air consumption	0.1	0.14	0.2	0.24	0.29	0.34
Qty. of pulse valves	4	6	8	10	12	14
Fan motor power	1.5	3	3	5.5	5.5	7.5
Weight	Type A (with ash bucket)	1350	1620	1850	2360	2800
	Type B (without ash bucket)	1220	1470	1670	2150	2540

## BR-LD Lithium Battery Powder Mixing Equipment

For lithium cobalt oxide, lithium iron phosphate, ternary and other lithium battery powders, the horizontal ribbon blender is specially designed, and fully adaptable to the mixing process of battery powder material.



Main Technical Parameter

Model	Capacity (kg/batch)	Effective volume (L)	Motor power (KW)	Rotary speed (RPM)
BR-LD10	10	7	3	2000
BR-LD50	25	35	15	1500
BR-LD100	35	75	30	1300
BR-LD200	75	150	55	950
BR-LD300	120	225	75	950
BR-LD500	200	375	90	860
BR-LD800	350	560	132	740
BR-LD1000	450	700	200	600
BR-LD2000	1000	1400	355	500



## BR-BD Series Bonding Mixing Unit



It is professional equipment for the production of metal bonding powder, which perfectly passes the metal powder into the surface of the powder coating particles to complete the process of metal powder coating bonding, such as aluminum powder, copper powder, etc.

Features:

- Safe and reliable, equipped with a nitrogen generator
- Anti-explosion system for mixing tank
- Heating and temperature control system
- PLC touch screen operating system
- Gas detection device



Main Technical Parameter

Model	BR-BD200/500	BR-BD200/800	BR-BD300/600	BR-BD500/1000
Output capacity(kg/batch/min)	50-80/6-20	50-80/6-20	60-100/6-20	100-150/6-20
Output (Kg/h)	300-400	300-400	400-600	600-800
Motor power (KW)	45/7.5	45/7.5	55/11	75/15
Cooling medium	Cooling water ≤7°C			
Gas	N2 Inert Gas N2			

## MIXING UNIT FOR OTHER PURPOSES



### Ploughshare Mixer

The horizontal Ploughshare Mixer is equipment for powder mixing. This kind of machine can be applied to solid-solid (liquid added to powder) mixing in chemical, coating, medicine, food, feed, fuel, metallurgy, mining, and other industries, as well as composite processes such as wet granulation, drying, and concentration.



### Horizontal Ribbon Mixer

It's used for cooling or heating mixing different powders, the same material in batches, powders with liquid to a slurry (thickening or dilution of slurry), granules with powders, granules with granules, agglomerate crushed materials, etc.



### Conical Ribbon Mixer

The strong mixing action makes the materials close to the container wall move upwards and the materials at the center move downwards, which gently but completely mixes the flowable pellets. A large number of materials can be mixed evenly with high quality in a short time. Almost all materials can be discharged well.



### Screw-cone Mixer

Screw-cone mixer is equipped with an asymmetric inclined screw inside, the double screw rotates by itself to lift the material, and is driven by a revolution reduction box, revolving along the central axis of the cone, stirring the material at 360 degrees, with characteristics of non-destructive mixing, fast and no residue discharge.



## INTRODUCTION — AUTOMATIC CONTROL SYSTEM



### Electric Control Cabinet

#### More advantages

It is highly simplified and completely symmetrical. It has global patent protection and is widely used in various industries.

#### Higher efficiency

With the help of streamlined and time-saving design, space-saving and easy internal installation, automatic potential balance, all panels can be installed by one person.

#### More flexibility

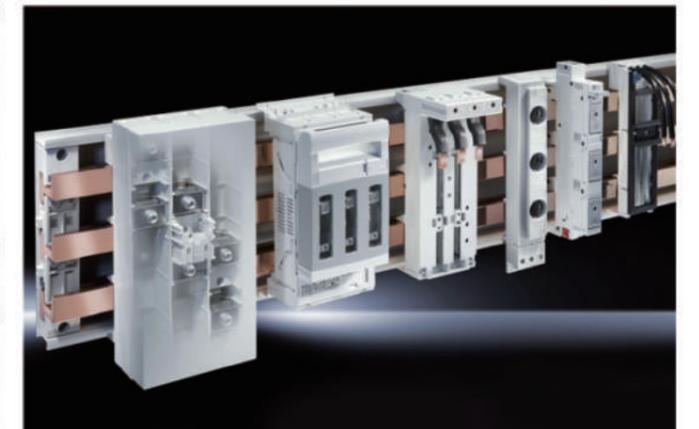
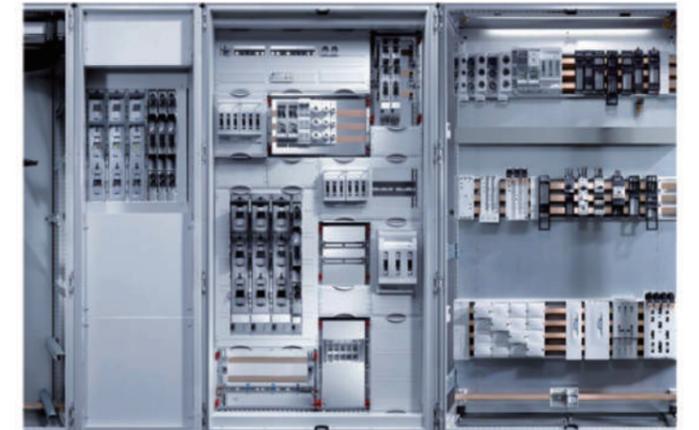
Provide more than 100 kinds of products and solutions to meet complex cabinet requirements, which can make sure that the cable can enter freely from all directions.

#### Higher quality

The surface treatment adopts automobile production standards

High batch processing, high quality as always

A certified laboratory for all major products testing



# AUTOMATIC CONTROL SYSTEM NETWORK TOPOLOGY



## Siemens Industrial Ethernet Profinet IO

Profinet IO is an open transmission system with real-time functions defined by the Profinet standard.

This standard defines cross-manufacturer communication, automation, and configuration models.

Profinet component wiring adopts an industrial-grade strength connection.

PROFINET abandons the hierarchical PROFIBUS master/slave scheme but adopts the release/request scheme. The configuration process will specify which IO devices (such as ET 200SP) are used for an IO controller (such as SIMATIC S7-1500 CPU)

The quantity structure can be expanded according to the available quantity of PROFINET IO. The configuration cannot exceed the parameter limit.

The transmission rate is 100 Mbps.



## Industrial equipment networking

Under the wave of Industry 4.0 and intelligent manufacturing, equipment manufacturers and production plants need a complete set of remote information systems.



## PROFINET IO TYPICAL CONFIGURATION

