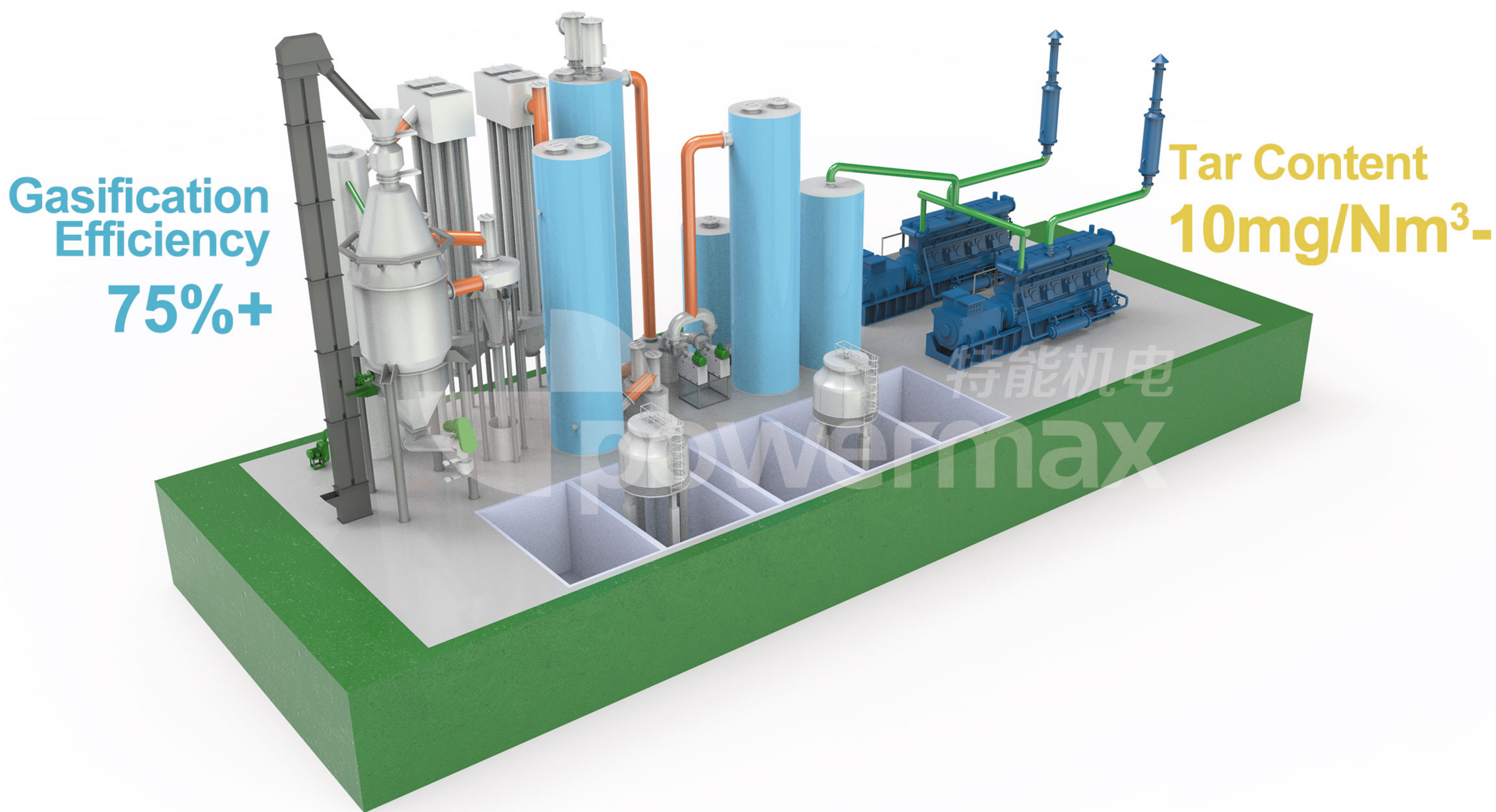


TFBG

TWIN-FIRE FIXED BED GASIFIER

- Unique Double Burning Bed Structure
- Gasification Efficiency 75%+, Tar Content $\leq 10\text{mg}/\text{Nm}^3$
- Flexible Scale from 100KW to 1MW
- High-gasification Efficiency to Ensure Low-tar Gas Output





Company Profile

Wuxi Teneng Power Machinery Co., Ltd. is located in Wuxi, a city with beautiful scenery and developed industry near the Tai Lake in Jiangsu. Our company was established in 2003, which has strong capabilities of technical R&D and professional processing. It is a group company which manufactures biomass gasification equipment, coal gasification equipment, garbage & sludge gasification equipment, and gas generator sets. The business covers: product design, R&D, manufacture, sales, project contracting, installation and debugging, project delivery, staff training, maintenance, and technical advice.

The main products of the company include: biomass gasification power generation systems, coal gasification power generation systems, biomass gasifiers (Fluidized Bed Gasifier, Updraft Fixed Bed Gasifier, Downdraft Fixed Bed Gasifier, and Twin-Fire Fixed Bed Gasifier), biomass boilers (Biomass Gasification Boiler, Biomass Fired Boiler), coal gasifiers (Single-Stage Coal Gasifier, Two-Stage Coal Gasifier, Twin-Fire Coal Gasifier and Fluidized Bed Gasifier), RDF gasification power generation systems, RDF gasifiers, sludge gasification power generation systems, sludge gasifiers, gas purification equipment, and all kinds of gas generator sets. For example: biomass gas generator sets, straw gas generator sets, producer gas generator sets, coke oven gas generator sets, coking gas generator sets, blue carbon gas generator sets, biogas generator sets, natural gas generator sets, methane gas generator sets, etc.

The company covers a total area of 8,000 m² (including a 2,000 m² office and 6,000 m² workshop) with more than 80 employees. Powermax lays emphasis on R&D and independent technology innovation. Our company has developed rapidly since establishment. We have a number of patents and other intellectual property rights, and we have also registered many independent brand trademarks.

With the long-term R&D in biomass gasification and power generation systems, our company has developed a series of gasification systems and purification systems with independent intellectual property rights and high efficiency, such as Downdraft Fixed Bed Gasifier, Updraft Fixed Bed Gasifier, Twin-Fire Fixed Bed Gasifier, Dry-Gas Purification system, High Voltage Electrostatic Precipitator for biomass gasifiers, High Voltage Electrostatic Tar Precipitator for biomass gasifiers, etc. Moreover, we have successfully developed a series of syngas generator sets and coal generator sets applicable to our gasification systems, such as 50 kw, 100 kw, 120 kw, 150 kw, 200 kw, 250 kw, 300 kw, 350 kw, 400 kw, 500 kw, 800 kw, 1000 kw, etc.

In the field of gas generator sets, the 160 and 300 series medium-speed mixed gas generator sets developed by our company have been successfully operated in the special industrial gases with high hydrogen content such as coking gas, coke oven gas and Orchid gas, which has been recognized and praised by customers.

The environment is getting worse and worse in recent years, and coal boilers have been vigorously prohibited across the country, so Powermax biomass gasifiers are researched and developed. The principle of biomass gasification boiler uses biomass gasifier to convert biomass into combustible gas, which is then connected to the gas boiler to generate steam or hot water through the purification system. At present, there have been a number of successful cases of the system, which have been recognized. They are vigorously promoting now.

All varieties of equipment of our company are widely used in Shandong, Henan, Zhejiang, Anhui, Jiangxi and are also exported to the Philippines, Cambodia, Myanmar, Thailand, Vietnam, Indonesia, India, Africa, Europe, South America, and other countries and regions.

Our company has ISO9001: 2008 International Quality Management System Certificate awarded by Royal U.K. UKAS Certification Authority, ISO14001: 2004 International Environmental Management System Certificate, and the EU export licensing CE Certificate, etc.

Apart from achieving [High-Quality Products], Wuxi Powermax Machinery Co., LTD also focused on [High-Quality Services] during the development of our company. We are devoting ourselves to provide better products and services to clients both at home and abroad with "mutual development with consumerism" as our company spirit, "practical work with credibility" as our working style, and "meet all the requirements of clients with perfect qualities" as our quality guide. Clients both at home and abroad are welcomed to achieve win-win cooperation for bright future.

CERTIFICATES & HONOR



New High-tech Enterprise Certificate



National Laboratory Wuxi Powermax Base



CE Certificate for Biomass Gasifier



CE Certificate for Gas Generator Sets



ISO9001



ISO14001

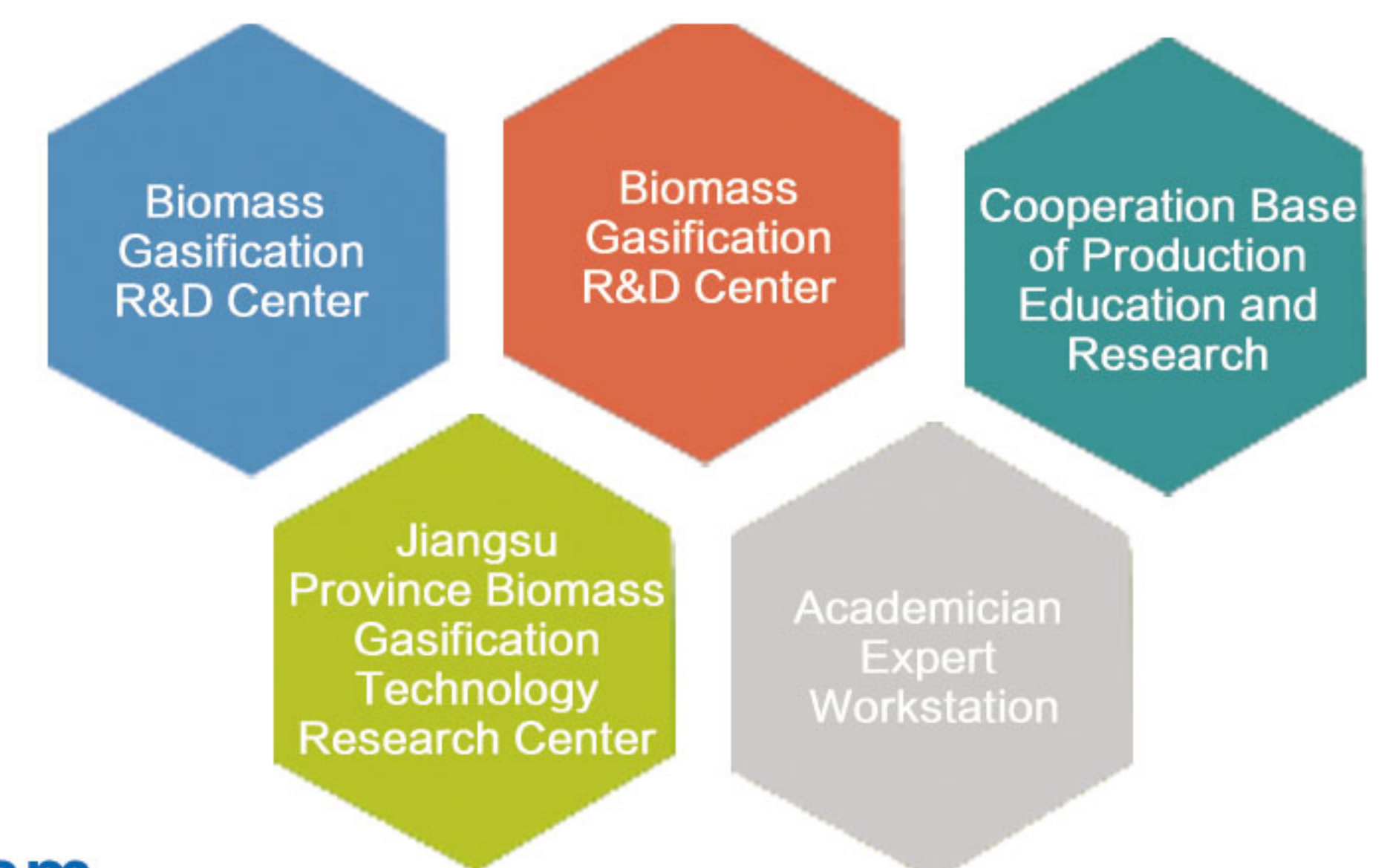


Patent for Invention

Patent for Utility Models

Powermax Leading Innovation Platform

Powermax has constructed a leading research and innovation platform. Through cooperation with scientific research institutes, our company has established the training base of powermax biomass gasification power generation system, and is planning to establish Jiangsu biomass gasification technology research center and academic expert work station through cooperation with university personnel training and industry, so as to the company's product technology is always leading in the industry.



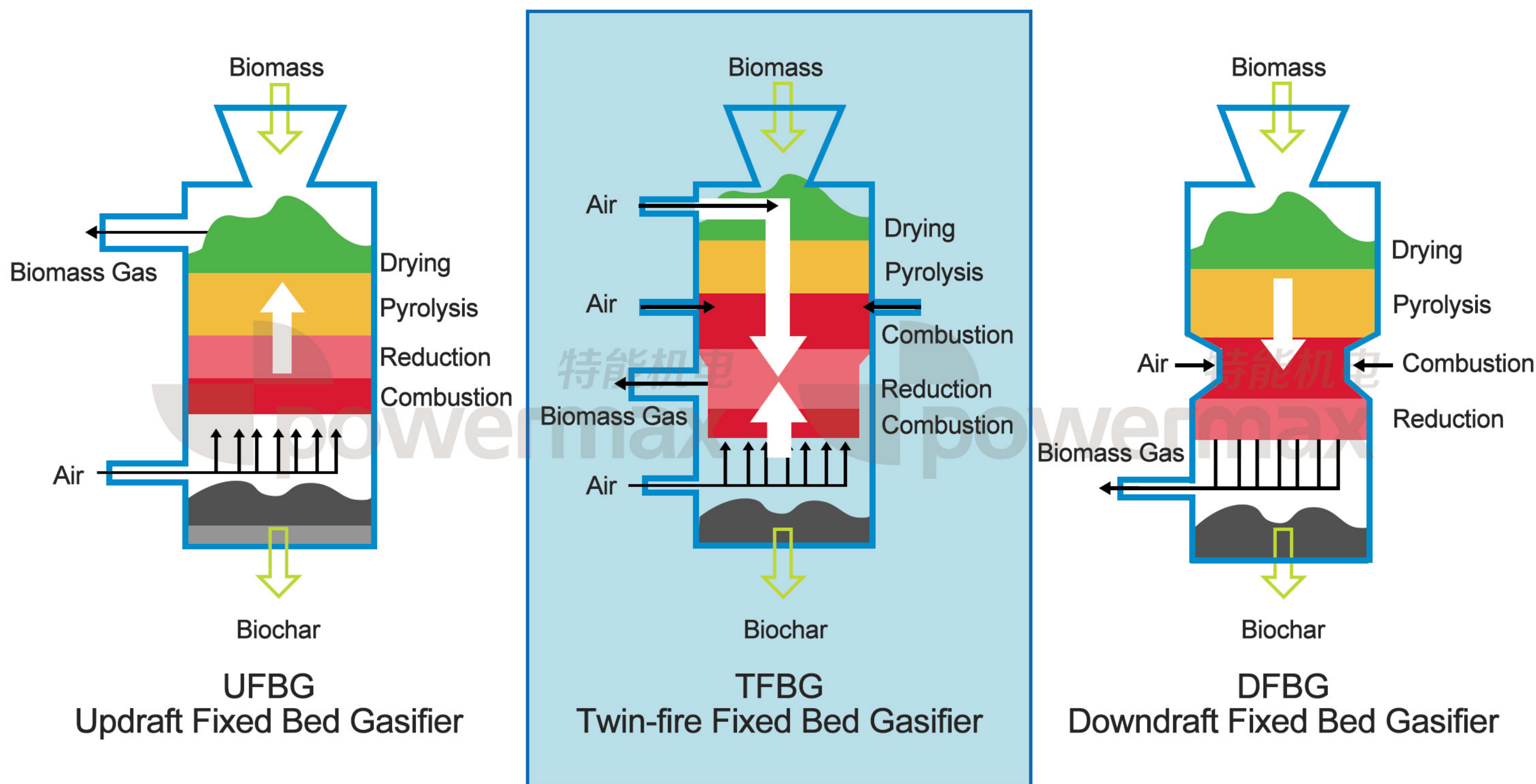
First-rate Research and Innovation Team

Powermax owns first-rate research and innovation team, which gathers professional technical talents and expert professors and consultants in various fields such as environment engineering, mechanical engineering, fluid mechanics, industry design and chemical material and has created a group of professional product and technical expert under the concept of "meeting customer's needs".



TFBG INTRODUCTION

POWERMAX Twin-Fire Fixed Bed Gasifier (TFBG), developed and researched independently by POWERMAX, is a high-efficient biomass fixed bed gasifier that combines the advantages of traditional Updraft Fixed Bed Gasifier (UFBG) and Downdraft Fixed Bed Gasifier (DFBG) and improves the disadvantages of the two gasifiers.



COMPARISON	ADVANTAGES	DISADVANTAGES
Traditional Updraft Fixed Bed Gasifier (UFBG)	High thermal efficiency	Dirty gas with much tar
Traditional Downdraft Fixed Bed Gasifier (DFBG)	Low thermal efficiency; clean gas with little tar	Low thermal efficiency
POWERMAX Efficient Twin-Fire Fixed Bed Gasifier (TFBG)	High thermal efficiency; clean gas with little tar	

Suitable Fuel:

Briquettes fuels like wood chip, rice husk block, straw block, coal, etc.



Wood Chip



Rice Husk Block

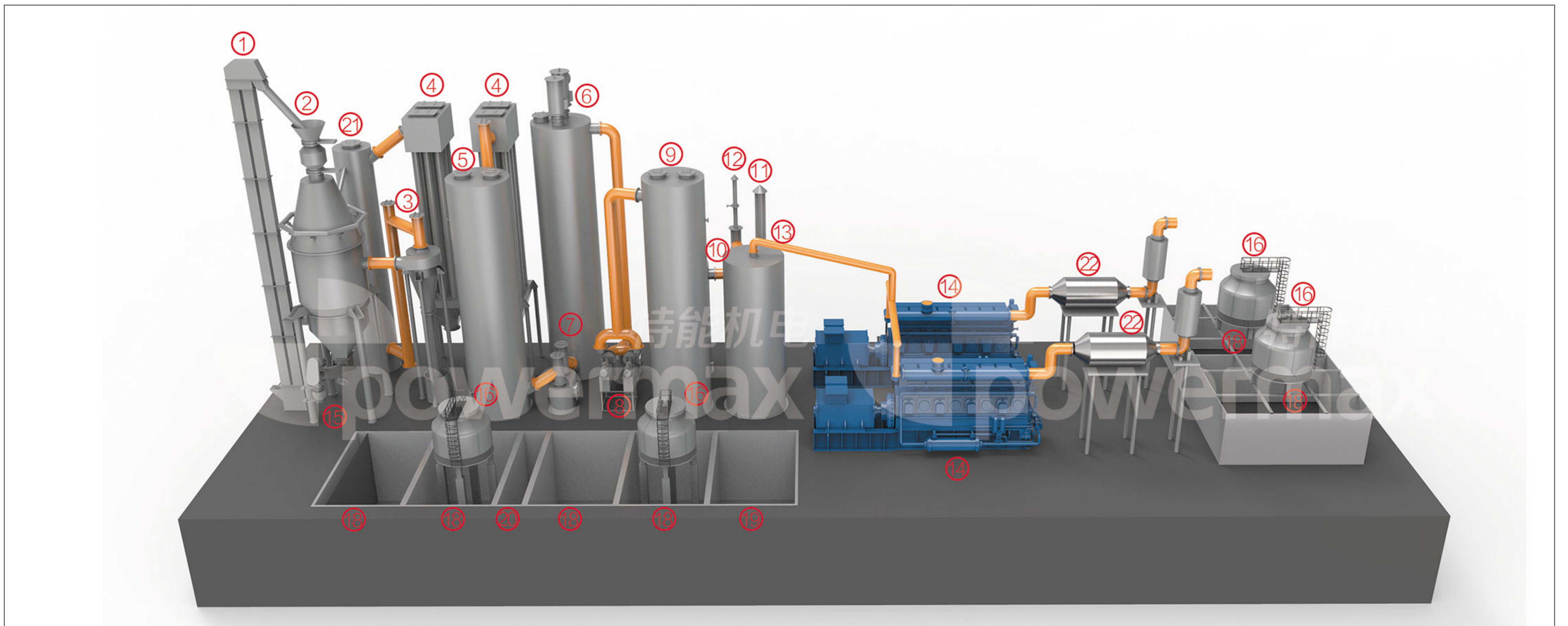


straw Block

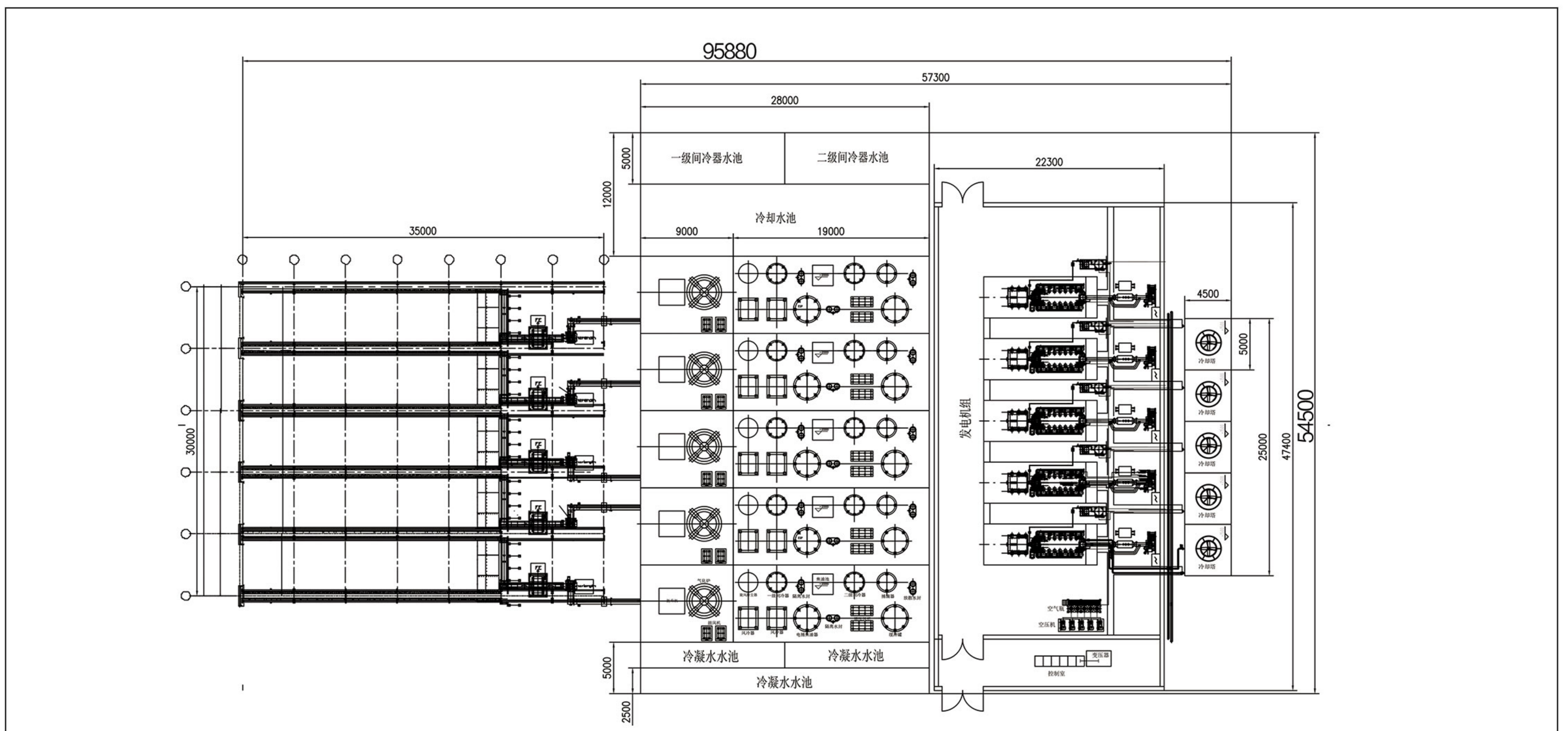


Coal

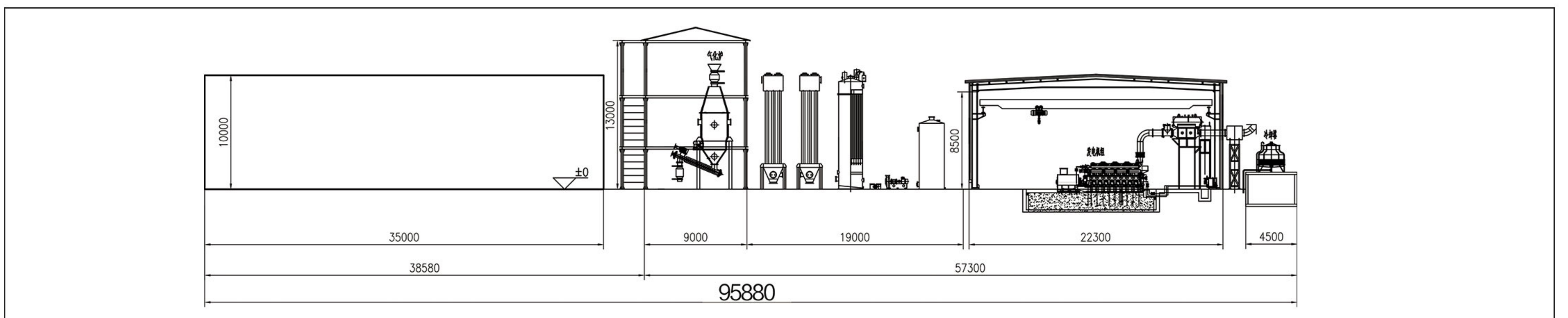
LAYOUT OF TWIN-FIRE FIXED BED GASIFICATION POWER GENERATION SYSTEM



3D Layout of 1MW Twin-Fire Fixed Bed Gasification Power Generation System



Floor Plan of 5MW Twin-Fire Fixed Bed Gasification Power Generation System
(only for reference; take the engineering diagram as criterion)



Elevation of 5MW Twin-Fire Fixed Bed Gasification Power Generation System
(only for reference; take the engineering diagram as criterion)

BENEFIT ANALYSIS

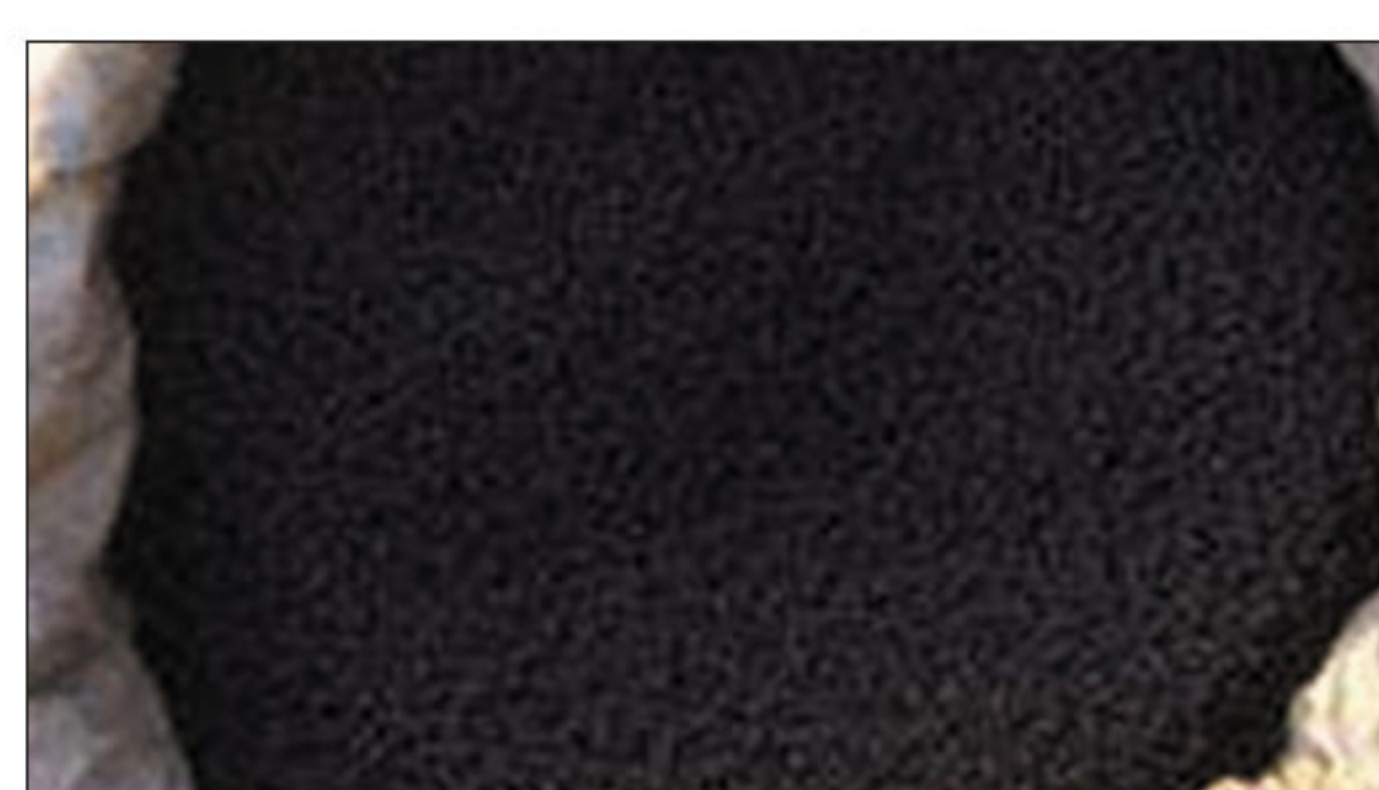
The biomass gasification polygeneration technology can efficiently transform the biomass into electric energy or thermal energy and simultaneously produce the biomass charcoal and the biomass wood vinegar. The electricity generated can be directly connected to the grid with a price subsidy of 0.75 yuan/KWH; Biochar can be used in production, barbecue charcoal and carbon base fertilizer and other products; The biomass extract obtained by purification of wood vinegar is widely used in pharmaceutical and food industries or as leaf fertilizer.

Take 5MW Biomass Wood Pyrolysis Gasification Co-generation of Electricity, Carbon, Liquid and Thermal System As An Example for Benefit Analysis

Project Name	Unit	Value	Comment
Consumption&Output			
Biomass Consumption	kg/h	5,000	
Generated Energy	kw	5,000	The long running load is 90%
Biochar Yield	kg/h	250	
Biomass Extract Yield	kg/h	500	
Steam Output	t/h	5	Waste heat utilization of generator sets
Hot Water Output	t/h	50	Transfer utilization of cylinder water and gas heat
Benefit Analysis			
Total Project Investment	USD	11,705,147.11	Differences due to different price of distinct area
Annual Running-time	h	7,500	
Self-consuming Electricity	%	10	
Fuel Cost	USD	1,646,036.31	43.89 USD/t
Staff Salary	USD	263,365.81	
Maintenance and Repair Costs	USD	117,051.47	
Oil Consumption	USD	93,641.18	1kwh consuming 1g engine oil
Equipment Amortization	USD	365,785.85	
Management Cost	USD	43,894.30	
Annual Total Cost	USD	2,529,774.92	
Annual Line Capacity	kwh	33,750,000	Self-consumption electricity
Annual Electricity Income	USD	3,703,215.92	0.11 USD/kwh
Annual Biochar Income	USD	411,143.29	Charcoal 219.47 USD/t
Annual Biomass Extract Income	USD	219,471.51	58.53 USD/t
Annual Steam Income	USD	1,097,357.54	29.26 USD/t
Annual Hot Water Income	USD	1,097,357.54	2.93 USD/t
Gross Annual Income	USD	6,528,545.80	
Annual Profit	USD	3,998,770.88	
Investment Payoff Period	year	3.4	Half a year construction period included



Biochar



Carbon Basal Fertilizer



Leaf Fertilizer



Insect Repellent

Powermax Project Presentation



South Africa Durban 1MW biomass gasification power generation station(scrap pallet wood)



Thailand Rayong 100kw biomass gasification power generation station(wood wastes-RDF)



Greece 1MW biomass gasification power generation station(wood chips)

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