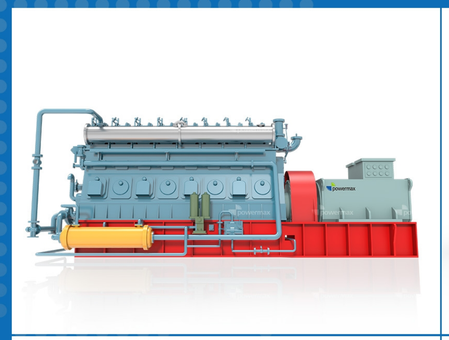
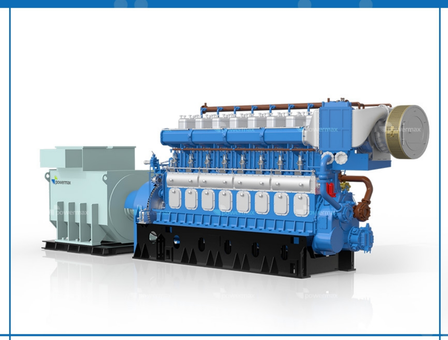
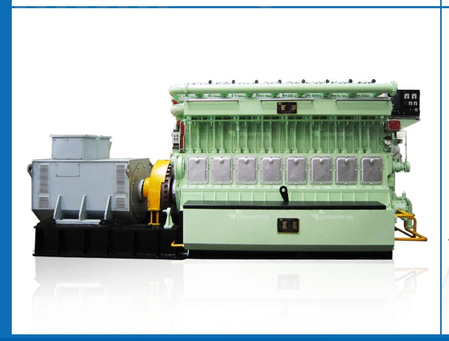
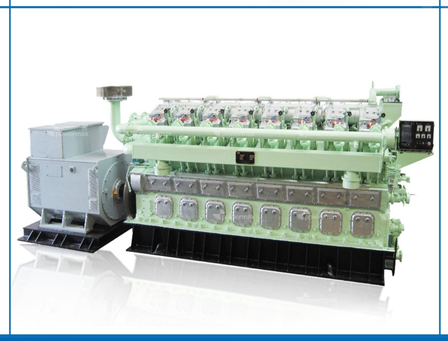
GREEN ENERGY POWER-PRODUCT INTRODUCTION FOR 300 SERIES GAS GENERATOR SET DIESEL/HFO/DUAL FUEL GENERATOR SET

2025/09/02

Wuxi Teneng Power Machinery Co.,Ltd.

Company Address: 6th floor, Chuangrong Building Block C, Danshan Road, Anzhen Street, Xishan District, Wuxi, Jiangsu, China.
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GENERATOR SET EXPERT
powermax

WUXI TENENG POWER MACHINERY CO.,LTD.

GENERATOR SET EXPERT

powermax

COMPANY PROFILE

Wuxi Teneng Power Machinery Co.,Ltd. was founded in 2003, which has a strong technical design, developing capabilities and professional processing capacity. It is a group company which manufactures all kinds of gas generator sets, HFO generator sets, dual fuel generator sets, biomass gasification power generation system, coal gasification power generation system, waste gasification power plant and so on.

The business covers: product design, R&D, manufacture, sales, project contracting, installation and debugging, project delivery, staff training, maintenance and technical advice.

The company's main products include: biomass gas generator sets, syngas generator sets, producer gas generator sets, pyrolysis gas generator sets, coke oven gas generator sets, coal bed methane gas generator sets, blue carbon gas generator sets, biogas generator sets, natural gas generator sets and LPG/Propane generator sets, etc.

The company covers a total area of 10,000 square meters (including 1,000 square meters of office and 6,000 square meters of workshop) with more than 80 employees.

RELIABLE COMPONENTS ENSURE HIGH AVAILABILITY

Heinzmann Ignition Control Systems(Germany)

Heinzmann Speed Governor (Germany)

Mecc Alte Alternator

ComAp Remote Control

ABB Turbocharger

Siemens Genertor

ComAp Dual Fuel Controller

DEIF Hybrid Controller

DEIF Genset Controller

ComAp CHP Controller

CERTIFICATES & HONOR

EU TEST

ATTESTATION OF CONFORMITY

Verification Number : TD15912404

Applicant's Name & Address : Wuxi Powermax Renewable Energy Technology Co.,Ltd. 4th Floor, Chuangrong Building Block C, Danshan Road, Anshen Street, Xishan District, Wuxi, Jiangsu,China

Manufacturer's Name & Address : Wuxi Teneng Power Machinery Co., Ltd 26 JINRUI RD, XIBEI TOWN, XISHAN DISTRICT, WUXI, CHINA

Product Name : Gas Generator Set

Product Model/Type (s) : 50GFLS, 100GFLS, 150GFLS, 200GFLS, 300GFLS, 350GFLS, 400GFLS, 500GFLS, 800GFLS, 1000GFLS, 1200GFLS, 1500GFLS, 1700GFLS, 1800GFLS, 2000GFLS, 2500GFLS, 3000GFLS;

Test Report Number : PR231225GGS-MD/LVD

Reference Standard(s) : EN ISO 12100:2010, EN 60204-1:2018

The technical file defined in

2006/42/EC Machinery Directive &

2014/35/EU Low Voltage Directive

has been prepared by the manufacturer for the above-mentioned product.

This document has been based in respect of voluntary basis and does not imply meeting Notified Body conformity assessment procedure.

Compliance of the product and documentation with the EU directives and standards is the responsibility of the manufacturer. Any significant changes in design and/or production of the product or amendments to the relevant EU directives or standards referred above may render this document invalid.

The manufacturer has voluntarily decided to submit its documents concerning the above-mentioned product for verification. Transmission, storage and protection of documents are the responsibility of the manufacturer, as it containing confidential data. The verification activity carried out exclusively concerned the technical documentation and no verification was carried out on the product. This document cannot replace the EC Declaration of Conformity.

The validity of this document can be verified on www.eutest.com.tr

Verification issue date : 03/01/2024

Verification expiry date : 02/01/2029

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Approval

EUTEST Belgelendirme Muayene ve Gözetim Hiz. Ltd. Şti.

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Tel: +90 216 540 49 59 Mobile: +90 530 014 49 59 E-mail: info@eutest.com.tr eutest.com.tr

INGEER CERTIFICATION ASSESSMENT SERVICES

ICAS 英格尔认证

ENVIRONMENTAL MANAGEMENT SYSTEM CERTIFICATE

Certification No: 117 24 EU 0048-05 R05

This is to certify that: WUXI TENENG POWER MACHINERY CO.,LTD.

Unified social credit code: 91320205748171184G

Registered Address: NO. 26 JINGRUI RD., XIBEI TOWN INDUSTRIAL PARK, XISHAN DISTRICT, WUXI, JIANGSU

Business Address: NO. 19 JINGSHI RD., XIBEI TOWN, XISHAN DISTRICT, WUXI, JIANGSU; BUILDING H, NO. 26 JINGRUI RD., XIBEI TOWN INDUSTRIAL PARK, XISHAN DISTRICT, WUXI, JIANGSU

The established MS conforms to: GB/T24001-2016/ISO14001:2015

Scope of approval: Manufacture and Sales of Biomass Pyrolysis & Gasification System, Biomass Power Generator Set

Signed by:

First Certification: 14 May 2024

Expiry Date: 13 May 2027

Shanghai Ingeer Certification Assessment Co.,Ltd.

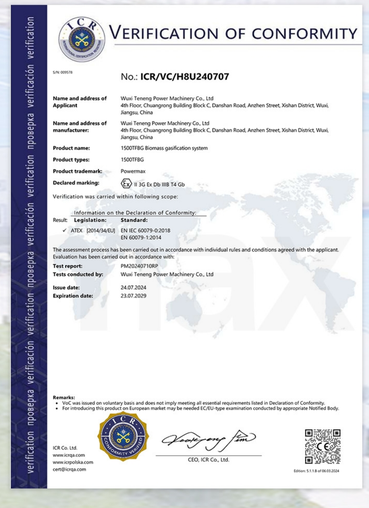
Certification and Accreditation Administration of PRC:CNCA-R-2015-117

Tel: 400-633-5001 / +86-021-51104700

Web: www.icpcisa.com

Add: Room 301 HuaQing Mansion, 3388# West Zhongshan Rd., Huhu District, Shanghai, China, 200235

The ownership of the certificate belongs to Shanghai Ingeer Certification Assessment Co., Ltd. The information & validation of this certificate can be checked on the CNCA website: WWW.CNCA.GOV.CN and ICAS website, or by calling ICAS's clients services Dept. The certificate is only valid provided both together with indeed patrols when appropriate. If the organization can't effectively maintain the above management system, ICAS has the right to withdraw the qualification certificate.



VERIFICATION OF CONFORMITY

S/N: 000078

No.: ICR/VC/H8U240707

Name and address of Applicant: Wuxi Teneng Power Machinery Co., Ltd 4th Floor, Chuangrong Building Block C, Danshan Road, Anshen Street, Xishan District, Wuxi, Jiangsu, China

Name and address of manufacturer: Wuxi Teneng Power Machinery Co., Ltd 4th Floor, Chuangrong Building Block C, Danshan Road, Anshen Street, Xishan District, Wuxi, Jiangsu, China

Product name: 150OTFBG Biomass gasification system

Product types: 150OTFBG

Product trademark: Powermax

Declared marking: Ex II 3G Ex Db IIIB T4 Gb

Verification was carried within following scope:

Information on the Declaration of Conformity:

Result	Legislation:	Standard:
✓	ATEX [2014/34/EU]	EN IEC 60079-0:2018 EN 60079-1:2014

The assessment process has been carried out in accordance with individual rules and conditions agreed with the applicant. Evaluation has been carried out in accordance with:

Test report: PM20240071089

Tests conducted by: Wuxi Teneng Power Machinery Co., Ltd

Issue date: 24.07.2024

Expiration date: 23.07.2029

Remarks:
- IVC was issued on voluntary basis and does not imply meeting all essential requirements listed in Declaration of Conformity.
- For introducing this product on European market may be needed EC/EU-type examination conducted by appropriate Notified Body.

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CEO, ICR Co., Ltd.

Edition: 5 / 1.8.e of 08.03.2024

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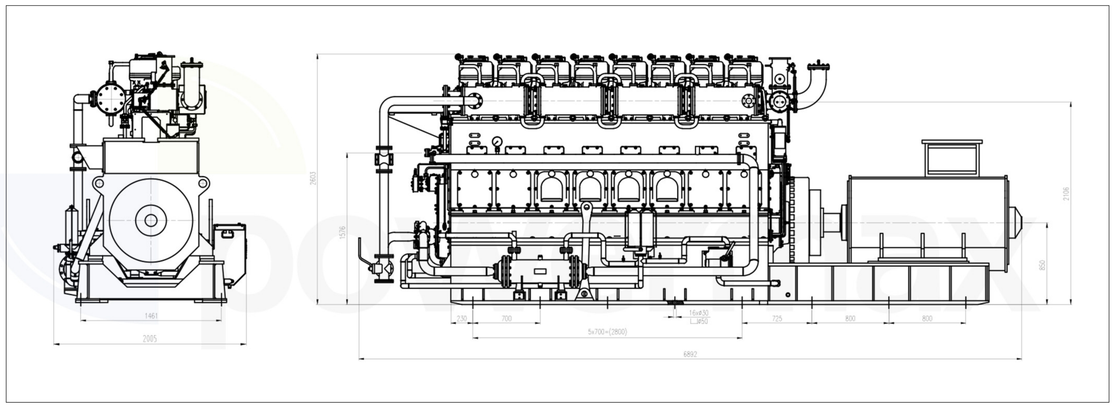
MAN · MWM Energy. Efficiency. Environment. · STEYR · DEUTZ · mecc alte · LEROY SOMER · Cummins · CNHTC 中国重汽 SINOTRUK · STAMFORD power generation · MOTORTECH · ABB · Schneider Electric · EATON · DEIF · ComAp · SIEMENS · 中国石油 · SINOPEC 中国石化 · NGK · PETROBANGLA · CNOOC 中国海油 · PDVSA · BOSCH · GRUNDFOS

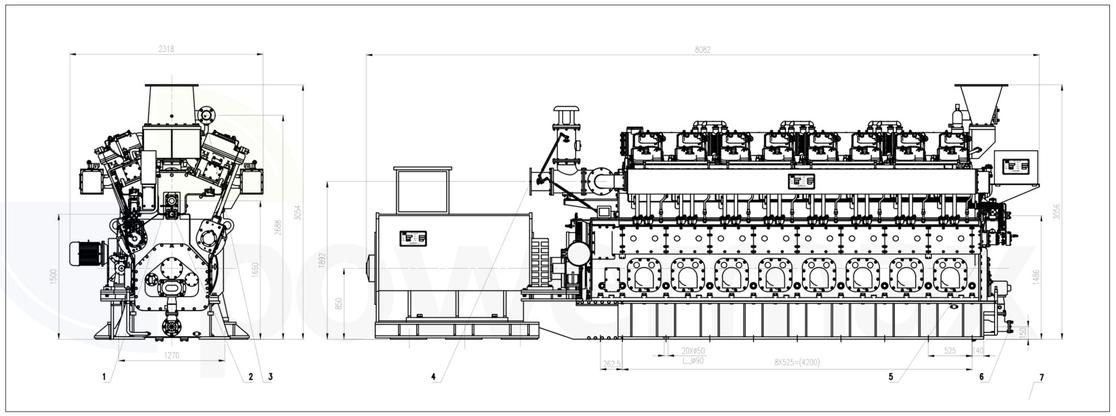
POWERMAX 300 SERIES GAS GENERATOR SETS

The 300 series gas generator sets are widely used in clean energy power generation and comprehensive utilization of waste heat, such as syngas, straw gas, coal gas, natural gas, biogas, blast furnace gas, coke oven gas, blue carbon gas, etc. The engine speed is mainly at 500r/min and 600r/min, and the power ranges from 400kW to 3000kW.

The 300 series gas generator sets use various combustible gas as raw materials for combustion to drive the engine to generate electricity. The engine is based on Xichai 300 diesel engine, combined with the advantages of the big engine bore and long stroke of 300 diesel engine. The generator sets have fully learned from the advanced gas engine technology both at home and aboard. Targeted improvement and R&D have been conducted to meet the requirements of all kinds of combustible gas to ensure the combustion function and reliability of gas engine. In this case, the generator sets can run more smoothly and run for a longer period under full load. Moreover, the grid connection can be more convenient, and the comprehensive efficiency of co-generation can be realized by utilizing waste heat. 300 series gas generator sets can output at high, medium, and low voltage, achieve automatic parallel and grid connection, and have become the most popular exported products among the same power.



Outline Dimensional Diagram of 8300 Gas Generator Sets
(only for reference; take the engineering diagram as criterion)



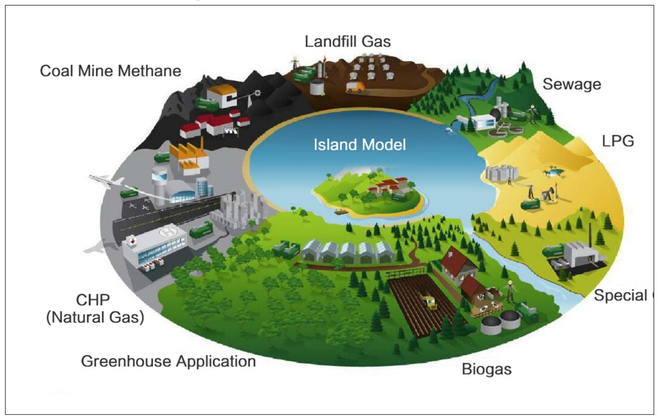
Outline Dimensional Diagram of 16V300 Gas Generator Sets
(only for reference; take the engineering diagram as criterion)

Technical Features

As a medium speed gas power generation product, 300 series gas engine set has obvious advantages compared with domestic similar products in practical application:

- Vailable for high, medium and low voltage output, which reduces initial investment and operating costs
  300 Series gas generator sets can be customerized into different voltage output at 220V,400V,440V,480V,6300V,6600V,10500V and 13800V, so that all kinds of requirements can be met, and the initial investemnt of transformers can be avoided, contributing to the reduction of copper losses and operating costs. Moreover, it can not only be connected to the grid, but also be used directly with load, which greatly improved the economic benefit of the genset.
- The output power of the set is ensured to be stable and steady with a big engine bore and long stroke
  The prime motor of 300 Series gas generator set is modified from 300-type diesel engine with engine bore of 300mm. It has the characteristics of the big engine bore, long stroke, low speed and large power reserve, and is more suitable for lower gas pressure than high-speed set. It is the best prime motor for gas generating set, and the output power of the set is stable.
- The span life is guaranteed by the low speed of the engine
  The main engine speed is 500rpm and 600rpm. The low rotational speed reduces the wear of the friction pair of engine parts, prolongs the service life of the parts, reduces the reserve of spare parts, and improves the economic benefit of the customers.
- The non-turbocharger naturally aspirated , which is applicable to various gas with low failure rate.
  With large displacement of the single cylinder of 300 Series gas genset, low pressure gas and air can be naturally aspirated by the prime motor (the pressure of the gas source only needs to be greater than 2kpa), which makes the gas genset has wider application scope and the low pressure transportation of the gas source safer. Self-aspirated intake gas directly enters into the combustion chamber after mixture without air intake parts like turbocharger and intercooler, contributing to the reduction of the failure rate.
- The in-line positive structure simplifies the engine layout with simple structure and convenient maintenance.
  The 300 Series gas engine is an in-line engine with large operating space for maintenance, especially for the crankshaft orthostatic structure. It can be solved at the customer' s site no matter the engine overhaul or crankshaft maintenance, which greatly saves maintenance time and cost. However, in terms of the national crankshaft upside-down structure of v-type high-speed machine, if it is not supported by professional overturning tools, it cannot be overhauled on the spot and must be returned to the manufacturer for maintenance.
- Safe and efficient gas utilization is ensured with multiple defences
  Advanced air-fuel ratio control technology ensures the engine with a more ideal mixture of air-gas intake ratio, the engine intake pipe is equipped with anti-explosion valve. Once tempering, it will automatically release pressure; The flame quenched and extinguished by the flame arrester installed on the pipe can prevent the flame from spreading, and the electromagnetic valve will quickly cut off the gas source to ensure the safety of the set.
- Recovery and utilization of waste heat to realize heat and power cogeneration
  The waste exhaust is connected with waste heat boiler of the engine to produce hot water or steam. The cooling circulation produces hot water, which can provide heating, bath, etc. Through comprehensive utilization, the comprehensive thermal efficiency of gas is over 70%, and the economic benefit is improved.
- Computer monitoring and management system can realize on-line monitoring and automatic control
  Through the computer monitoring system, the real-time control of on-line monitoring of operation data is realized, and the functions of automatic closing and grid connection, fault diagnosis, automatic adjustment of air-fuel ratio can also be realized, so that the remote management can be realized.

The flexibility of fuel-customerized solutions



Powermax Gas Engine – Wide Applicability of Feedstock

Blast-Furnace Gas	Syngas	Biomass Gas	Pro d ucer Gas	Pyrolysis Gas	Semi-Coke Gas
3.6–4.3MJ/Nm³	4.3–5.0MJ/Nm³	4.3–5.8MJ/Nm³	5.4–6.1MJ/Nm³	5.4–7.2MJ/Nm³	6.1–7.2MJ/Nm³
1.0–1.2kWh/Nm³	1.2–1.4kWh/Nm³	1.2–1.6kWh/Nm³	1.5–1.7kWh/Nm³	1.5–2kWh/Nm³	1.7–2.0kWh/Nm³

Coal Gas	Coke Gas	Landfill Gas	Biogas	Sewage Gas	Coal Bed Methane
14.7MJ/Nm³	17.3–18.7MJ/Nm³	18–20.9MJ/Nm³	20.5–23.4MJ/Nm³	24.5MJ/Nm³	34.5MJ/Nm³
4.1kWh/Nm³	4.8–5.2kWh/Nm³	5–5.8kWh/m³	5.7–6.5kWh/m³	6.8kWh/m³	9.6kWh/m³

Natural Gas	CNG	Coal Mine Methane	LPG	LNG	Propane
33.5–35.6MJ/Nm³	33.5–35.6MJ/Nm³	36–39.6MJ/Nm³	46.1–50.4MJ/kg	46.1–54.4MJ/kg	96.5–100.4MJ/Nm³
9.3–9.9kWh/m³	9.3–9.9kWh/m³	10–11kWh/m³	12.8–14kWh/kg	12.8–15.1kWh/kg	26.8–27.9kWh/m³

300 SERIES BIOMASS GAS GENERATOR SET

Equipment Introduction

The 300 series biomass gas generator set uses waste rice husk, straw, wood and other agricultural and forestry wastes as raw materials. The materials are pyrolyzed and gasified in biomass gasifier to produce combustible gas fuel and drive the engine to work. The utilization of rice husk, straw, wood chips and sawdust instead of expensive and tight petroleum resources has good comprehensive economic benefits, and can also eliminate environmental pollution due to direct combustion of rice husk and straws. The development and utilization of biomass energy with modern technology is of great significance to the establishment of energy system for the sustainable development, the promotion of social economic development and the improvement of ecological environment.

The power range of 300 Series biomass gasification generator set is 400 ~ 1000 kW, and the technical level reaches the advanced level in China.

Technical Features

- Single machine has high power with power range from 400kw ~ 1000kw;
- Non-turbocharged naturally aspirated, double tube gas intake system, and high resistance to tar;
- Removable intake valve kit convenient for maintenance;
- Select external mixing or internal mixing air intake system according to the hydrogen content;
- Adapt to low calorific value biomass gas and high hydrogen content;
- High automation and safety degree, low operating cost.

Application Gas Source Requirements

The gas shall be dedusted, tar removed, desulphurized, dehydrated and cooled before entering the engine, and shall meet the following requirements:

- Inlet gas temperature ⩽ 40 °C;
- Gas calorific value ⩾ 4.0 mg/Nm³;
- Gas pressure 2.5 ~ 10 kPa;
- Pressure change rate ⩽ 1 KPA/min,
- Water content ⩽ 40 g/Nm³, no free water;
- Dust content ⩽ 30 mg/Nm³;
- Dust particle size ⩽ 5 μm;
- Tar content ⩽ 50 mg/Nm³;
- Hydrogen sulfide content ⩽ 50 mg/Nm³;
- Total sulfur content ⩽ 100 mg/Nm³;
- Ammonia ⩽ 20 mg/Nm³;
- Chlorine ⩽ 50 mg/Nm³;
- Hydrogen volume ⩽ 50%;
- Oxygen Volume⩽ 1%.

300 Series 400–1000KW Biomass Gas Generator Set Technical Parameter (50HZ/60HZ)

	ITEM	TECHNICAL PARAMETER							
GENERATOR SET	Model of the Set	400GFLS		500GFLS		800GFLS		1000GFLS	
	Rated Power (kW)	400		500		800		1000	
	Rated Voltage (kV)	0.4	0.44	0.4	0.44	0.4	0.44	0.4	0.44
	Rated Current (A)	722	656	902	820	1443	1312	1804	1640
	Rated Frequency (HZ)	50	60	50	60	50	60	50	60
	Power Factor COS ¢	0.8 Lagging							
	Mode of Excitation	Brushless							
	Phase & Connection	3 Phases 4 Wires							
	Generator Model	1FC6 SIEMENS							
	Overall Dimensions (mm)	6500X1830X3100				8287X2421X2782			
	Net Weight (kg)	22000				40000			
ENGINE	Model of Engine	TNJD-8300Q1		TNJD-8300Q2		TNJD-16V300Q1		TNJD-16V300Q2	
	Mode	Water cooled, four-stroke, spark plug ignition, open combustion chamber							
		Non-turbocharged naturally aspirated							
	Arrangement of Cylinder	L-8				V-16			
	Cyclinder Diameter (mm)	300							
	Stroke (mm)	380							
	Rated Power (kW)	440		550		880		1100	
	Speed (r/min)	500	514	600		500	514	600	
	Direction of rotation (from the end of the flywheel)	Anticlockwise							
	Start-up Mode	Compressed Air							
	Exhaust temperature of each cylinder (℃)	⩽580							
	Gas inlet temperature (℃)	⩽40							
	Gas Pressure (kPa)	⩾2.5							
	Oil Consumption (g/kWh)	⩽1.0							

Powermax also can supply 220V,480V,6300V,6600V,10500V and 13800V electric output generator sets.

300 SERIES INDUSTRIAL TAIL GAS GENERATOR SET

Equipment Introduction

Refining and Chemical production companies like shale oil, blue charcoal, coke, calcium carbide, ferroalloy, etc. will produce great amount of industrial tail gas with low calorific value during the production. Hydrogen and carbon monoxide are the main composition of the combustible gas which is complex, impurified, unstable, toxic, flammable, and explosive. Apart from a small proportion used by the factories on their own, the most part of the gas is wasted by combustion.

For this kind of gas, Wuxi Teneng Power Machinery Co., Ltd., based on gas combustion engine, has developed high-power generator set applicable for various industrial tail gas like coke oven gas, producer gas, semi-coke gas, Oil shale tail gas, calcium carbide tail gas, ferroalloy tail gas, etc. with the power range from 500 to 1,200 kW. With combustible coke oven gas, waste can be turned into treasure, which can not only solve the air pollution but also save power resources.

Technical Features

- It has strong adaptability to hydrogen and carbon monoxide gas, and has a wide range of applications.
- Good tolerance for impurities such as tar, dust, sulfur and naphthalene in refining gas;
- Gas mix with the air inside cylinder; no tempering problem with high hydrogen gas; high safety
- The automatic adjustment of air-fuel ratio has strong adaptability to gas fluctuation and stable power output.
- Functions of high degree of automation, with one-click startup, automatic closing, loading, etc.;
- Long annual running time, low failure rate, long overhaul period, and low running cost.

Application Gas Source Requirements

The gas shall be dedusted, tar removed, desulphurized, dehydrated and cooled before entering the engine, and shall meet the following requirements:

- Inlet Gas temperature ⩽ 40 °C
- Gas pressure 2.5~10kPa
- Pressure change rate ⩽ 1kPa/min
- Gas calorific value ⩾ 4.0MJ/Nm³
- Moisture Content ⩽ 40g/Nm³, without free water
- Dust content ⩽ 30 mg/Nm³;
- Dust particle size ⩽ 5 μm;
- Tar content ⩽ 50 mg/Nm³;
- Hydrogen sulfide content ⩽ 50 mg/Nm³;
- Total sulfur content ⩽ 100 mg/Nm³;
- Ammonia content ⩽ 20mg/Nm³
- Benzene content ⩽ 50mg/Nm³
- Naphthalene content ⩽ 50mg/Nm³
- Hydrogen volume content ⩽ 60%
- Volume content of oxygen with Hydrogen ⩽ 1%

300 Series 500-1200kW Industrial Tail Gas Generator Set Technical Parameter (50/60HZ)

	ITEM	TECHNICAL PARAMETER							
GENERATOR SET	Model of the Set	500GFLS		600GFLS		1000GFLS		1200GFLS	
	Rated Power (kW)	500		600		1000		1200	
	Rated Voltage (kV)	0.4	0.44	0.4	0.44	0.4	0.44	0.4	0.44
	Rated Current (A)	902	820	1083	984	1804	1640	2165	1968
	Rated Frequency (HZ)	50	60	50	60	50	60	50	60
	Power Factor COS ¢	0.8 Lagging							
	Mode of Excitation	Brushless							
	Phase & Connection	3 Phases 4 Wires							
	Generator Model	1FC6 SIEMENS							
	Overall Dimensions (mm)	6500X1830X3100				8287X2421X2782			
	Net Weight (kg)	22000				40000			
ENGINE	Model of Engine	TNJD-8300Q2		TNJD-8300Q3		TNJD-16V300Q2		TNJD-16V300Q3	
	Mode	Water cooled, four-stroke, spark plug ignition, open combustion chamber							
		Non-turbocharged naturally aspirated							
	Arrangement of Cylinder	L-8				V-16			
	Cyclinder Diameter (mm)	300							
	Stroke (mm)	380							
	Rated Power (kW)	550		660		1100		1320	
	Speed (r/min)	500	514	600		500	514	600	
	Direction of rotation (from the end of the flywheel)	Anticlockwise							
	Start-up Mode	Compressed Air							
	Exhaust temperature of each cylinder (℃)	⩽580							
	Gas inlet temperature (℃)	⩽40							
	Gas Pressure (kPa)	⩾2.5							
	Oil Consumption (g/kWh)	⩽1.0							

Powermax also can supply 220V,480V,6300V,6600V,10500V and 13800V electric output generator sets.

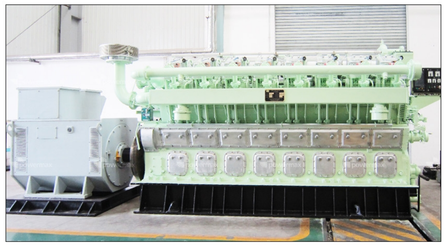
300 SERIES SYNGAS GENERATOR SET

(Gas with low heat value produced by biomass, coal, waste after pyrolysis, carbonization, and gasification)

Equipment Introduction

The 300 Series syngas generator set uses biomass, coal and waste MSW or waste RDF as raw materials and produces syngas through pyrolysis, carbonization, and gasification to drive the engine. The exploitation and utilization of biomass, coal and RDF instead of valuable oil resources have good comprehensive economic benefits, and at the same time, it can eliminate the pollution caused by direct incineration of biomass, coal, RDF, etc. It is of great significance to develop and utilize biomass, coal and MSW with modern technology for the establishment of energy system of sustainable development, the promotion of social economic development and the improvement of ecological environment.

The power range of 300 Series syngas generator sets is 400 kW -1200 kW, and the technical level reaches the advanced level in China.



Technical Features

- Single machine has high power with power range 400kw ~ 1200kw;
- Non-turbocharged naturally aspirated, double tube gas intake system, and high resistance to tar;
- Removable intake valve kit convenient for maintenance;
- Select external mixing or internal mixing air intake system according to the hydrogen content;
- Adapt to low calorific value syngas with high hydrogen content;
- High automation, high safety, and low operating cost.

Application Gas Source Requirements

The gas shall be dedusted, tar removed, desulphurized, dehydrated and cooled before entering the engine, and shall meet the following requirements:

- Inlet gas temperature ⩽ 40 °C;
- Gas calorific value ⩾ 4.0 mg/Nm³;
- Gas pressure 2.5 ~ 10 kPa;
- Pressure change rate ⩽ 1 KPA/min,
- Water content ⩽ 40 g/Nm³, no free water;
- Dust content ⩽ 30 mg/Nm³;
- Dust particle size ⩽ 5 μm;
- Tar content ⩽ 50 mg/Nm³;
- Hydrogen sulfide content ⩽ 50 mg/Nm³;
- Total sulfur content ⩽ 100 mg/Nm³;
- Ammonia ⩽ 20 mg/Nm³;
- Chlorine ⩽ 50 mg/Nm³;
- Hydrogen volume ⩽ 50%;
- Oxygen Volume⩽ 1%.

300 Series 400–1000KW Syngas Generator Set Technical Parameter (50HZ/60HZ)

	ITEM	TECHNICAL PARAMETER											
GENERATOR SET	Model of the Set	400GFLS		500GFLS		600GFLS		800GFLS		1000GFLS		1200GFLS	
	Rated Power (kW)	400		500		600		800		1000		1200	
	Rated Voltage (kV)	0.4	0.44	0.4	0.44	0.4	0.44	0.4	0.44	0.4	0.44	0.4	0.44
	Rated Current (A)	722	656	902	820	1083	984	1443	1312	1804	1640	2165	1968
	Rated Frequency (HZ)	50	60	50	60	50	60	50	60	50	60	50	60
	Power Factor COS ¢	0.8 Lagging											
	Mode of Excitation	Brushless											
	Phase & Connection	3 Phases 4 Wires											
	Generator Model	1FC6 SIEMENS											
	Overall Dimensions (mm)	6500X1830X3100						8287X2421X2782					
	Net Weight (kg)	22000						40000					
ENGINE	Model of Engine	TNJD-8300Q1		TNJD-8300Q2				TNJD-16V300Q1		TNJD-16V300Q2			
	Mode	Water cooled, four-stroke, spark plug ignition, open combustion chamber											
		Non-turbocharged naturally aspirated											
	Arrangement of Cylinder	L-8						V-16					
	Cyclinder Diameter (mm)	300											
	Stroke (mm)	380											
	Rated Power (kW)	440		550		660		880		1100		1320	
	Speed (r/min)	500	514	600		600		500	514	600		600	
	Direction of rotation (from the end of the flywheel)	Anticlockwise											
	Start-up Mode	Compressed Air											
	Exhaust temperature of each cylinder (℃)	⩽580											
	Gas inlet temperature (℃)	⩽40											
	Gas Pressure (kPa)	⩾2.5											
	Oil Consumption (g/kWh)	⩽1.0											

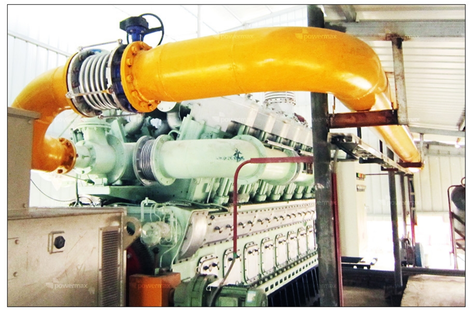
Powermax also can supply 220V,480V,6300V,6600V,10500V and 13800V electric output generator sets.

300 SERIES COAL BED METHANE GAS GENERATOR SET

Equipment Introduction

300 series methane gas generator power range of 400kW to 1200kW and are suitable for the power generation of coal mine methane gas with methane concentration greater than 8%. The power output is constant and can be operated in single unit or in parallel with multiple units.

At present, it has been widely used in major domestic coal mines.



Technical Features

- Low concentration methane gas water mist conveying system with multi-level fire protection, explosion venting, explosion suppression and explosion-proof protection to ensure the safety conveying of low concentration methane gas;
- The use of electric mixer, closed-loop automatic control technology, to achieve real-time air-fuel ratio adjustment, good gas adaptability and power output stability;
- With a key start, automatic closing and loading function, high degree of automation;
- The unit can run continuously at full capacity with annual running time of 7500 hours and high power generation benefit;
- Low failure rate, long overhaul period and low operating cost.

Security Function of Coal Bed Methane Gas Safety Transportation System

- Wet water low level alarm and protection
- Wet water seal automatic replenishment system
- Gas pipeline gas concentration real-time detection and low gas concentration alarm
- Ambient gas concentration real-time detection and high gas concentration alarm
- High gas concentration power off protection
- Main and standby water pump fault alarm and automatic switchover protection
- Water pool low water level alarm

Set Application Gas Source Requirements

- Gas temperature⩽40°C
- Gas pressure 2.5~10kPa
- Pressure change rate ⩽1 kPa/min
- Methane content⩾8%, methane and oxygen⩾26%, oxygen⩾16%
- Methane concentration change rate⩽2%/min
- Moisture content⩽40g/Nm³, no free water
- Impurity content ⩽30mg/Nm³
- Impurity size⩽5μm
- Sulfur content⩽100mg/Nm³

300 Series 500-1000kW Coal Bed Methane Gas Technical Parameter (50HZ/60HZ)

	ITEM	TECHNICAL PARAMETER							
GENERATOR SET	Model of the Set	500GFLS		600GFLS		800GFLS		1000GFLS	
	Rated Power (kW)	500		600		800		1000	
	Rated Voltage (kV)	0.4	0.44	0.4	0.44	0.4	0.44	0.4	0.44
	Rated Current (A)	902	820	1083	984	1443	1312	1804	1640
	Rated Frequency (HZ)	50	60	50	60	50	60	50	60
	Power Factor COS ¢	0.8 Lagging							
	Mode of Excitation	Brushless							
	Phase & Connection	3 Phases 4 Wires							
	Generator Model	1FC6 SIEMENS							
	Overall Dimensions (mm)	6500X1830X3100				6500X1830X3100			
	Net Weight (kg)	22000				25000			
ENGINE	Model of Engine	TNJD-8300Q2		TNJD-8300Q3		TNJD-8300Q4T		TNJD-8300Q5T	
	Mode	Water cooled, four-stroke, spark plug ignition, open combustion chamber							
		Non-turbocharged naturally aspirated				Turbocharged			
	Arrangement of Cylinder	L-8				L-8			
	Cyclinder Diameter (mm)	300							
	Stroke (mm)	380							
	Rated Power (kW)	550		660		880		1100	
	Speed (r/min)	500	514	600		500	514	600	
	Direction of rotation (from the end of the flywheel)	Anticlockwise							
	Start-up Mode	Compressed Air							
	Exhaust temperature of each cylinder (℃)	⩽580							
	Gas inlet temperature (℃)	⩽40							
	Gas Pressure (kPa)	⩾2.5							
	Oil Consumption (g/kWh)	⩽1.0							

Powermax also can supply 220V,480V,6300V,6600V,10500V and 13800V electric output generator sets.

190 SERIES NATURAL GAS/BIOGAS GENERATOR SET

Technical Features

In cooperation with America WOODWARD company, powermax has developed a pre-booster hybrid gas engine by adopting advanced international gas-fired hybrid methods and using advanced electronic control technology and lean-burn control strategies. This series of products has been put on the market nearly a thousand units, high cost performance, with good control and reliability.

190 Series 400-1000KW Natural Gas/Biogas/Generator Set Technical Parameter (50HZ)

ITEM		TECHNICAL PARAMETER				
GENERATOR SET	Model of the Set	400GFLS	500GFLS	600GFLS	700GFLS	1000GFLS
	Rated Power (kW)	400	500	600	700	1000
	Rated Voltage (kV)	0.4	0.4	0.4	0.4	0.4
	Rated Current (A)	722	902	1083	1263	1804
	Rated Frequency (HZ)	50	50	50	50	50
	Power Factor COS ¢	0.8 Lagging				
	Mode of Excitation	Brushless				
	Phase & Connection	3 Phases 4 Wires				
	Generator Model	1FC6 SIEMENS				
	Overall Dimensions (mm)	5120X2040X2195		5120X2040X2780		6000X2300X2800
	Net Weight (kg)	12000				15000
ENGINE	Model of Engine	TNJD-12V190		TNJD-12V190T		TNJD-12V190DT
	Mode	V-type, water cooled, four-stroke, spark plug ignited, precombustion chamber rarefied				
		Naturally aspirated		Turbocharged, intercooled		
	Arrangement of Cylinder	V-12				
	Cyclinder Diameter (mm)	190				
	Stroke (mm)	210				
	Rated Power (kW)	440	550	660	770	1100
	Speed (r/min)	1000	1000	1000	1000	1000
	Direction of rotation (from the end of the flywheel)	Anticlockwise				
	Exhaust temperature of each cylinder (°C)	≤650				
	Gas inlet temperature (°C)	≤40				
	Gas Pressure (kPa)	≥2.5				
	Oil Consumption (g/kWh)	≤1.0				

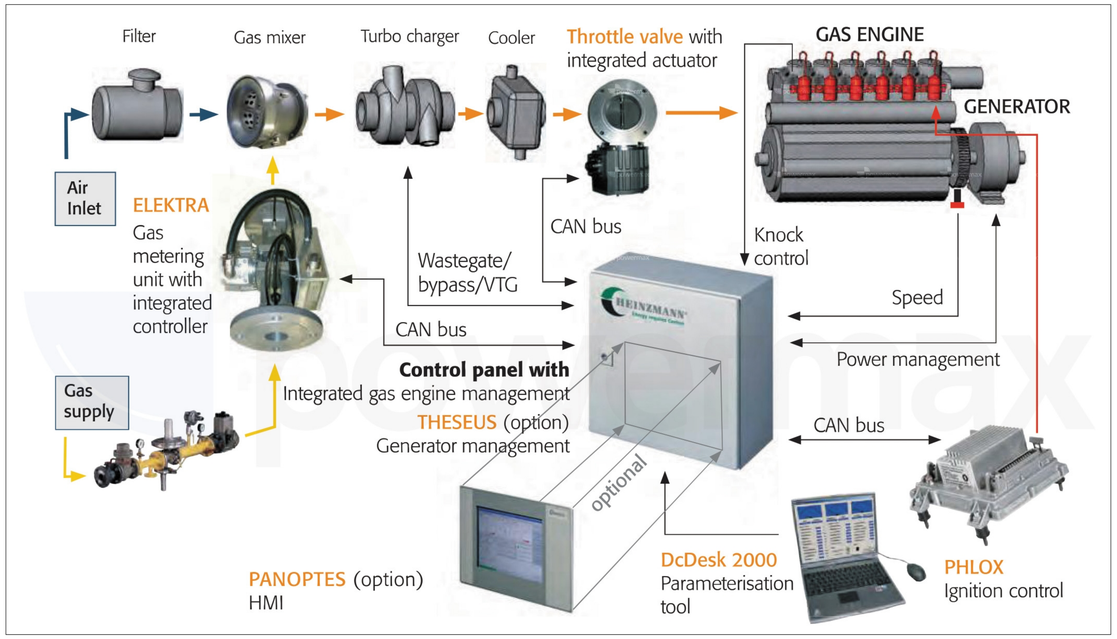
190 Series 400-1200KW Natural Gas/Biogas/Generator Set Technical Parameter (60HZ)

ITEM		TECHNICAL PARAMETER				
GENERATOR SET	Model of the Set	400GFLS	500GFLS	600GFLS	800GFLS	1200GFLS
	Rated Power (kW)	400	500	600	800	1200
	Rated Voltage (kV)	0.44	0.44	0.44	0.44	0.44
	Rated Current (A)	722	902	1083	1443	1968
	Rated Frequency (HZ)	60	60	60	60	60
	Power Factor COS ¢	0.8 Lagging				
	Mode of Excitation	Brushless				
	Phase & Connection	3 Phases 4 Wires				
	Generator Model	1FC6 SIEMENS				
	Overall Dimensions (mm)	5120X2040X2195		5120X2040X2780		6000X2300X2800
	Net Weight (kg)	12000				15000
ENGINE	Model of Engine	TNJD-12V190		TNJD-12V190T		TNJD-12V190DT
	Mode	V-type, water cooled, four-stroke, spark plug ignited, precombustion chamber rarefied				
		Naturally aspirated		Turbocharged, intercooled		
	Arrangement of Cylinder	V-12				
	Cyclinder Diameter (mm)	190				
	Stroke (mm)	210				
	Rated Power (kW)	440	550	660	880	1440
	Speed (r/min)	1200	1200	1200	1200	1200
	Start-up Mode	Anticlockwise				
	Direction of rotation (from the end of the flywheel)	Clockwise				
	Exhaust temperature of each cylinder (°C)	≤650				
	Gas inlet temperature (°C)	≤40				
	Gas Pressure (kPa)	≥2.5				
	Oil Consumption (g/kWh)	≤1.0				

Powermax also can supply 220V,480V,6300V,6600V,10500V and 13800V electric output generator sets.

300 SERIES NATURAL GAS/BIOGAS GENERATOR SET

(Turocharged, Intercooled Type, Electrical Efficiency ≥40%)



300 Series 1000-2000KW Natural Gas/Biogas Generator Set Technical parameter (50hz/60hz)

ITEM		TECHNICAL PARAMETER									
GENERATOR SET	Model of the Set	1000 GFLS		1500 GFLS		1700 GFLS		1800 GFLS		2000 GFLS	
	Rated Power (kW)	1000		1500		1700		1800		2000	
	Rated Voltage (kV)	0.4	0.44	0.4	0.44	0.4	0.44	0.4	0.44	0.4	0.44
	Rated Current (A)	1804	1640	2706	2460	3067	2788	3248	2952	3609	3280
	Rated Frequency (HZ)	50	60	50	60	50	60	50	60	50	60
	Power Factor COS ¢	0.8 Lagging									
	Mode of Excitation	Brushless									
	Phase & Connection	3 Phases 4 Wires									
	Generator Model	1FC6 SIEMENS									
	Overall Dimensions (mm)	6500X1830X3100		8904X2360X3286							
	Net Weight (kg)	25000		40000							
ENGINE	Model of Engine	TNJD-8300Q4T		TNJD-G8300T							
	Mode	Water cooled, four-stroke, spark plug ignited, precombustion chamber rarefied									
		Turbocharged, intercooled									
	Arrangement of Cylinder	L-8									
	Cyclinder Diameter (mm)	300									
	Stroke (mm)	380									
	Rated Power (kW)	1100		1650		1870		1980		2200	
	Speed (r/min)	600	600	500	514	600		600		600	
	Start-up Mode	Compressed Air									
	Direction of rotation (from the end of the flywheel)	Anticlockwise									
	Exhaust temperature of each cylinder (℃)	≤580									
	Gas inlet temperature (℃)	≤40									
	Gas Pressure (kPa)	≥2.5		130							
	Oil Consumption (g/kWh)	≤1.0									

Powermax also can supply 220V,480V,6300V,6600V,10500V and 13800V electric output generator sets.

300 SERIES DIESEL/HEAVY OIL/DUAL FUEL GENERATOR SET

300 Series Diesel/Heavy Oil/Dual Fuel Generator Set Technical Parameter

Engine Type	Speed (r/min)	Rated Power (kW)	Voltage (V)	Overall Dimensions (mm)	Net Weight (kg)
	Bore: 300mm; Stroke: 380mm; Cylinders: 6				
1000GF	500	1000	400/6300/10500	7264 × 2300 × 3465	32500
1250GF	600	1250	400/6300/10500	7394 × 2300 × 3465	33500
	Bore: 300mm; Stroke: 380mm; Cylinders: 8				
1600GF	500	1600	400/6300/10500	8904 × 2360 × 3286	42000
2000GF	600	2000	6300/10500	9100 × 2360 × 3286	44000
	Bore: 300mm; Stroke: 380mm; Cylinders: 16				
2500GF	500	2500	6300/10500	10540 × 2750 × 3100	76000
3000GF	500	3000	6300/10500	10540 × 2750 × 3100	76000
3150GF	500	3150	6300/10500	10540 × 2750 × 3100	78000
3350GF	500	3350	6300/10500	10540 × 2750 × 3100	78000
3600GF	550	3600	6300/10500	10500 × 2750 × 3100	82000
4000GF	600	4000	6300/10500	10500 × 2750 × 3100	83000

Powermax also can supply 220V,480V,6300V,6600V,10500V and 13800V electric output generator sets.

DUAL FUEL GENERATOR SET

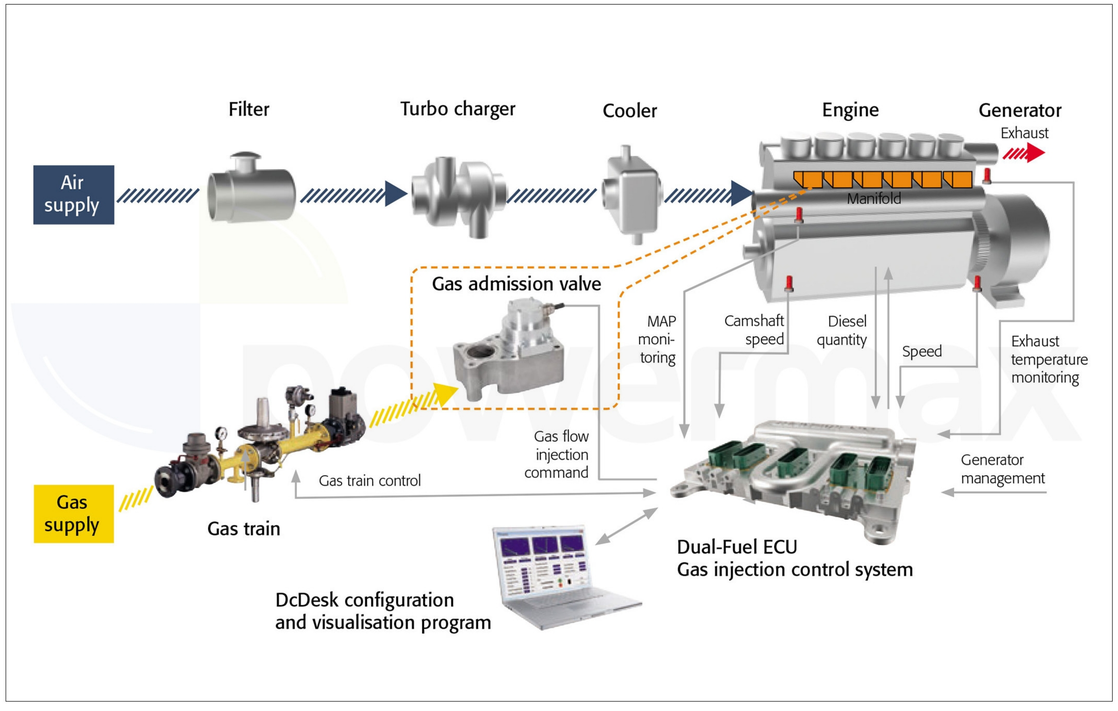
Advantages of Dual Fuel Generator Set

Due to the increasing demand of energy, the worldwide energy crisis is the trend of the times. Natural gas, due to its own characteristics and rich reserves, is a promising clean alternative fuel, in terms of balancing energy consumption structure, energy conservation and environmental protection requirements. It is imperative to popularize the use of natural gas, and there is a broad market prospect for engines burning alternative fuels. The 300 Series diesel-natural gas dual-fuel engine produced by our company is based on the mature 300 diesel engine. It increases the supply, control, injection, detection and security system of liquefied natural gas (LNG). In the dual-fuel mode, the output power is the same as that of the pure diesel engine.

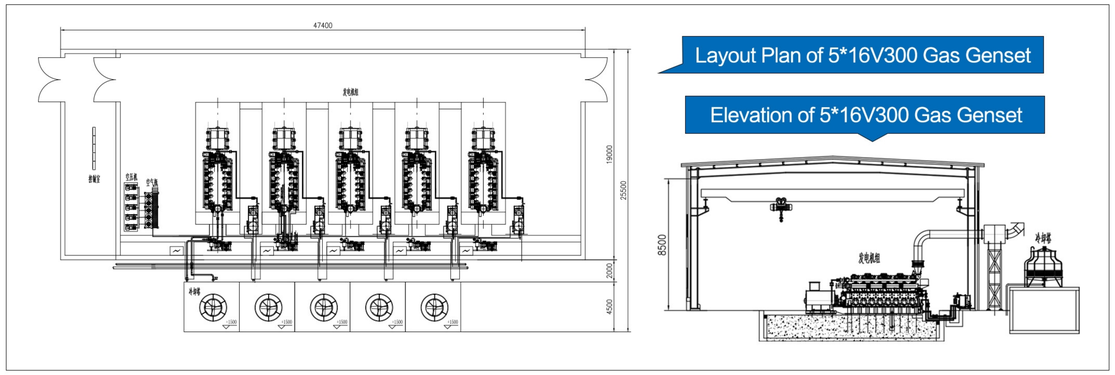
Based on the 70% price of natural gas to diesel, the 300 series diesel / natural gas dual-fuel engine produced by our company can save the fuel cost about 25% for the users.

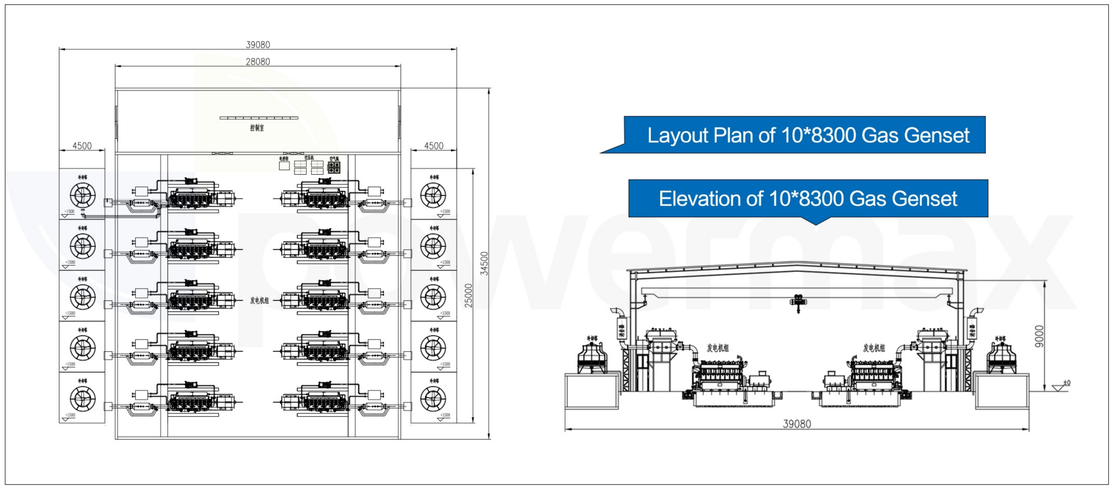
Main Features

- Outsourcing parts of 300 Series diesel-natural gas dual-fuel engine select the world-famous brand with high-quality products and imported special parts, which greatly improved the performance of the machine.
- The 300 Series diesel-natural gas dual-fuel engine can be operated in diesel-natural gas dual-fuel mode as well as in pure diesel mode.
- The 300 series diesel-natural gas dual fuel engine adopts the technical scheme of multi-point injection of natural gas split cylinder, which realizes the zero cleaning of natural gas during the period of superposition of inlet and exhaust valves, saves fuel and improves the exhaust gas emission at the same time.
- The diesel substitution rate of 300 Series diesel-natural gas dual fuel engine under rated operating conditions is as high as 86%, the output power is the same as that of pure diesel fuel, and the performance index of the engine reaches the leading level of the same technology.
- 300 Series diesel-natural gas dual-fuel engine control system using imported German heinzmann reliable and stable operation.
- The 300 Series diesel-natural gas dual-fuel engine uses the advanced multi-ECU, CAN bus network distributed control technology, which is beneficial to the serialization of different cylinder number engines, improves the reliability of the system and reduces the system cost.
- 300 series diesel-natural gas dual-fuel engine accessories are versatile. The company has more than 1000 square meters of storage for a large number of 300 Series machine accessories to ensure customer accessories demand.
- The company provides life-long service for 300 series diesel-natural gas dual fuel engine products, including technical consulting service after overhaul and quality guarantee period, which ensures the reliable operation of the machine for life. At the beginning of the year, the company cut the price of accessories by a large margin, and provided customers with spare parts at preferential prices for a long time, so that the cost performance of machinery is much higher than that of other similar products.

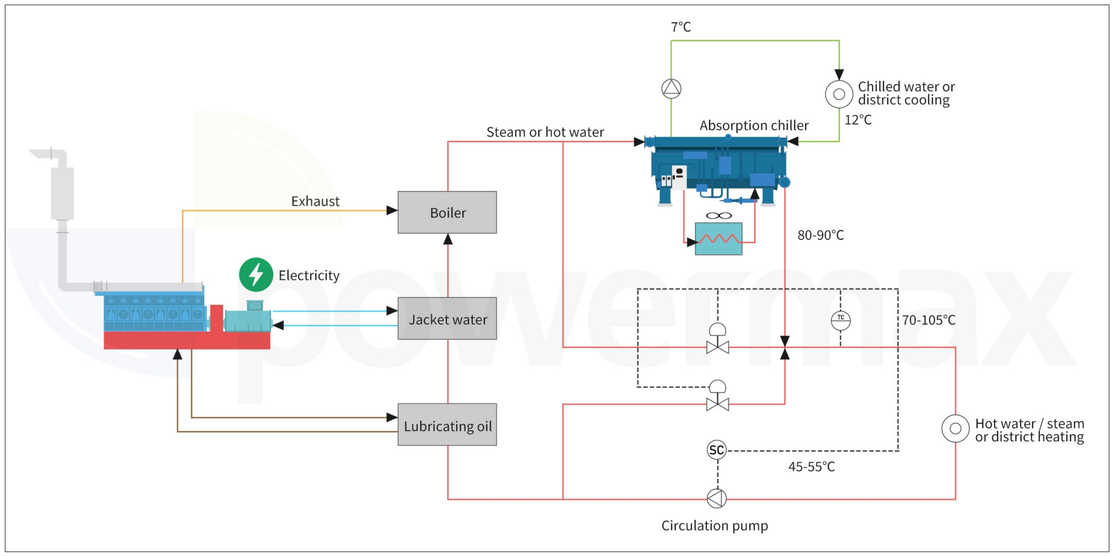


LAYOUT OF POWERMAX 300 SERIES BIOMASS GASIFICATION POWER GENSETS





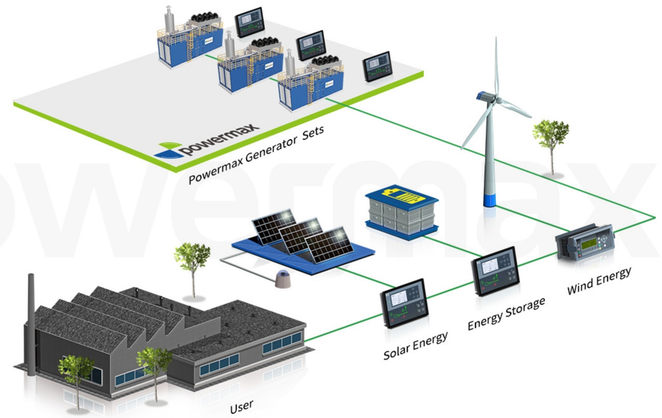
Gas Power Generation Power Plant Chart(CHP/Trigeneration)



HYBRID POWER SOLUTIONS

—— Off-grid Power Management

- Increased reliability
- Increased gas efficiency
- Less emissions and better CO2 footprint
- Enhanced flexibility and fuel independence
- Wide range of operating modes
- Reduced cost of energy

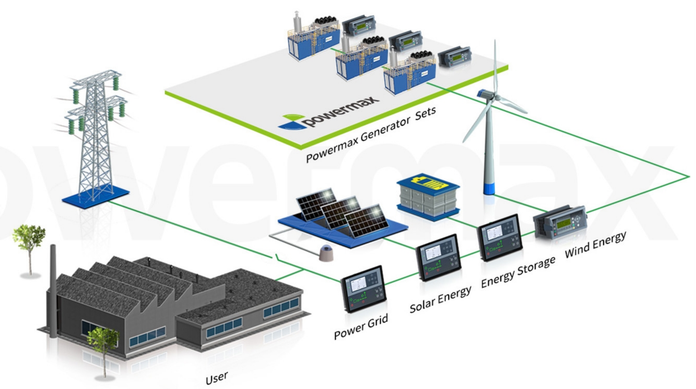


Our hybrid power solutions combine renewable energy sources(such as solar, wind, biomass energy) and energy storage systems together, storing surplus energy and utilizing biomass-powered gasifiers and gas generators to provide instant power replenishment. The hybrid system can make wind and solar power more reliable. Our energy management systems(EMS) can optimize hybrid systems and ensure their reliable operation anytime, anywhere.

Powermax provides complete hybrid power plants for off-grid or on-grid applications where security of power supply is of the essence. These effective solutions use clean fuels which combine with highly gas-efficient gensets and renewable energy systems to generate power. Energy storage systems keep excess power from waste while ensuring a reliable power supply. An energy management system could efficiently coordinate production to meet customers' demands.

—— Grid-tied Power Management

- Low to no carbon emissions
- Saves fuel
- Efficient and reliable power supply
- Enhanced flexibility and fuel independence
- Wide range of operating modes
- Reduced cost of energy

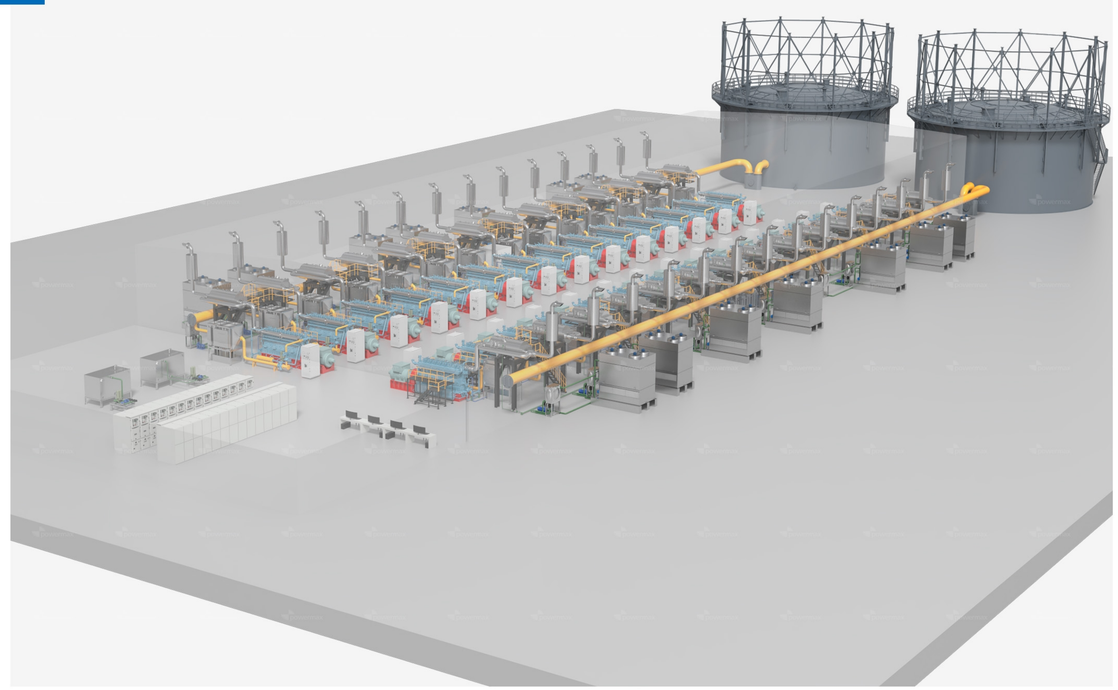


During cloudy days in monsoon season, when solar energy storage plant is forced to idle for lack of sunlight, the biomass power station can continue to generate electricity and feed it into the grid as needed, thereby maximizing the utilization of grid capacity. More importantly, biomass power plants help prevent power bottlenecks and transfer power generation in a timely manner.

This hybrid power system is more effective and more reliable as compared to any other single mode of power generation system. The power delivered by hybrid model of PV/WIND/BI0MASS is more stable and economical than the current system. The system is more environmental friendly as the waste products do not contain any harmful gases or products. The system uses all the renewable energy sources for electric generations, which are the need of the time. The use of energy from wind, solar and biomass will help to reduce our dependency on fossil fuels.

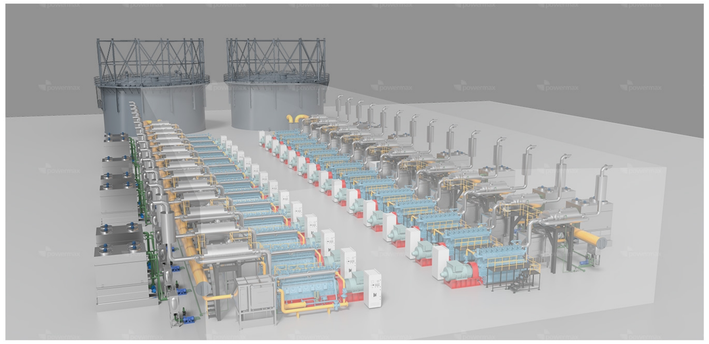
POWERMAX BIOMASS GAS POWER PLANT SOLUTION

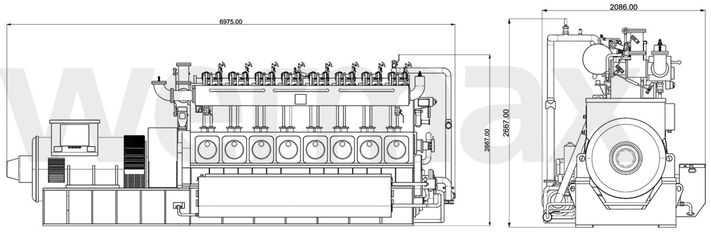
Taking 12MW as an example



Reference Cases: Myanmar 12MW Rice Husk Gas Power Plant

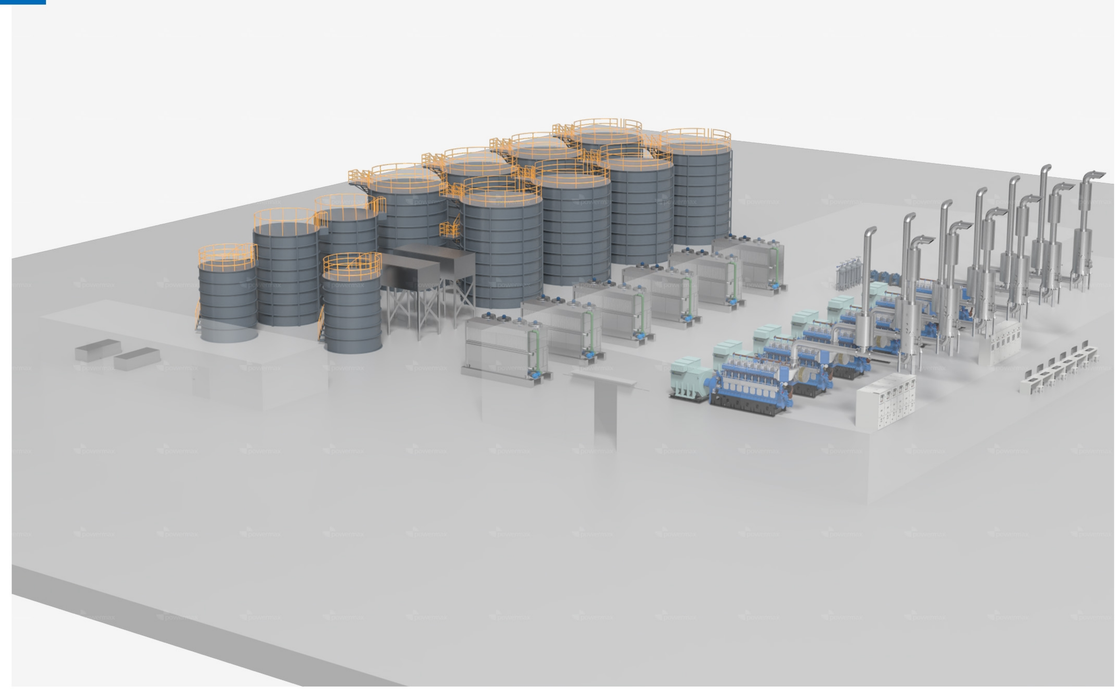
Total Output	12MW
Customer	Myanmar
Generator	500KW x 24 sets
Fuel	Biomass gas
Scope	Generator + Gasification System
Delivered	2024





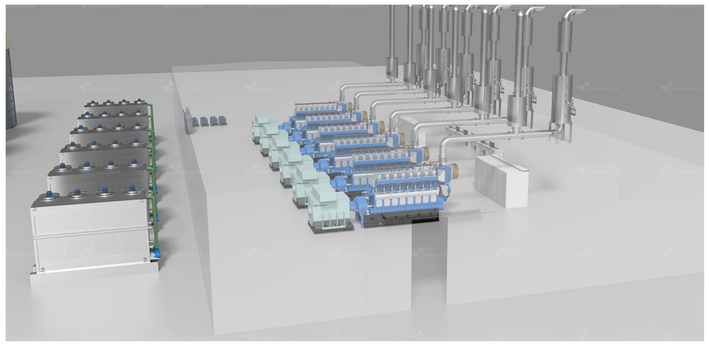
POWERMAX HFO POWER PLANT SOLUTION

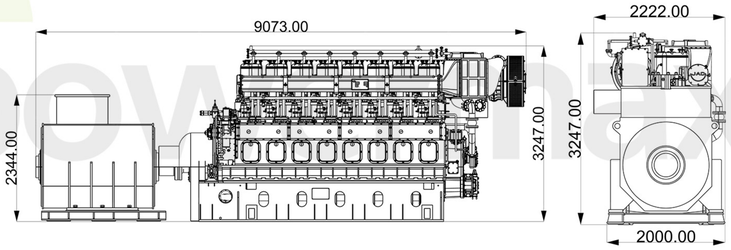
Taking 12MW as an example



Reference Cases: 12MW HFO Power Plant

Total Output	12MW
Customer	Sudan, Africa
Generator	2000KW x 6 sets
Fuel	Heavy Fuel Oil
Scope	HFO gensets , Fuel Tanks
Delivered	2017





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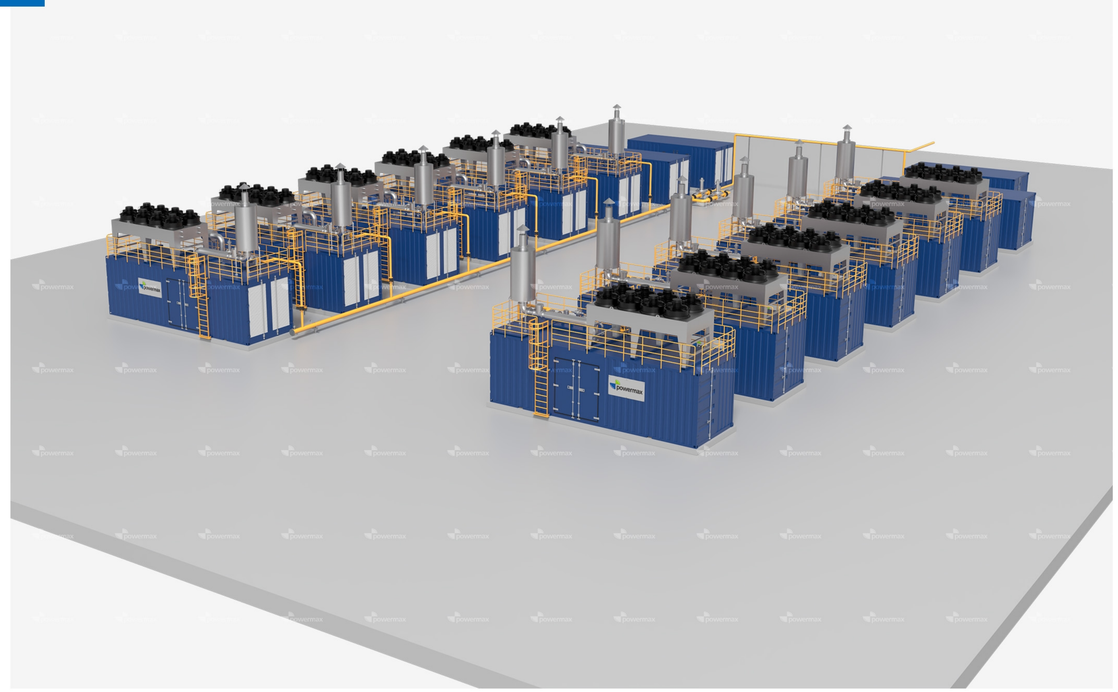
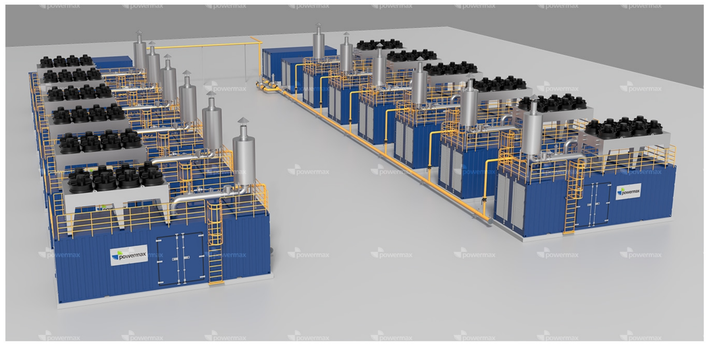
POWERMAX NATURAL GAS POWER PLANT SOLUTION

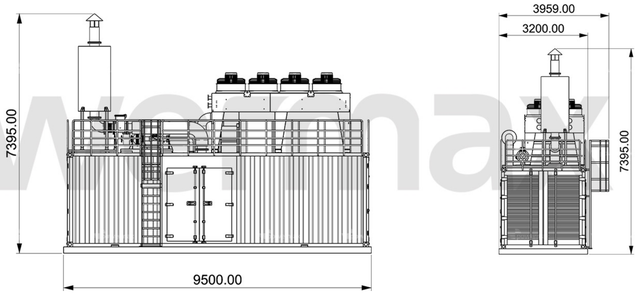
Taking 12MW as an example



Reference Cases: 12MW Natural Gas Power Plant

Total Output	12MW
Customer	Nigeria, Africa
Gensets	1000KW x 12 sets
Fuel	Natural gas
Scope	Containerzied Gas Gensets
Delivered	2024





PRE-SALES QUESTIONNAIRE

Dear Sir,
Would you please answer the questions below?

1.Basic Questions

Main composition of the gas:									
Component name	CH_4	C_2H_6	C_3H_8	C_4H_{10}	C_5H_{12}	CO	H_2	CO_2	N_2
The proportion									

Composition of impurities in gas:						
Component name	H_2S	SO_2	H_2O(mg/m³)	Tar (mg/m³)	Solid Particle	Other Droplets
The proportion						

Parameters of the gas generator set you need:					
Generator set power (KW)	Generator power	Phase number	Voltage (V)	Frequency (Hz)	Engine speed (rpm)

Brand requirements of the gas generator set you need:				
Item	Engine	Generator	Breaker	Control Module
Item brand				

2.Technical Question

Serial number:	Technical Consult Form For Gas Power Station	powermax Max Power From Biomass, Coal & Waste
Date:		
Buyer:		
Project name:	Designer :	

Project Overview			
1	Installed power of your power station: kW (kWX)	5	Fuel type: natural gas (LPG, CNG, oil field gas)/ biogas/straw gas/coke oven gas/refining tail gas/other
2	Operation mode of your power station: stand-alone mode/ multi-machine parallel operation/grid-connected mode	6	Comprehensive utilization series: electricity/electricity - heat/electricity - heat - cold
3	Power station output voltage: 0.4kV/6.3kV/10.5kV	7	Address of your power station project:
4	Power station control mode: local monitoring/remote monitoring (communication interface)/background monitoring	8	Planned area of your power station:
Environmental Condition			
9	Altitude: m	12	Water condition: water shortage / water enrichment
10	The environment temperature: Maximum temperature: + ℃ ; Minimum temperature: - ℃	13	Water quality: hardness PH value (good/bad) consider softening water equipment
11	Average relative humidity: % Maximum humidity: %	14	Site condition(soil quality) :
Gas Conditions			
15	Gas pressure: kPa Gas flow: Nm³/d	18	Methane content (V/V%) : %
16	Gas temperature: ℃	19	Gas purification measures (desulfurization equipment) : Yes/No
17	Hydrogen sulfide content: H2S≤ mg/m³	20	Other main ingredients:
Project Information			
21	Scope of project: equipment supply/ power station design/ power station installation/ O&M service	24	Project leader:
22	Engineering interface: Start of the desulfurization Unit gas inlet	25	Contact information:
23	Engineering interface: end 400V low-voltage output high-voltage output (excluding metering)	26	Planned implementation date:
Other Matters			