

#### RESOURCE REGENERATION INTEGRATED SOLUTION VR VISUAL EXPERIENCE



BESTON GROUP CO.,LTD

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# RECYCLING FOR BETTER LIFE





### CONTENTS



03
BESTON SERVICE

TEAM ELEGANT DEMEANOUR

05 MARKET STRATEGY







#### COMPANY PROFILE

FOCUS ON RESOURCE REGENERATION



Beston Group Co., Ltd. is the Environmental Protection Division of Henan Golee Holding Group, responsible for the promotion of resource regeneration solutions, equipment manufacturing and project implementation in the global market.

Beston was established in 2013, mainly engaged in: waste tires, plastic pyrolysis equipment, oil sludge pyrolysis equipment, waste oil distillation equipment, biomass carbonization equipment, sludge carbonization equipment, municipal waste sorting equipment, medical waste treatment equipment. As well as packaging technical solutions, installation and commissioning services, project operation services, etc.

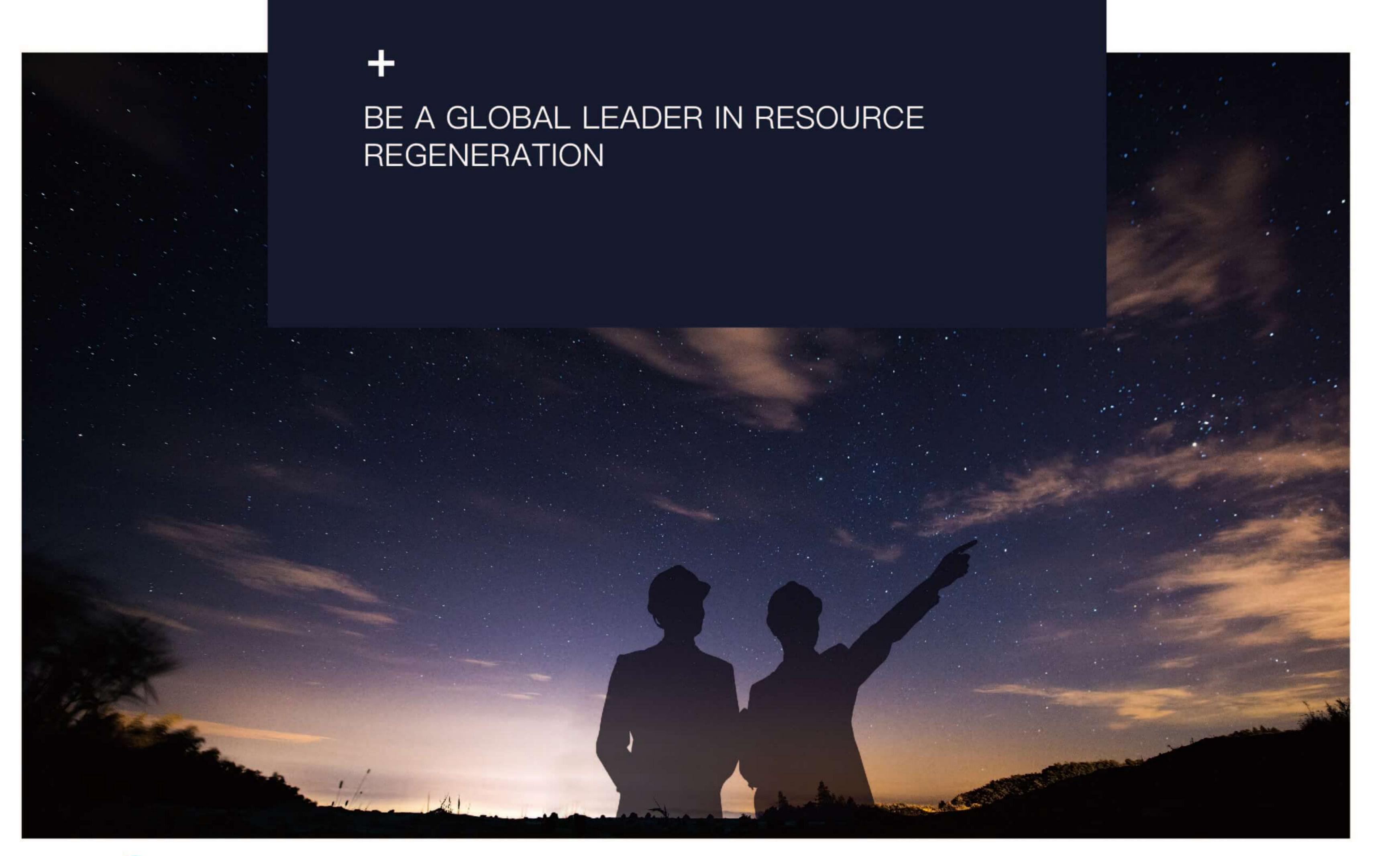


#### R & D AND MANUFACTURE

The manufacture factory covers an area of 16000 m², has more than 10 sets of advanced machining equipment, and has more than 20 senior professional and technical personnel, including 2 doctors, 5 professors and 5 associate professors, and more than 10 senior technical engineers. and more than 30 production technicians.

#### MARKETING

10 members team for online promotion and operation, 30 members team for international trade, and 8 members domestic business team, and 12 members after-sales team (more than 10 project operation engineers with foreign language skills and more than 5 years of experience).



## CERTIFICATION AND QUALIFICATION



ISO9001 quality management system certification.



ISO14001 environmental management system certification.



More than 15 inventions patented technology.



Product safety qualified through CE certification.

#### (E)

#### Government certification:

national high-tech enterprise, partner of Zhengzhou University, vice-chairman unit of Henan Internet Business Association, and member unit of China Rubber Industry Association.













#### COMPANY STRATEGY

1004

Overseas exports to more than 100 countries and regions in the world.

30

Stable markets in more than 30 countries.

07

Set up overseas branches and offices in 7 countries.

With the mission of "focusing on the field of resource regeneration, continuing to provide customers with optimal solutions, and improving the global ecological environment", Beston adheres to the core values of "Customer-centric, Striver-oriented, Persistent team collaboration, Adhere to innovative management", and is committed to environmental protection industry.



In addition to mainland China, Beston has exported equipments to Russia, Central Asia, South Asia, Southeast Asia, East Asia, Middle East, Eastern Europe, Africa, Latin America and Australia, more than 100 countries and regions in the world, and had gained stable markets in more than 30 countries. In order to promote the pre-positioning of Cross-border e-commerce and Overseas customer service localization, Beston has set up overseas branches and offices in Romania, Brazil, Pakistan, Uzbekistan, the Philippines, Indonesia, Sri Lanka and other countries to continuously meet the diverse needs of overseas customers and provide customers with the best solutions and business success solutions. At present, Beston's projects in operation in the domestic and foreign have won customers and local government's unanimous praise.





#### COMPANY CULTURE



#### MISSION

To focus on the fields of resource regeneration, to continuously provide our customers with optimal solutions and improve global ecological environment



#### VISION

Be a global leader in resource regeneration



#### **VALUES**

Customer-centric, Striver-oriented, Persistent team collaboration, Adhere to innovative management



#### DEVELOPMENT HISTORY

#### 2013

In 2013, created international brand-BESTON;

#### 2014

In 2014, the first oil sludge pyrolysis project was completed in Nigeria and officially entered the African market;

#### 2014

In 2014, the first waste tire pyrolysis project was completed in Brazil and officially entered the South American market;

#### 2015

In 2015, Henan Beigong Machinery Manufacturing Co., Ltd. was established, and the environmental protection equipment realized the integration of industry and trade;

#### 2015

In 2015,

Russia Novosibirsk branch was established (joint venture);

#### 2016

In 2016,

Pakistan, Philippines branch was established to start the operation of overseas warehouse projects;

#### 2016

In 2016, expanded business in Spain and other European and North American markets, and increased sales in the global market;

#### 2017

In 2017,

we set up a branch in Tashkent, Uzbekistan.

Layout of central Asian market;

#### 2018

In 2018, the waste plastic pyrolysis project was completed in Romania, and Romania branch (joint venture) was established;

#### 2019

In 2019, the process-based organizational transformation will created "iron triangle" marketing team(product manager-project consultant-delivery manager);

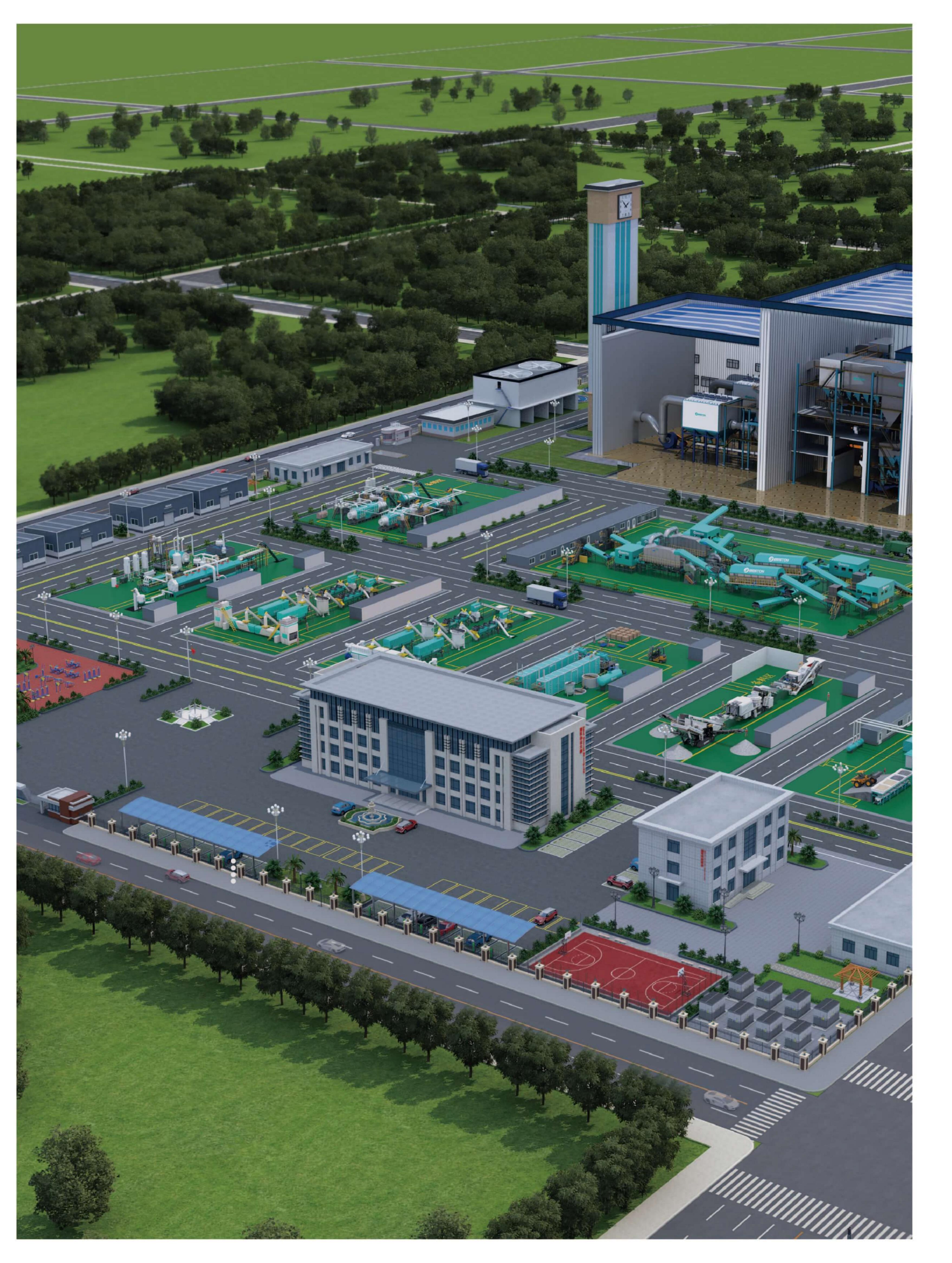
#### 2020

In 2020, fully work resumption in the fight against the COVID-19 epidemic, and improve the online marketing and online after-sales service system;

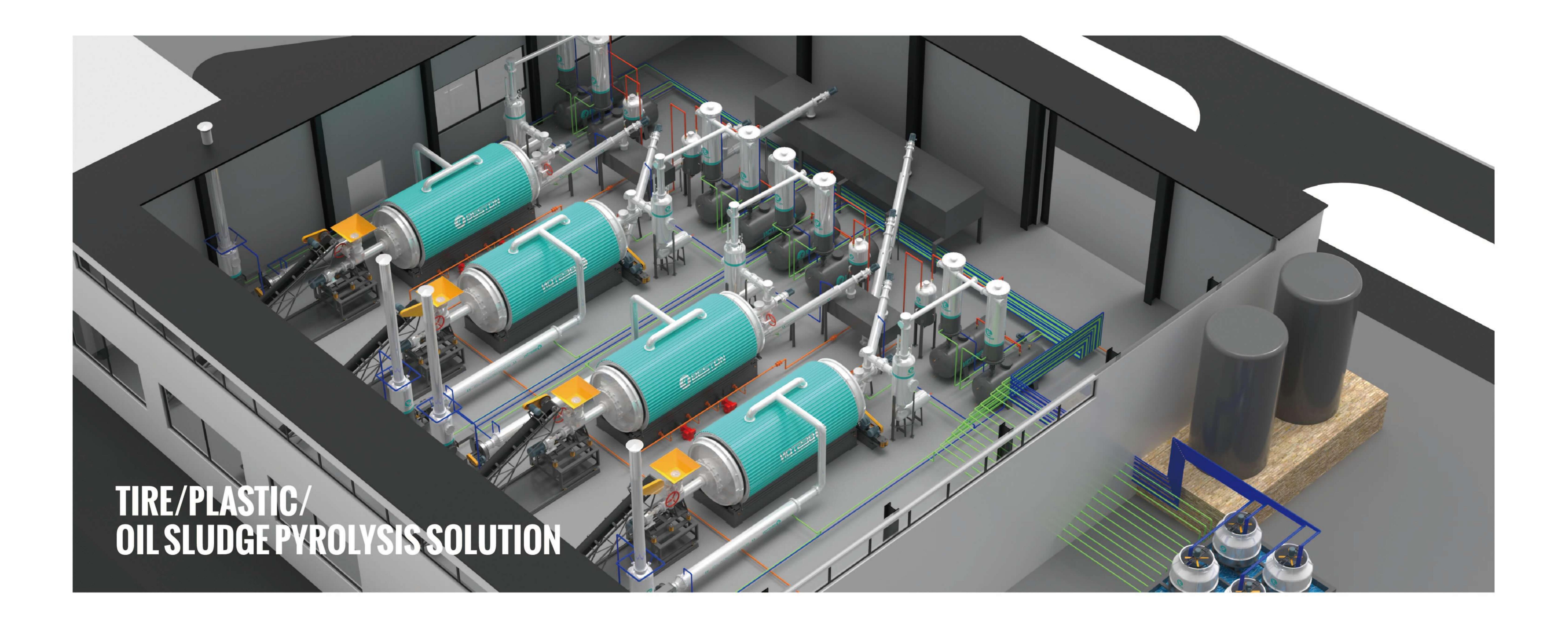
#### 2021

In 2021, Export sales of pyrolysis and carbonization industry ranked first, and egg carton industry ranked third.





# INTRODUCTION OF SOLUTION



#### PRODUCT INTRODUCTION

Pyrolysis plant is widely used in waste recycling, mainly for waste tires, waste plastics and oil sludge. Pyrolysis is a process in which molecules are broken at an appropriate temperature to generate valuable end products under anaerobic or oxygen-deficient conditions, and the products are mainly fuel oil, carbon black, steel wire and syngas. End products are differnt depends on different waste. Pyrolysis plant recycles waste tires, plastics and oil sludge in the environmental-protective way, reducing the amount of global waste and helping to solve global pollution problems.









Raw materials

End products



#### FOUR SYSTEMS

THE PYROLYSIS PLANT INCLUDES FOUR SYSTEMS: PYROLYSIS SYSTEM, CONDENSING SYSTEM, DE-DUST-ING SYSTEM AND DISCHARGING SYSTEM.



• PYROLYSIS SYSTEM



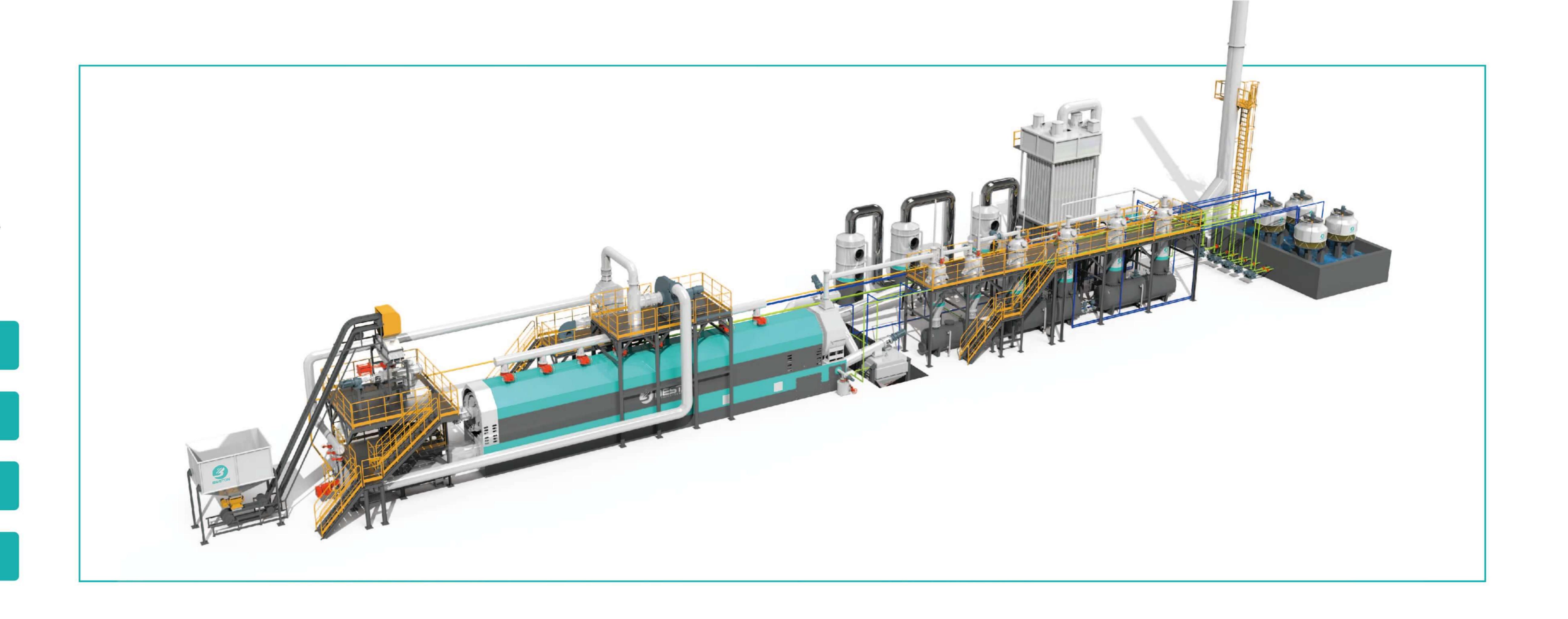
• CONDENSING SYSTEM



. DE-DUSTING SYSTEM



• DISCHARGING SYSTEM



#### PYROLYSIS SYSTEM

The reactor rotates under the action of the drive system to realize the movement of materials. The raw material continuously absorbs heat in the reactor, and starts to pyrolysis to generate oil gas after reaching the pyrolysis temperature.

#### **CONDENSING SYSTEM**

The high-temperature oil gas are liquefied into fuel oil by the condenser, and stored in the oil tank. The non-liquefiable gas (we call it syngas) is purified and stabilized by hydro-seal and then transported to the furnace to provide fuel for the heating of the reactor.

#### **DE-DUSTING SYSTEM**

The high temperature smoke gas produced from chamber is first cooled by the flue condenser, and then the cooled gas is led into the dust removal tower through the induced draft fan, and then discharged through the chimney after dust removal and deodorization.

#### DISCHARGING SYSTEM

The first auto screw discharger cooperates with the deflector to transport the carbon black in the reactor, and then the water-cooled discharger transports the carbon black in the reactor to the carbon black box or designated position.



#### FREQUENTLY ASKED QUESTIONS



#### What are end products from pyrolysis plant? And usage of them?

For the fuel oil(35-45%), it is high calorific value fuel, the usage is:

- a. Sold directly as fuel to steel mills, boiler plants, cement plant, etc.
- b. Burn it as fuel to generate electricity.
- c. After purification, it can be made into high-quality fuel oil, which can be mixed with standard diesel for use in low speed and heavy duty machinery, construction machinery, large trucks, ships and so on.

For the carbon black(30-35%), the usage is:

- a. Mix coal to make the coal pellets, can be burned as fuel.
- b. Mix building materials to make bricks and asphalt modifier.
- c. After processing, can be used as a rubber reinforcement agent, produce new rubber products, tires, belts and so on.
- d. After grinding used in the production of ink, the black pigment of printing ink.

For the steel(8-15%), the usage is:

After packaging, direct sales to steel processing enterprises.

For the syngas(8-15%) produced from the pyrolysis plant, we can recycle it as fuel to heat the reactor, by this way, customers can save a lot of fuel.



#### Emissions and pollution problems of this machine

The amount of emission gas is different according to the selection of model. The emission gas is mainly composed of two parts, most of which are produced by fuel combustion in process of heating the reactor, and small part is produced by the direct burning of excess pyrolysis gas. The emission gas mainly contains sulfur compounds, nitrogen oxides, dust, carbon monoxide and carbon dioxide, etc. There are many European customers who are running the plant and the emissions meet local standards.



#### Safety design of this machine

- a. Sufficient safety distance is kept between the reactor and the oil tank
- b. The pyrolysis syngas is burned as fuel, and a safety hydro-seal system is set up to prevent safety accidents caused by back fire.
- c. The PLC control system is designed with a temperature and pressure safety threshold alarm system
- d. The feeding system of the fully continuous production line is designed with a nitrogen seal to isolate the air
- e. The oil storage tank is designed with a liquid level alarm system



#### How to install the equipment

At present, Beston provides customers with two installation methods: online installation and on-site installation.

Our after-sales team can provide 24-hour online installation service, and we can also arrange engineers to the customer site for installation guidance if the customer requires it.



#### How long is the warranty and the services provided during the warranty

The warranty is 18 months against BL date, or 12 months after installation, whichever comes first. Beston provides on-site and online services, regular telephone visits, lifetime maintenance and supply of wearing parts, etc.



#### PROFIT ANALYSIS

		Return on Inv	estment of	BLJ-16 waste tyre	e pyrolysis pro	oject in Europea						
Project name	12-15TPD waste tyre pyroly											
Introduction	According to the market data of Europea, the estimated ROI report, the various expenses are as follows:											
Fixed Investment Cost	Item	Details	Unit	Unit price/USD	Quantity	Amount/USD	Total amount	Remark				
	Equipment	BLJ-16	Set	89000.00	1.00	89000.00						
	Transportation	Seafreight	Set	64600.00	1.00	64600.00						
		From Port to Site	Set	5800.00	1.00	5800.00						
	Customs tax	15%	Set	13350.00	1.00	13350.00						
	Installation	Beston technician's salary	Day	350.00	50.00	17500.00						
		Round -trip airtickets	Ea	3820.00	2.00	7640.00						
		Visa	Ea	750.00	1.00	750.00						
		Local welder	Day	120.00	100.00	12000.00		2 welders are needed				
		Local plumber	Day	120.00	20.00	2400.00						
		Local labor	Day	108.00	50.00	5400.00						
		Crane forklift	Day	160.00	30.00	4800.00						
	Materials	Installation materials ready	Set	5200.00	1.00	5200.00		Foundation, pipe, etc.				
	License	1	Ea	2000.00	1.00	2000.00		Environmental, firefighting, etc.				
	Workshop	500	m²	380.00	500.00	190000.00						
							US\$: 420,440.00					
Operating Cost	Raw materials	Waste tyre	Ton	0.00	12.00	0.00						
	Water	1	m³	0.39	3.00	1.17						
	Electricity	/	KWH	0.20	864.00	172.80						
	Fuel	Natural gas	Liter	0.77	240.00	184.80						
	Labor	/	People	72.00	4.00	288.00						
	Maintenance		Day	85.00	1.00	85.00						
	Depreciation	8 years	Day	175.18	1.00	175.18						
	Тах	5%				0.00						
							US\$: 906.95					
End Products Price	Tyre oil	45%	Ton	5.40	433.00	2338.20		45% of input				
	Steel wire	15%	Ton	1.80	216.00	388.80		15% of input				
	Carbon black	30%	Ton	3.60	162.00	583.20		30% of input				
	Subsidy		Ton	100.00	12.00	1200.00						
							US\$: 4,510.20					
Daily Income							US\$: 3,603.25					
Monthly Income	Working day		Day	25.00			US\$: 90,081.17					
Yearly Income	Working day		Day	300.00			US\$: 1,080,974.00					



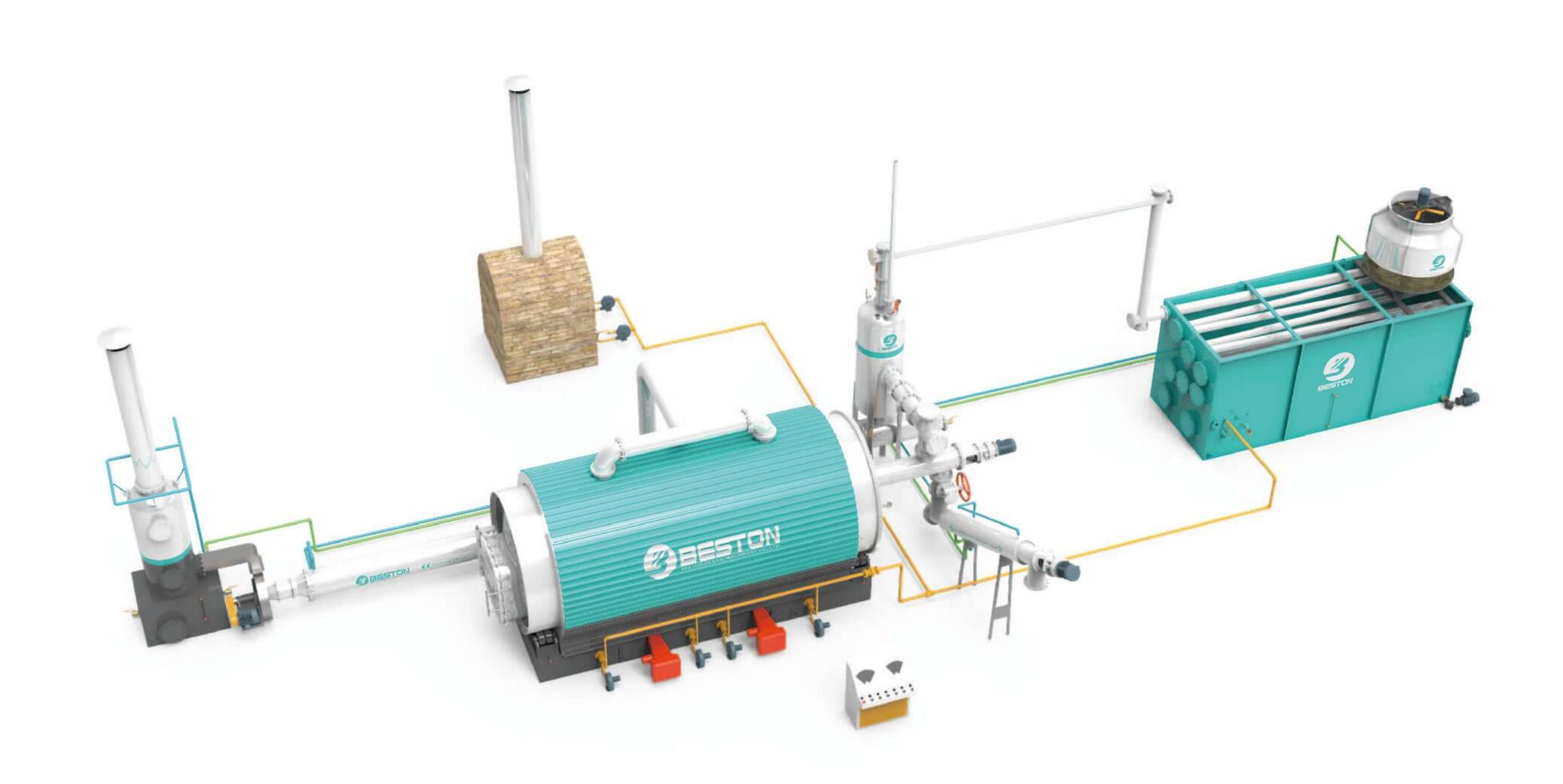
#### MODEL PARAMETERS

Model		BLJ-3	BLJ-6	BLJ-10	BLL-16	BLL-30	
Capacity		1-3T/D	4-6T/D	8-10T/D	12-16T/D	30-35T/D	
Reactor Size		φ1400*4900mm	φ2200*6000mm	φ2600*6600mm	φ2800*7100mm	φ1800×18500mm	
Reactor Material			310S				
Drive System		350 reducer+ 4kw drive motor			500 reducer+ 7.5kw drive motor	15kw frequency conversion motor+ ZQH650-50 reducer	
Con- densing	vertical condenser	φ426×3000 Single piece condensing area 7.58㎡	φ630×3600 Single piece condensing area 17.8㎡	φ630×3600 Single piece condensing area 17.8㎡	φ820×3600 Single piece condensing area 35.6㎡	φ920*3200 2 sets of vertical condenser	
System		3000×2200×2250 Condensing area 17.51m²	5800×2260×2500 Condensing area 35.85m²	5800×2260×2500 Condensing area 35.85㎡	8000×2260×2500 Condensing area 49.5㎡		
Land		L18m*W4.2m*H6m L30m*W12m*H8m L30m*		L30m*W13m*H8m	L33m*W13m*H8m	L70m*W20m*H10m	
Power		16.65kw	37.85kw	44.3kw	55.6kw	256kw	
Burner		2*200,000 kcal	2*300,000 kcal	2*300,000 kcal	2*400,000 kcal	2.5 million kcal	
Total Weight of Shipped Materials		About 18T About 24.5T		About 28T	About 34.5T	About 150T	
Number of Containers		1*40FR+ 1*40HQ 1*40HQ+1*20GP		1*40FR+2*40HQ	1*40FR+2*40HQ	25m*8m bulk cargo+8*40HQ	
Noise (dB)		≤60dB	≤60dB	≤60dB	≤60dB	≤60dB	
Working Process			Batch type	Semi-continuous	Fully continuous		

## WHOLE AND COMPONENT DRAWINGS



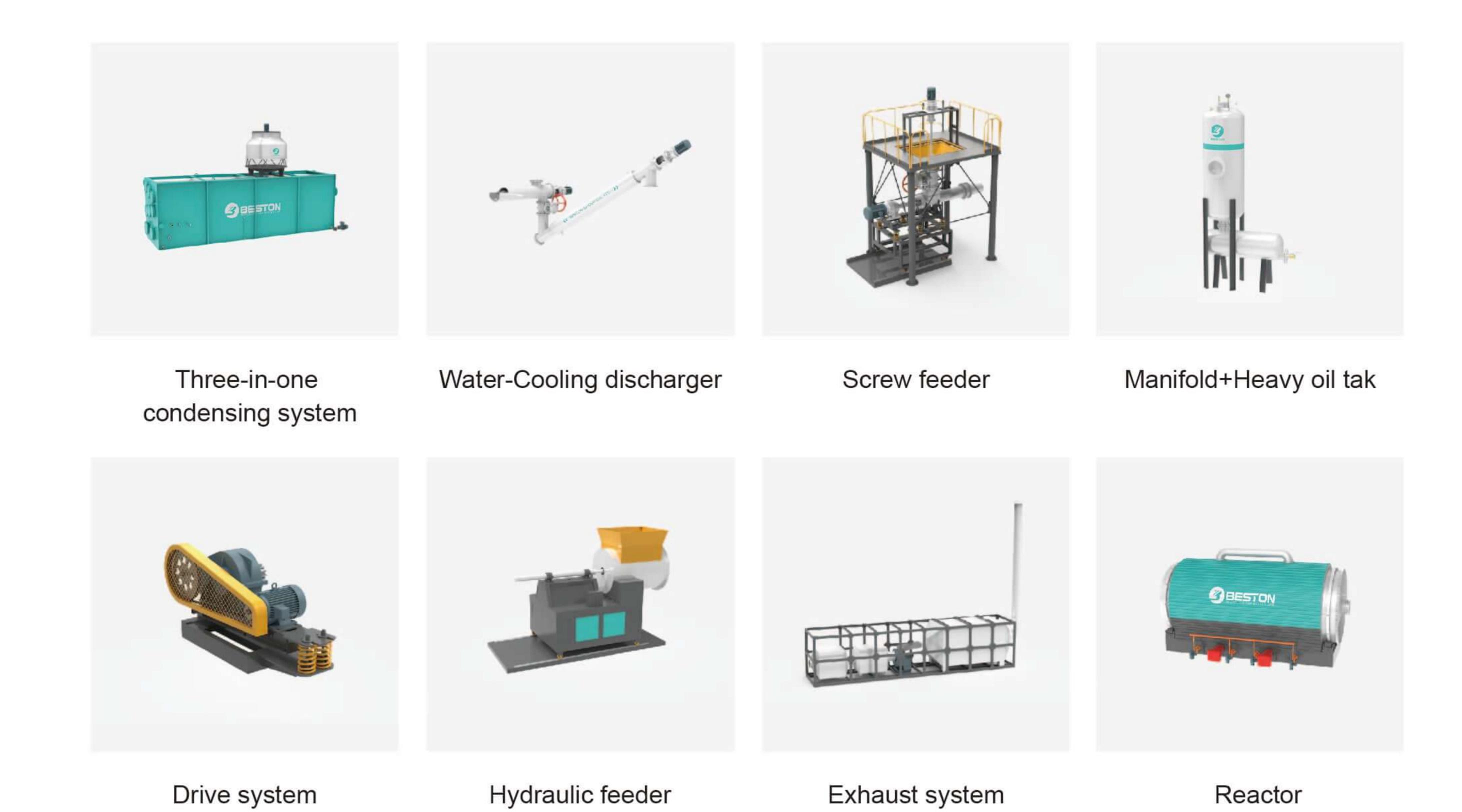
BLJ-3 SKID-MOUNTED PYROLYSIS PLANT



BLJ-16 BATCH PYROLYSIS PLANT

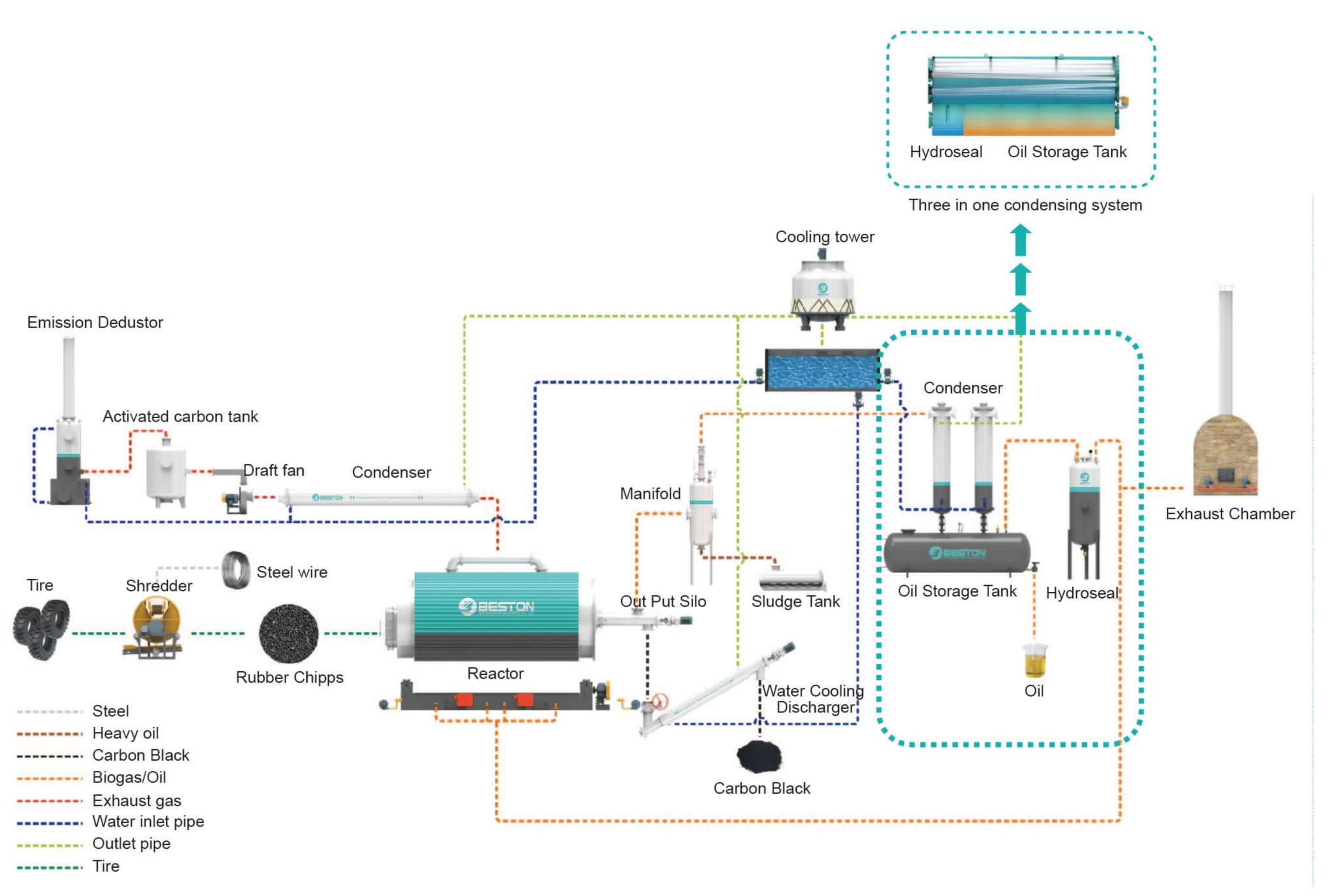


BLL-30 CONTINUOUS PYROLYSIS PLANT

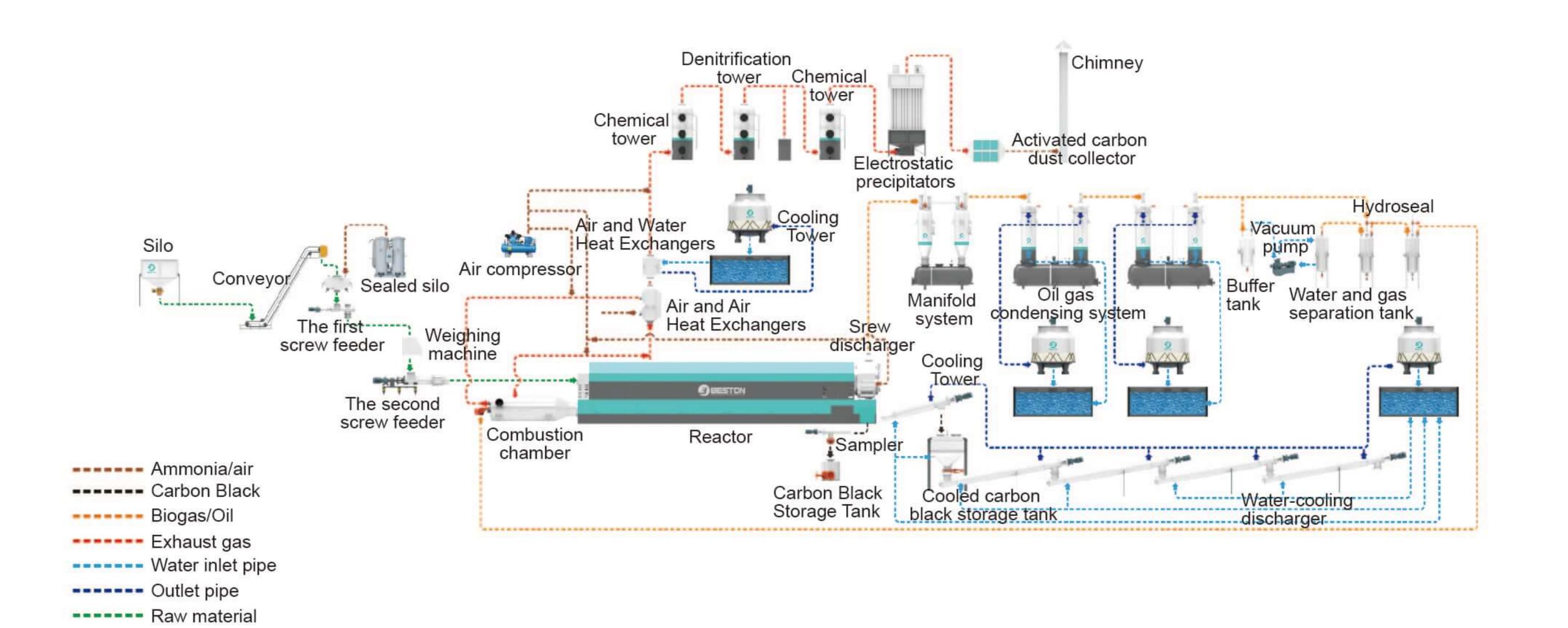


BLJ PYROLYTIC DEVICE ACCESSORIES DIAGRAM

#### PROCESS FLOW CHART



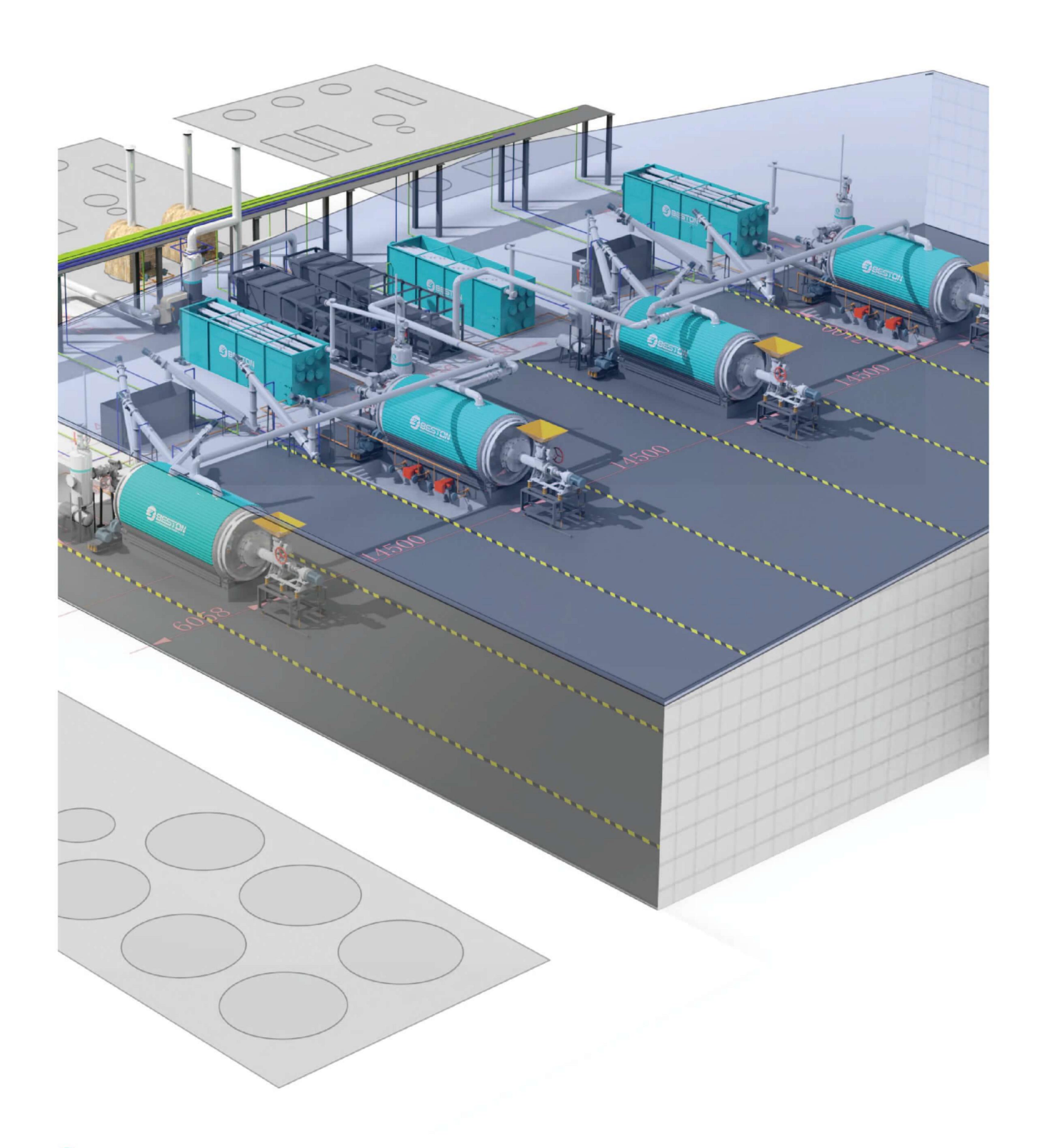
BLJ SERIES PYROLYSIS PLANT

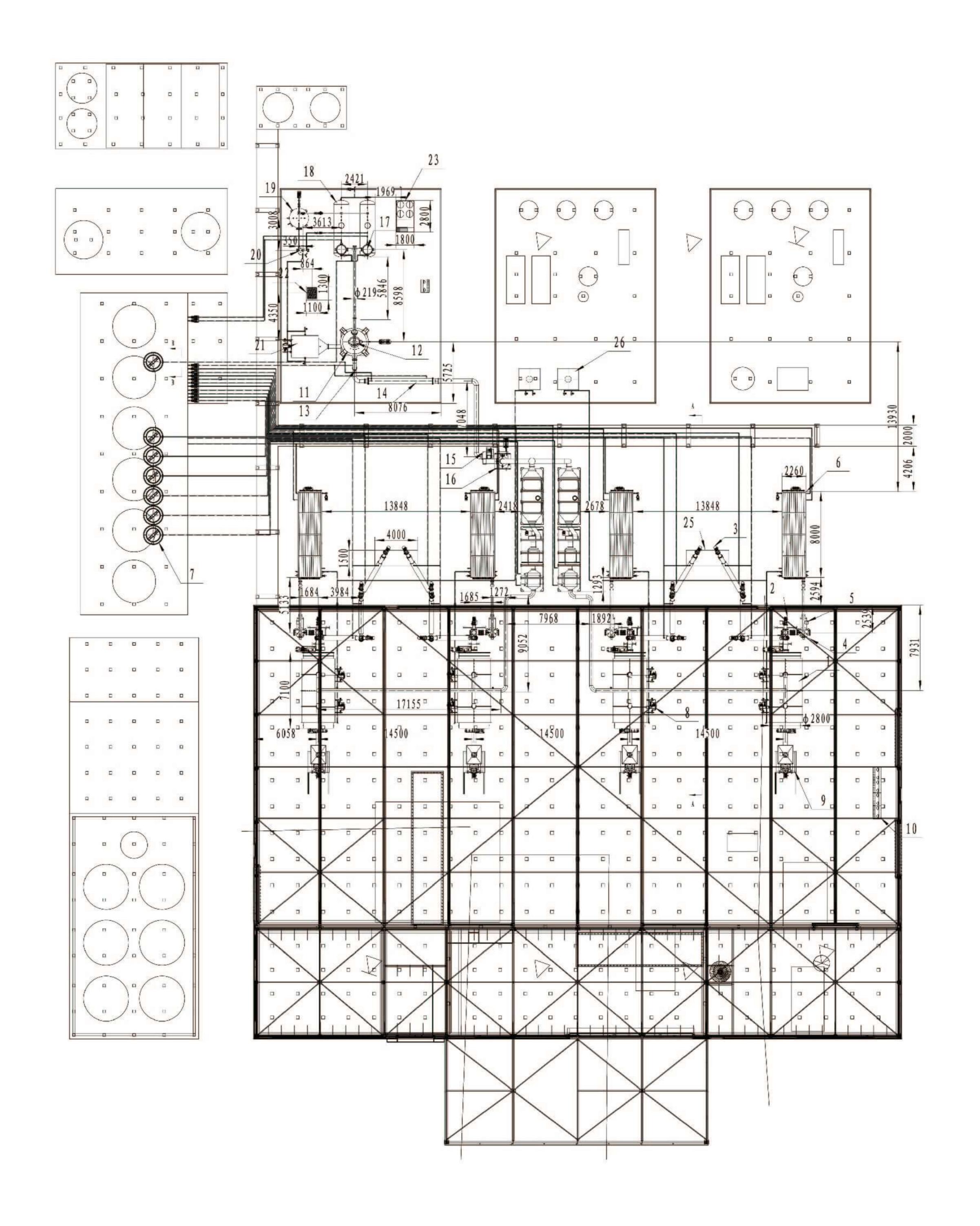


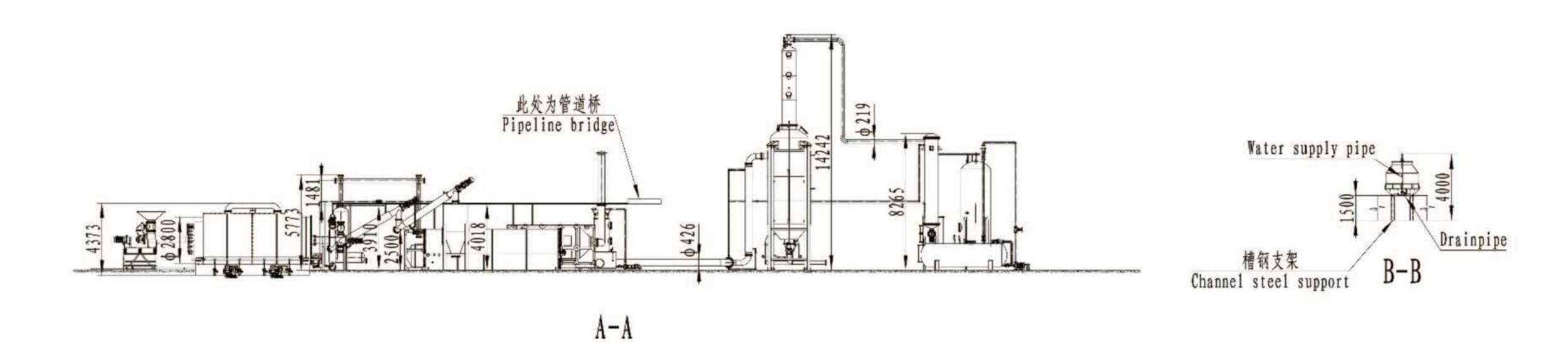
BLL-30 CONTINUOUS PYROLYSIS PLANT



#### PRODUCT BLUEPRINT











#### 01

#### HIGH DEGREE OF AUTOMATION

Automatic screw water-cooling discharge system, high degree of automation, sealed and safe, more clean and environmentally friendly, with low labor intensity for workers.

#### 03

#### MEET DIFFERENT NEEDS

The models are diversified, which can meet the customer's daily processing capacity from 0.5 tons to 30 tons, and can meet the requirements of different stages from the feasibility of the customer test project to the large-scale commercial plan.

#### **U**2

#### THREE-IN-ONE CONDENSING SYSTEM

Three-in-one condenser design, integrating oil tank, condenser, and water seal into one, easy to install, small footprint, space saving.

#### 04

#### SYSTEM SUPPORTING CATALYST

The catalysts can be carried out according to the requirements of customers for processing raw materials. The use of special catalysts for plastic pyrolysis developed by our company can effectively improve the yield and quality of fuel oil.

#### 05

#### INTEGRATED SOLUTION

Integrated solutions, pretreatment plant pyrolysis plant-distillation plant, full-process production line solutions are provided, customers can save worry and effort.

#### 07

#### RELATED DOCUMENTS ASSISTANCE

The installation layout diagram, PID diagram and other related documents can be customized according to the customer's site, which is convenient for customers to calculate the relevant costs of project installation and save installation time.

#### 06

#### **CUSTOMIZED REQUIREMENTS**

The size and shape of the door of the reactor can be customized according to customers' requirements, meeting the feed requirements of different raw materials, providing more diverse and more convenient feeding methods.

#### 08

#### PROVIDE DESIGN SUPPORT

Beston can design the corresponding 3D drawing of the project for the customer to help the customer understand the site layout and appearance more intuitively, according to the customer site.









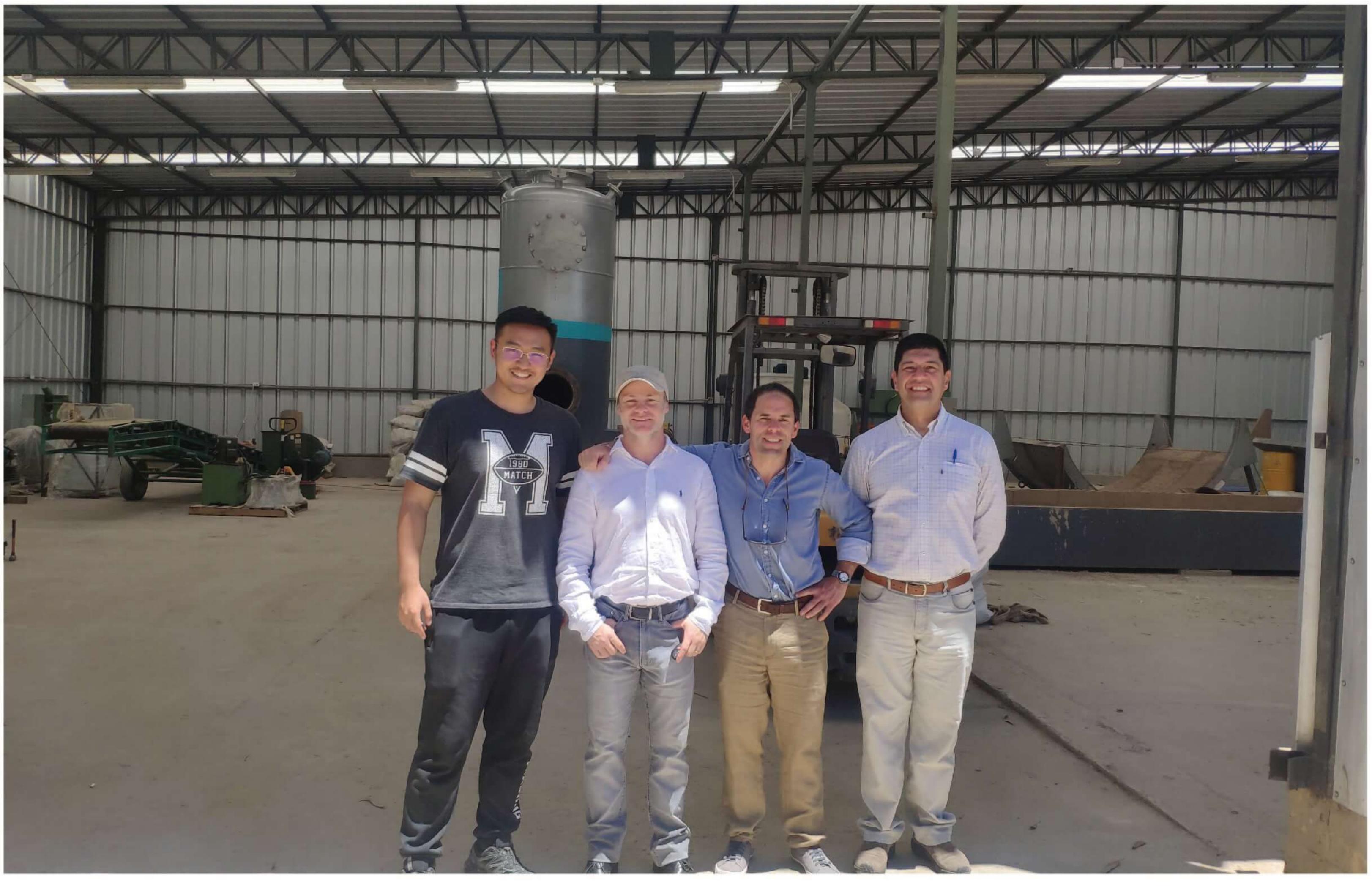
## PYROLYSIS PRODUCT CASE DISPLAY

- 2019 Romania
  Pyrolysis plant BLJ-16
- 2018 Dominica Pyrolysis plant BLJ-6+ Distillation plant
- Shanxi, China in 2022
  4 sets pyrolysis plant BLL-16









## PYROLYSIS PROJECT CASE SHOW

2019 Chile
Pyrolysis plant BLJ-10

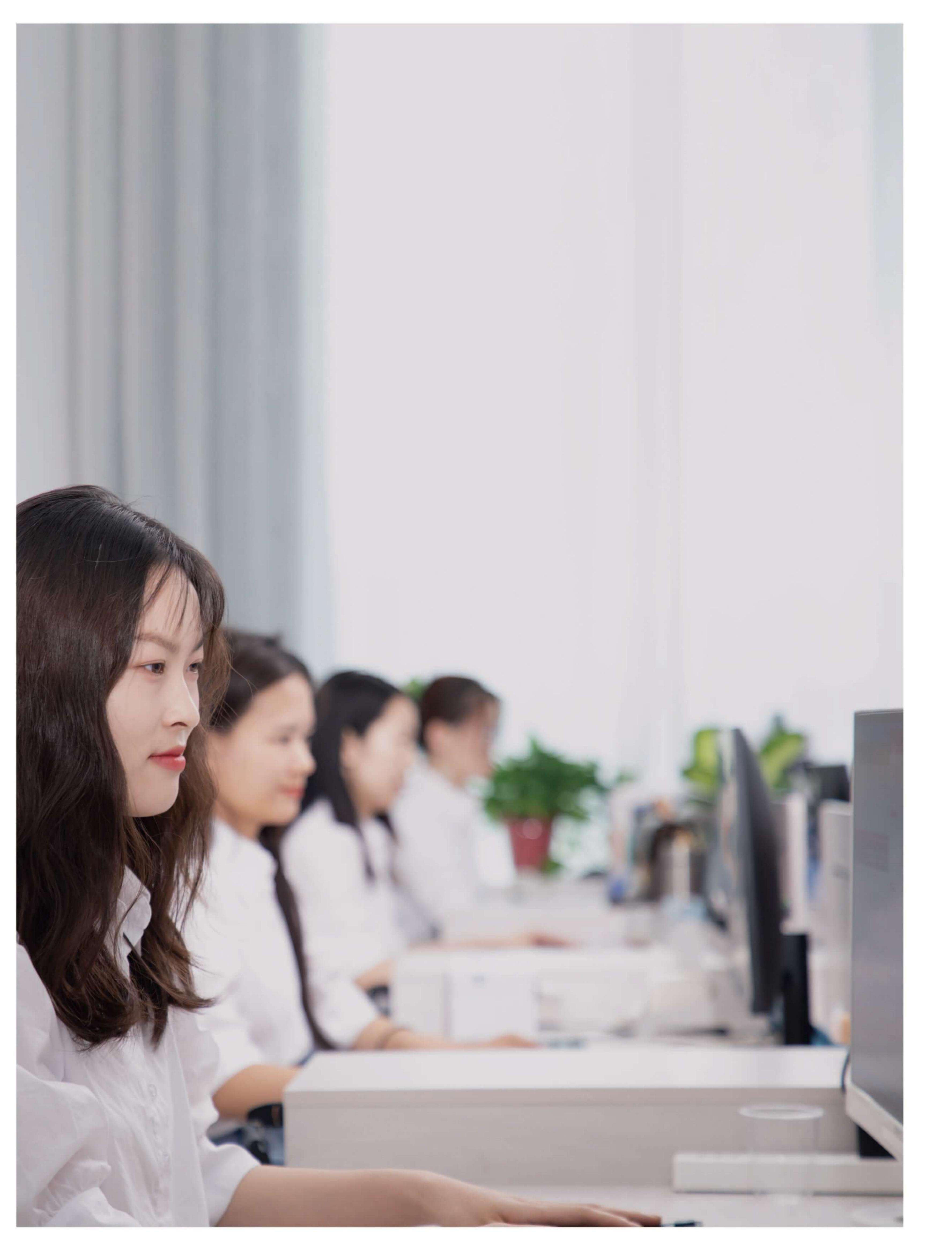
Lu'an, China in 2020

Pyrolysis plant 4\*BLJ-16









## BESTON SERVICE



#### PRE-SALES SERVICE

THERE ARE DEDICATED PROJECT CONSULTANTS

01

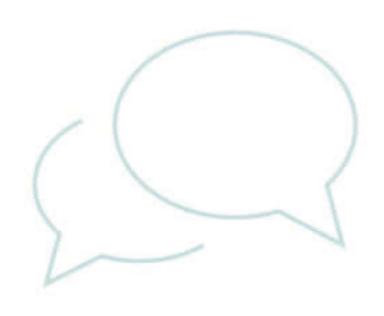
Know customer requirements in detail, and provide product configuration solutions for customers to choose;

02

Invite customers to visit Beston's production site or factory area, and introduce the whole process;

03

According to customer needs, introduce necessary supporting programs or financing programs.



#### DURNING PRODUCTION SERVICE

WITH A DEDICATED DELIVERY MANAGER

Provide customers with the production progress of products in the workshop in every Monday;





According to the demand, invite customers to the factory to verify the delivery before delivery;

Monitor the entire transportation process to ensure safety and timeliness;



Contact customers in advance to prepare auxiliary items needed on site to ensure production in a shorter time;

Provide layout, foundation, electric drawings and assemble drawing with the customer in advance, and guide the customer to do the civil work in advance to ensure the production in a shorter time.



#### AFTER-SALES SERVICE

DUAL SERVICE OF EXCLUSIVE DELIVERY MANAGER AND AFTER-SALES ENGINEER

#### 01.

On-site installation, commissioning and production, engineers escort the whole process;

#### 02.

Provide professional training to help customers develop on-site professional production and operation teams;

#### 03.

Continue to conduct on-site inspections for customers, know equipment conditions, and solve problems;

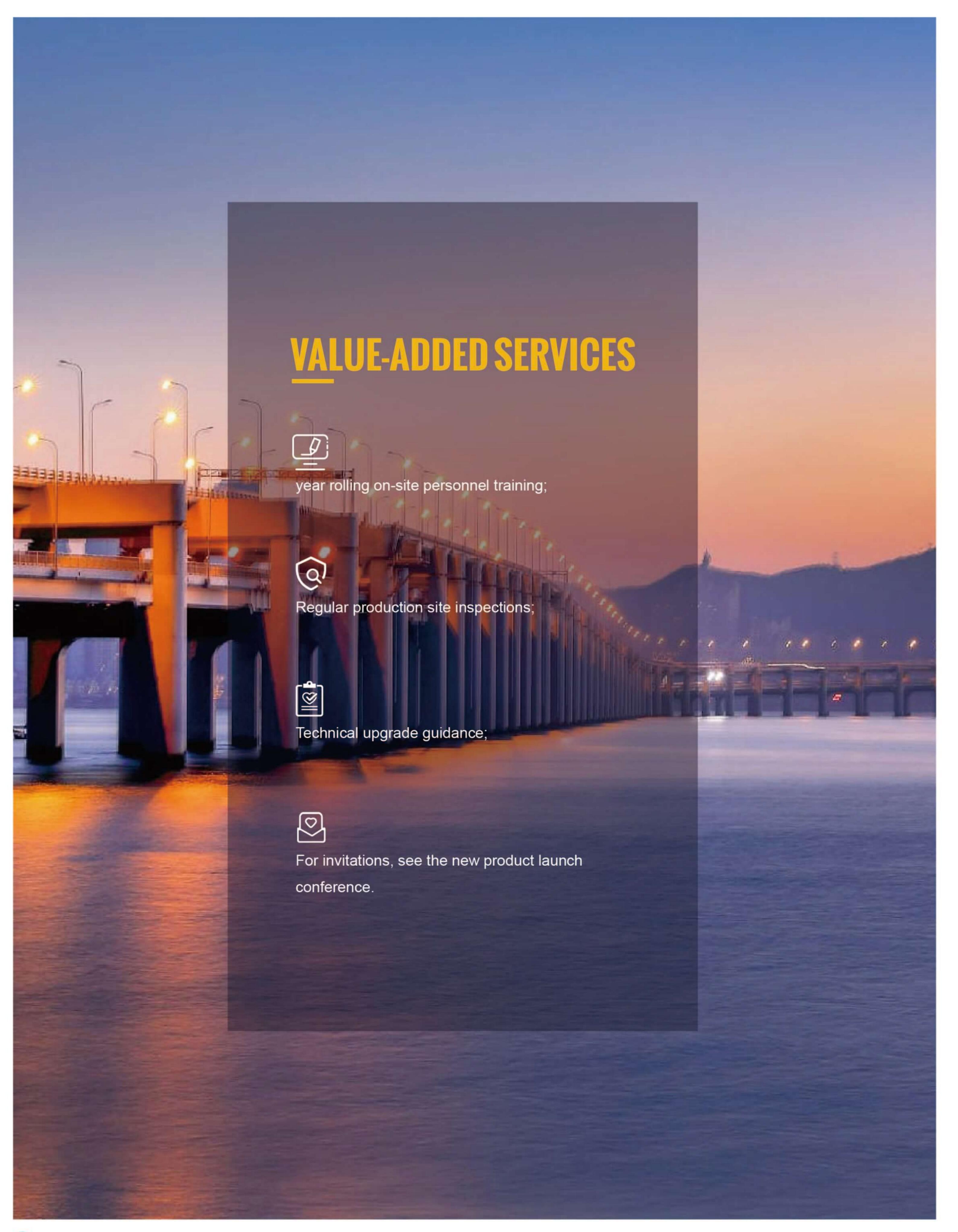
#### 04.

Delivery manager exclusive services, establish customer product use files, maintain customers regularly, maintain efficient communication, and solve problems for customers in a timely manner;

#### 05.

Provide spare parts for customers for life.





#### SERVICE MECHANISM



Parts supply guarantee system: delivery in the shortest time in a faster and more efficient way.



One-day response system: Troubleshooting control is completed within 24 hours.

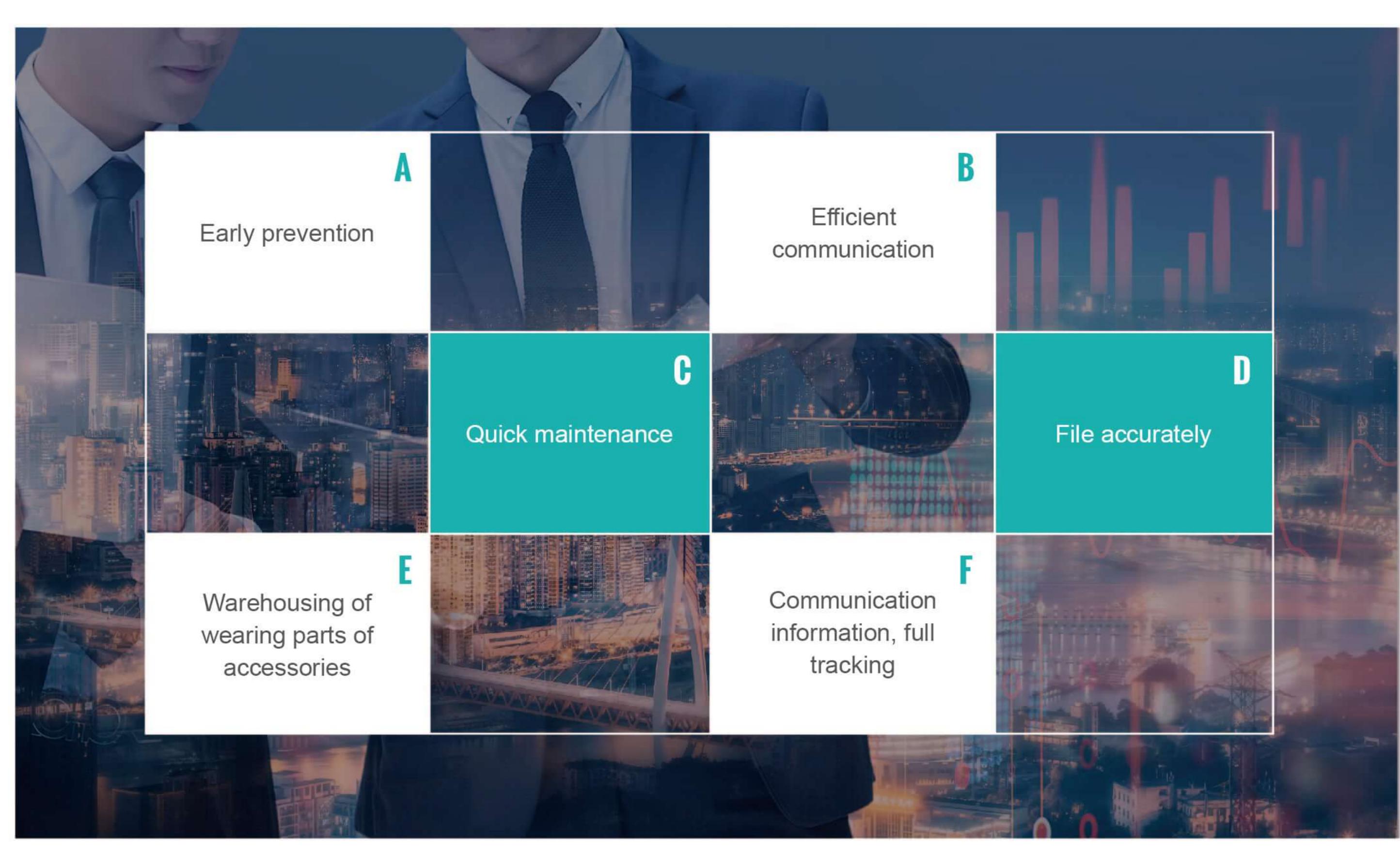


Double supervision system: The general manager and the marketing manager are double-supervised, providing green channels such as manpower, material resources, financial resources, technical guidance and accessories supply for the service.



Three-minute response system: The service personnel are required to contact the customer within 3 minutes after receiving the instruction to dispatch the work order.

#### SERVICE MANAGEMENT MODE



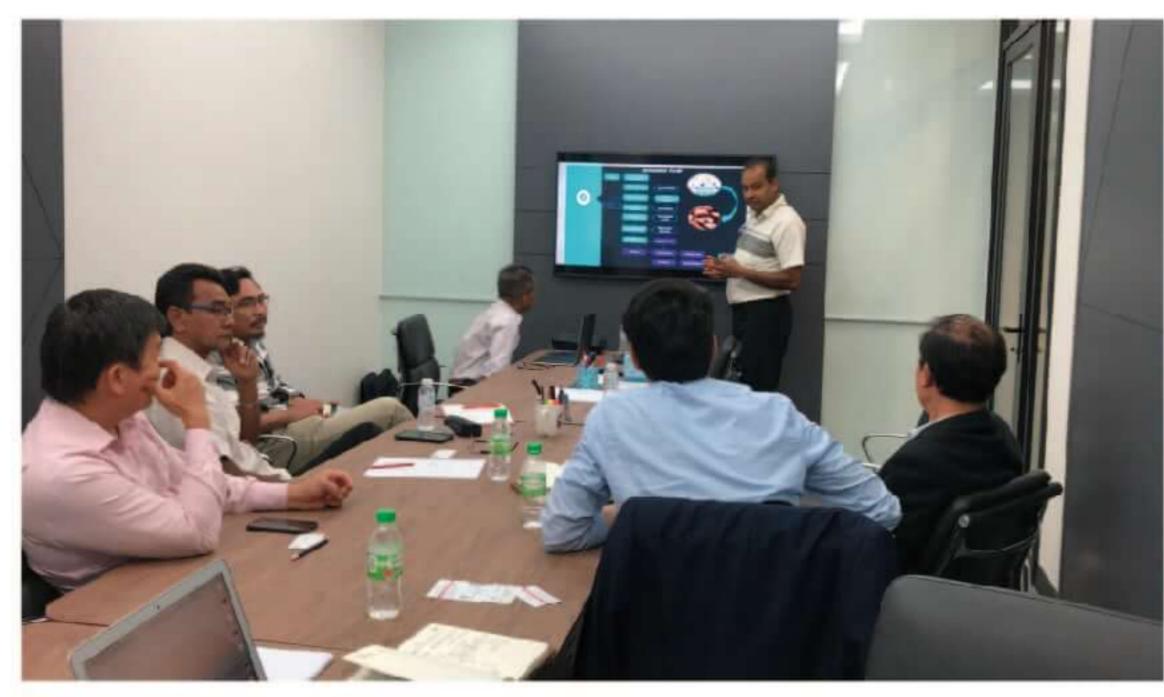








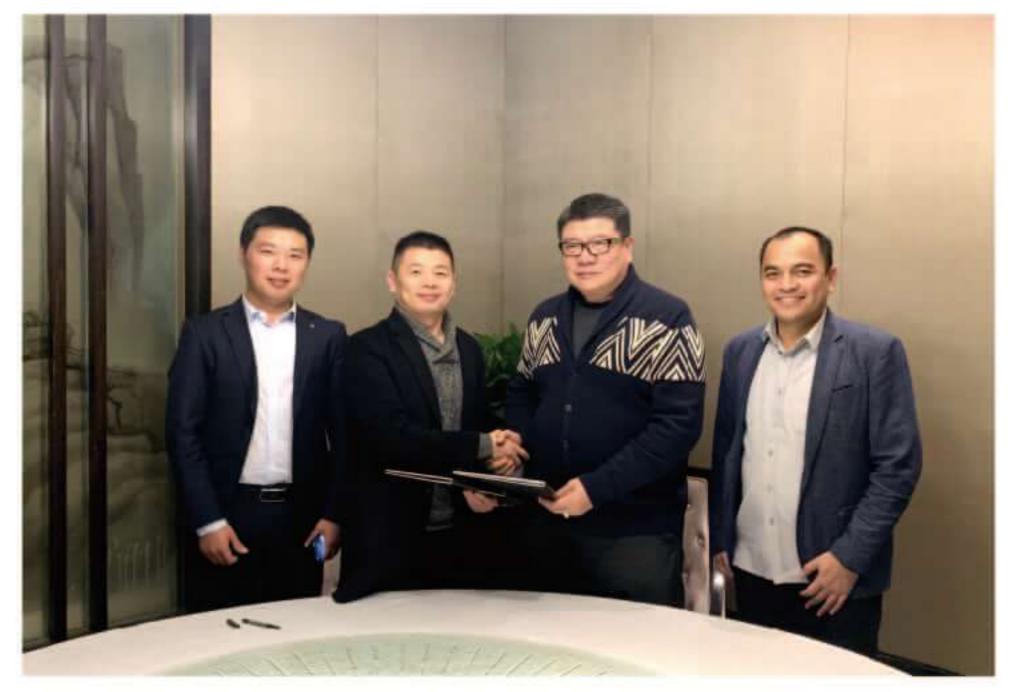




CONCENTRATION







SERVICE ABILITY





COHESION









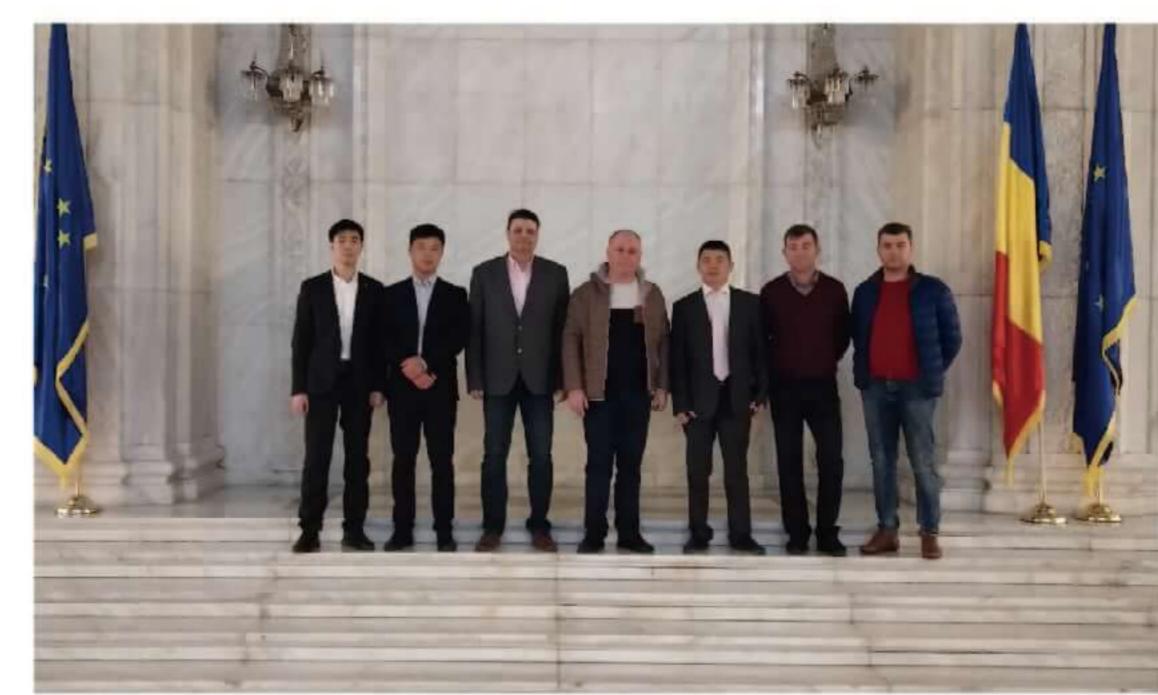








CREATIVITY











**BRAND FORCE** 







