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

POWERMAX
GAS GENSETS EXPERT GEN

WUXI TENENG POWER MACHINERY CO.,LTD.

POWERMAX GAS GENSETS EXPERT GEN

COMPANY PROFILE

Wuxi Teneng Power Machinery Co., Ltd. (Trading as Powermaxgen) 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 2,000 square meters of office and 6,000 square meters of workshop) with more than 80 employees.

CERTIFICATES & HONOR

Certificat – Сертификат – 證明書 – Certificate – 증명서 – شهادة

Verification of Compliance

ECM

No. EC.1282.1P140819.WTPTU98

Certificate's Holder: Wuxi Teneng Power Machinery Co., Ltd.
No. 77 Xinguang Rd, Zhangjing Town, Wuxi, Jiangsu, China

Product: Gas Generator Set
Model(s): 50GFLS, 80GFLS, 100GFLS, 120GFLS, 150GFLS, 200GFLS, 250GFLS, 300GFLS, 330GFLS, 350GFLS, 400GFLS, 450GFLS, 500GFLS, 600GFLS, 700GFLS, 800GFLS, 900GFLS, 1000GFLS, 1200GFLS, 1500GFLS, 2000GFLS, 2500GFLS, 3000GFLS

Verification to Standard:
EN ISO 12100:2010, EN12601:2010, EN 60204-1:2006+A1:2009

related to:
Directive 2006/42/EC (Machinery)
Directive 2006/95/EC (Low Voltage)

Remark: This Verification of Compliance has been issued on a voluntary basis. ECM confirms that a Technical Construction File (TCF) is existent for the above listed product(s).
The TCF satisfactorily covers the essential requirements of the above listed standards related to **Directive 2006/42/EC (Machinery), Directive 2006/95/EC (Low Voltage)**.
Other relevant Directives have to be observed in case they are applicable.
This Document is only valid for the equipment and configuration described and in conjunction with the TCF detailed above. Whereas the Manufacturer is responsible of the certification of the product(s) and not exempted to perform all the necessary activities before placing the product(s) on the market.
The Manufacturer is also responsible of the internal production control to ensure the product(s) are in compliance with the essential requirements of the above mentioned Directive(s).
This certificate can be checked for validity at www.entecerma.org

Date of issue AUGUST 2014
Certification Chief Manager
Tim Mahap

CE

Expiry date AUGUST 2019
Certification Deputy Manager
Viola Miller

CERTIFICATION INTERNATIONAL

Certificate of Registration

This is to certify that

WUXI TENENG POWER MACHINERY CO.,LTD.

No.77 Xinguang Rd,Zhangjing Town,Xishan District, Wuxi City, Jiangsu Province, P.R.China

Operates a environment management system which has been assessed as conforming to

ISO14001：2004

for the scope of activities

Manufacture,design and sales service of biomass energy equipment includes biomass gasifier, biomass gasification power generation system, biomass gas generator sets.

Certificate No: CI/1317398 Issue Date: 12 February 2014
Valid until 11 February 2017 subject to adherence to the agreed ongoing audit programme, successful endorsement at certification following each audit and compliance with CI Regulations

Signed for and on behalf of

Accreditation Manager

UKAS 063

IAF

Annual surveillance audit for the first time

Annual surveillance audit for the second time

Note: According to the certification requirements, the interval between the annual surveillance audit and the last spot audit cannot exceed twelve months.

improving life through standards

IAF Code：JI03CE

Standards Organisation of Nigeria Conformity Assessment Programme

Product Certificate (Registered)

This document is not and does not substitute in any respect the SONCAP Certificate required for Customs Clearance

PC(R) No.:NGR03000400
Issuance Date: 2017-08-01
Expiry Date of Certificate: 2018-07-31
Page: 1/1 Version: 1

Exporter's Name:
WUXI TENENG POWER MACHINERY CO.,LTD.
Address:
NO.123 JIAOSHAN RD.,WUXI,CHINA
Phone No.:+86 510 83795866
E-mail: INFO@WXTENENG.COM
Fax No.: +86 510 83795006
TIN No.: RC/BN No. :

Manufacturer's Name:
WUXI TENENG POWER MACHINERY CO.,LTD.
Address:
NO.123 JIAOSHAN RD.,WUXI,CHINA
Phone No.:+86 510 83795866
E-mail: INFO@WXTENENG.COM
Fax No.: +86 510 83795006

Item No.	HS Code	Product Description	Country of Origin	Standard Reference
1	8502392000	BIOMASS GASIFICATION POWER GENERATION SYSTEM,BRAND:POWERMAX,MODEL NO.:500KW	CHINA	IEC60034-1: 2010
2	8502392000	BIOMASS GASIFICATION POWER GENERATION SYSTEM,BRAND:POWERMAX,MODEL NO.:1000KW	CHINA	IEC60034-1: 2010

Remarks: PRODUCTS ARE SUPPORTED WITH CERTIFICATES OF ANALYSIS, MANUFACTURERS GMP DECLARATION AND DECLARATION STATEMENT OF NO CHANGE OF PRODUCT FORMULA/DESIGN, SPECIFICATION, MATERIAL AND MANUFACTURING PROCESS.

For and on behalf of
CCIC INSPECTION CO., LTD
中国检验认证集团检验有限公司

IAF Country Office:
CCIC INSP.

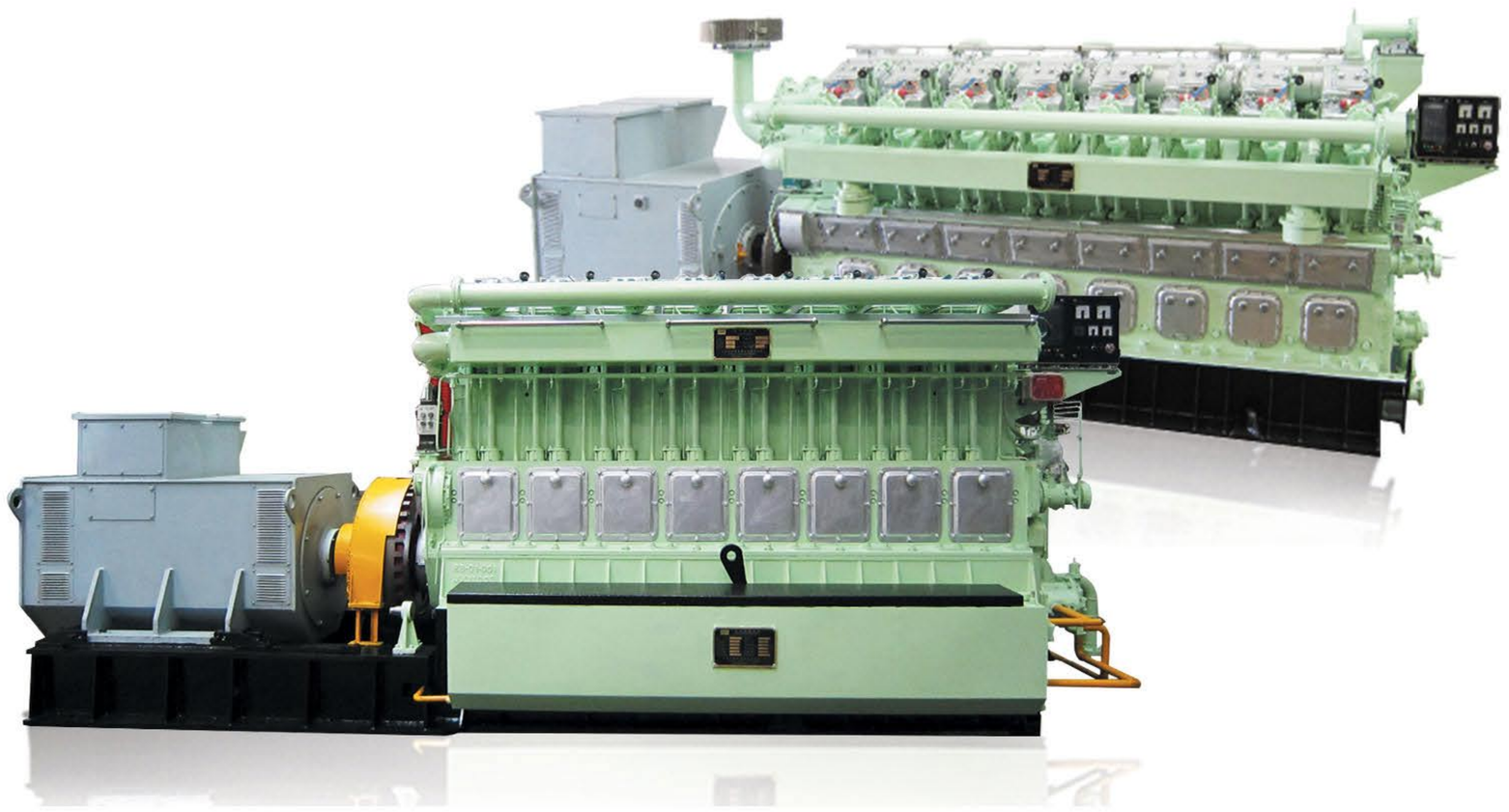
Signed: 授权签字人 Authorized Signature(s)

Name:
RFI Number: --/--

This document is issued under the authority of the SONCAP for and on behalf of the Standards Organisation of Nigeria (SON)

R 0148567

RELIABLE COMPONENTS ENSURE HIGH AVAILABILITY



Heinzmann Ignition Control Systems(Germany)

Heinzmann Speed Governor (Germany)

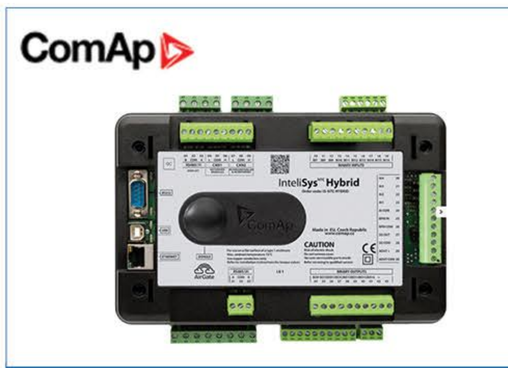
Mecc Alte Alternator

ComAp Remote Control

ABB Turbocharger

Siemens Genertor

ComAp Dual Fuel Controller



ComAp Hybrid Controller

ComAp Gas Genset Controller

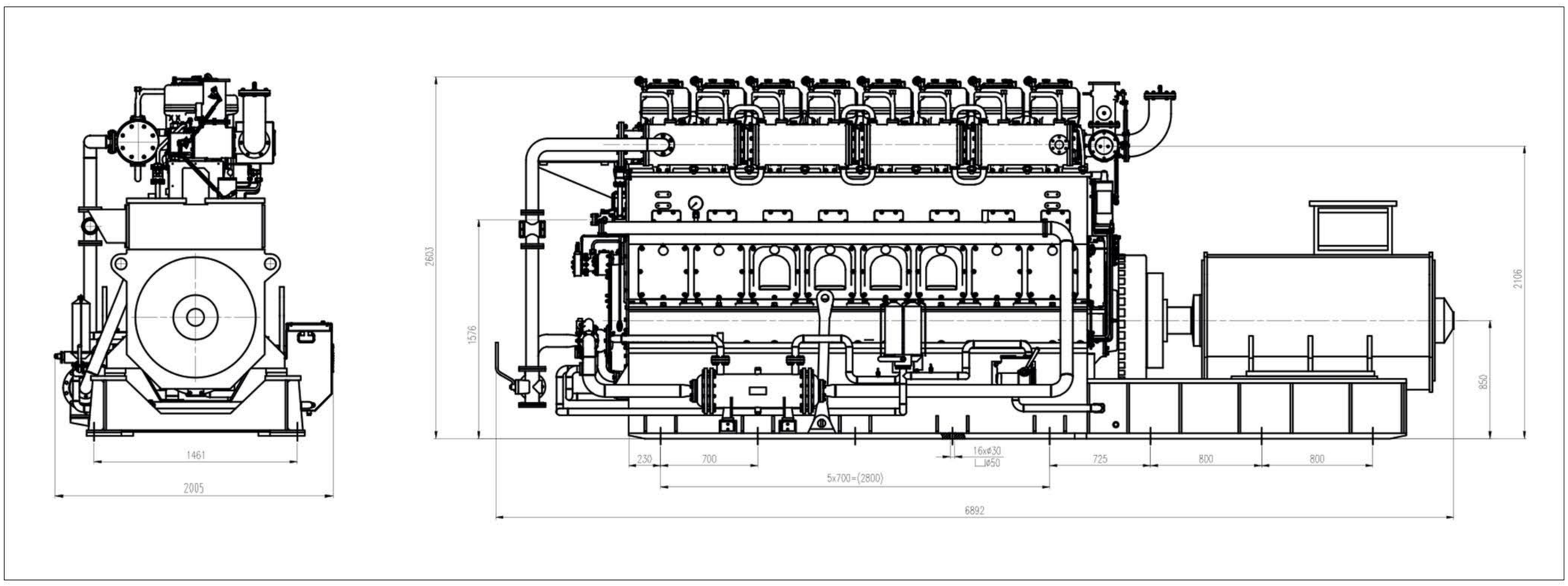
ComAp CHP Controller

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

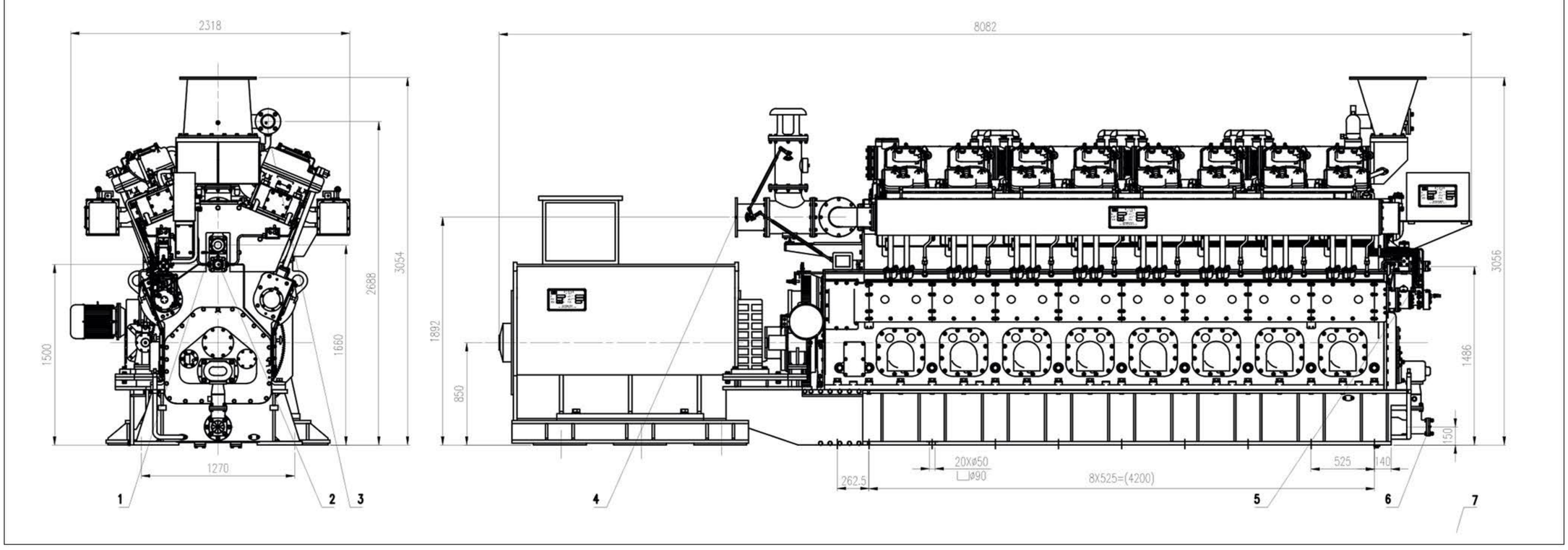
POWERMAX 300 SERIES GAS GENERATOR SETS

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 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.

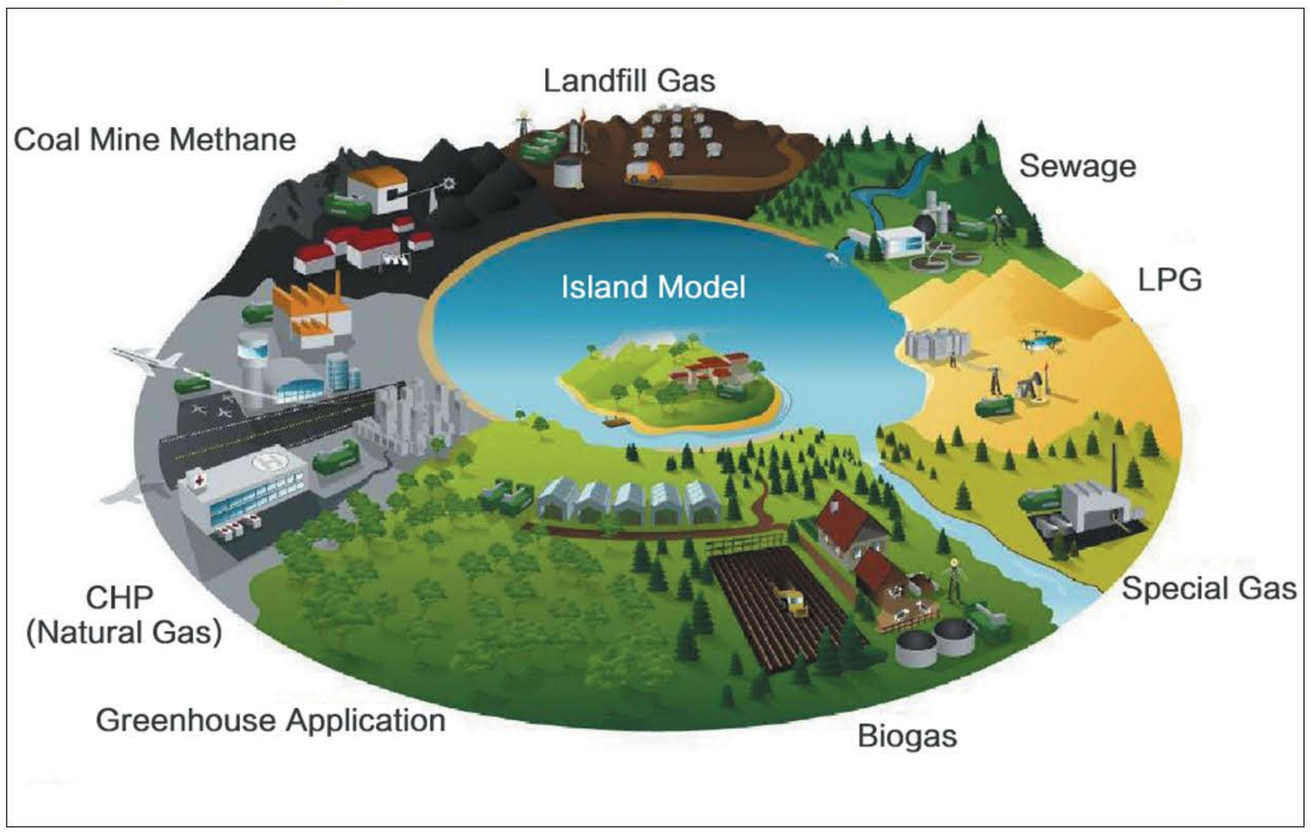
■ Recovery and utilization of waste heat to realize heat and power cogeneration

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 ℃;
- 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							

Powermaxgen 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

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 ℃
- Gas pressure 2.5~10kPa
- Pressure change rate ⩽ 1kPa/min
- Gas calorific value ⩾ 4.0MJ/Nm^3
- Moisture Content ⩽ 40g/Nm^3, without free water
- Dust content ⩽ 30 mg/Nm^3;
- Dust particle size ⩽ 5 μm;
- Tar content ⩽ 50 mg/Nm^3;
- Hydrogen sulfide content ⩽ 50 mg/Nm^3;
- Total sulfur content ⩽ 100 mg/Nm^3;
- Ammonia content ⩽ 20mg/Nm^3
- Benzene content ⩽ 50mg/Nm^3
- Naphthalene content ⩽ 50mg/Nm^3
- 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							

Powermaxgen 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 ℃;
- 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											

Powermaxgen 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℃
- 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 500-1200kW Coal Bed Methane Gas Technical Parameter (50HZ/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							

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

300 SERIES NATURAL GAS/BIOGAS/LPG/PROPANE GENERATOR SET (Naturally Aspirated Type)

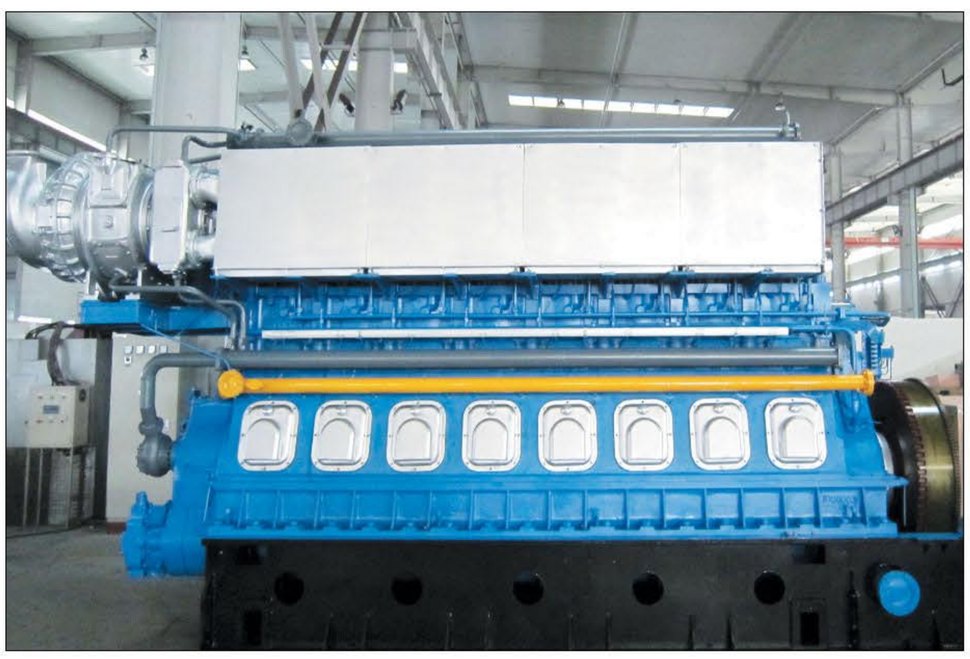
Technical Features

The 300 Series gas generator set can be used to generate electricity from natural gas, biogas, LPG and Propane gas. It can also be connected to the grid and can be used as a distributed energy system. The power distribution is uniform, the load response is timely, and the operation is stable.

The 300 Series biogas generator set is applicable for industrial sewage biogas, livestock manure biogas, cooking waste biogas, landfill biogas internal combustion for power generation. In view of the corrosive characteristics of biogas sulfur, with new technology and new materials, anti-corrosion treatment has been conducted on equipment parts like engine intake system, combustion system parts, intercooler, supercharger to prolong its life.

Set Application Gas Source Requirements

- Inlet gas temperature ≤ 40 ℃;
- Gas pressure 2.5 ~ 10kPa;
- Methane volume content ≥50%;
- Pressure change rate≤1kPa/min;
- Moisture content≤40mg/Nm3, no free water;
- Sulfur content≤200mg/Nm3:
- Ammonia content≤20mg/Nm3;
- Dust content≤30mg/Nm3;
- Dust particle size ≤5μm.

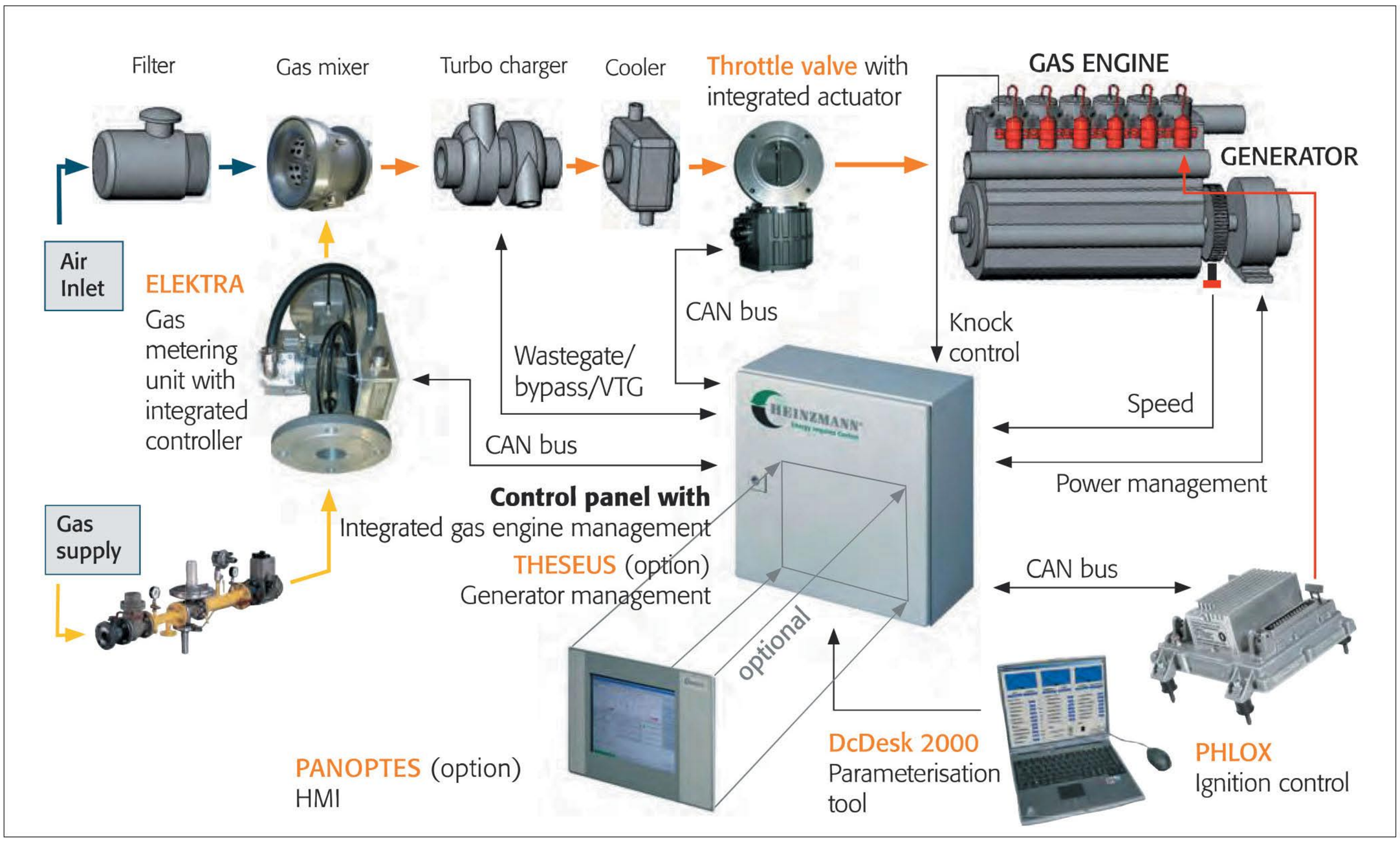


300 Series 600-1400KW Natural Gas/Biogas/LPG/Propane Generator Set Technical Parameter (50HZ/60HZ)

ITEM		技术参数							
GENERATOR SET	Model of the Set	600GFLS		700GFLS		1200GFLS		1400GFLS	
	Rated Power (kW)	600		700		1200		1400	
	Rated Voltage (kV)	0.4	0.44	0.4	0.44	0.4	0.44	0.4	0.44
	Rated Current (A)	1083	984	1263	1148	2165	1968	2526	2296
	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-8300Q3		TNJD-8300Q4		TNJD-16V300Q3		TNJD-16V300Q4	
	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)	660		770		1320		1540	
	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							

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

300 SERIES NATURAL GAS/BIOGAS/LPG/PROPANE GENERATOR SET (Turocharged, Intercooled Type, Electrical Efficiency ≥43%)

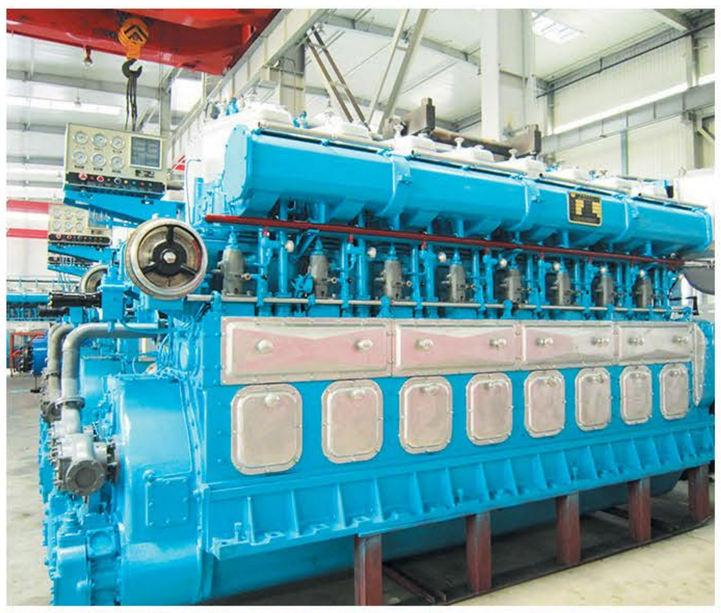


300 Series 800–3000KW Natural Gas/Biogas/LPG/Propane Generator Set Technical parameter (50hz/60hz)

ITEM		TECHNICAL PARAMETER																			
GENERATOR SET	Model of the Set	800 GFLS		900 GFLS		1000 GFLS		1200 GFLS		1500 GFLS		1700 GFLS		1800 GFLS		2000 GFLS		2400 GFLS		3000 GFLS	
	Rated Power (kW)	800		900		1000		1200		1500		1700		1800		2000		2400		3000	
	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	0.4	0.44	0.4	0.44	0.4	0.44	0.4	0.44
	Rated Current (A)	1443	1312	1624	1476	1804	1640	2165	1968	2706	2460	3067	2788	3248	2952	3609	3280	4330	3936	5413	4920
	Rated Frequency (HZ)	50	60	50	60	50	60	50	60	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				7264X2300X3465				8904X2360X3286				8287X2421X2782				10410X2760X3420			
	Net Weight (kg)	23000				30000				40000				4000				6000			
ENGINE	Model of Engine	TNJD-8300T				TNJD-G6300T				TNJD-G8300T				TNJD-16V300T				TNJD-G16V300T			
	Mode	Water cooled, four-stroke, spark plug ignited, precombustion chamber rarefied																			
		Turbocharged, intercooled																			
	Arrangement of Cylinder	L-8				L-6				L-8				V-16				V-16			
	Cyclinder Diameter (mm)	300																			
	Stroke (mm)	380																			
	Rated Power (kW)	880		990		1100		1320		1650		1870		1980		2200		2640		3300	
	Speed (r/min)	500	514	600		500	514	600		500	514	600		500	514	600		500	514	600	
	Start-up Mode	Anticlockwise																			
	Direction of rotation (from the end of the flywheel)	Compressed Air																			
	Exhaust temperature of each cylinder (℃)	≤580																			
	Gas inlet temperature (℃)	≤40																			
	Gas Pressure (kPa)	130																			
	Oil Consumption (g/kWh)	≤1.0																			

Powermaxgen 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

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

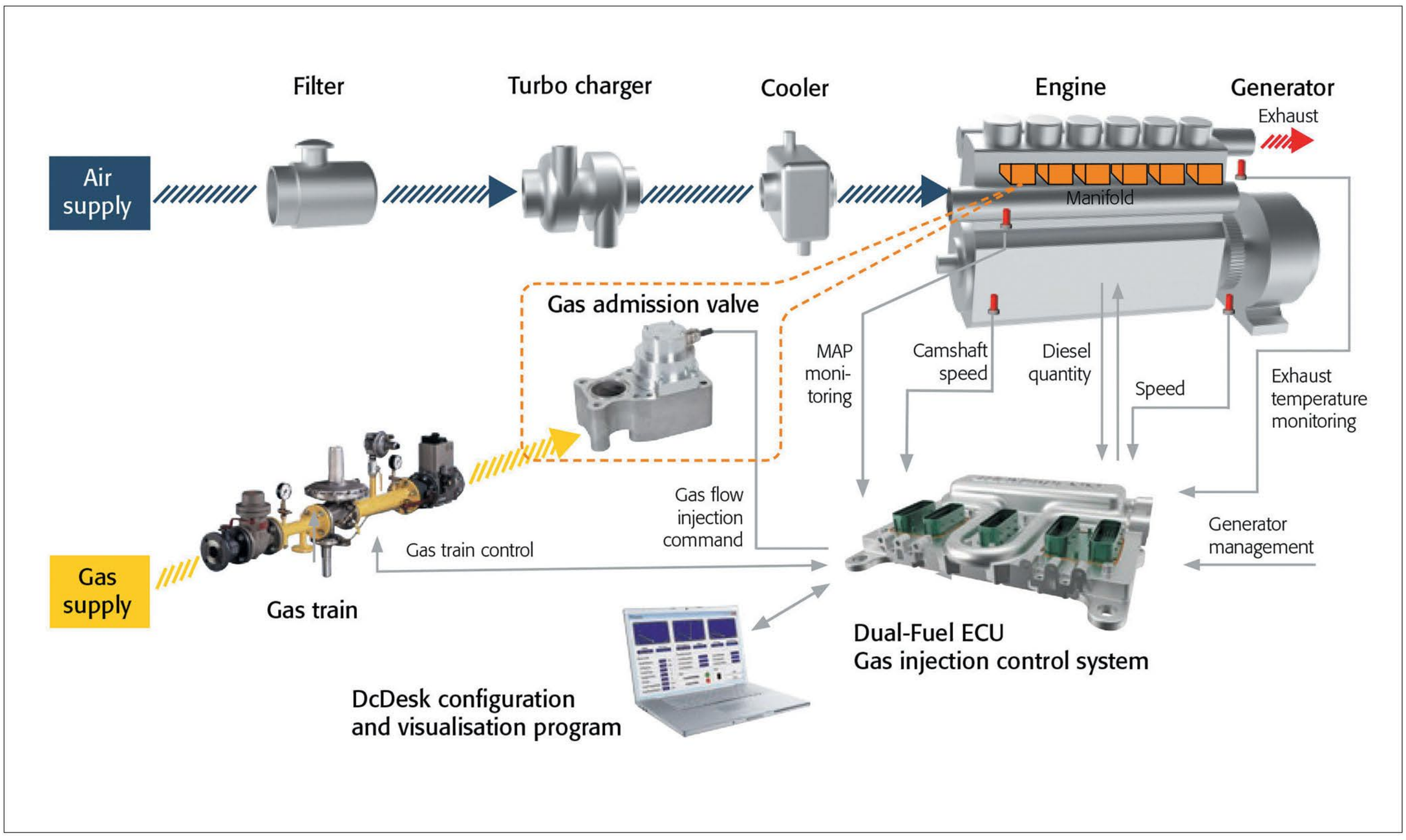
DUAL FUEL GENERATOR SET

Advantages of Dual Fuel Generator Set

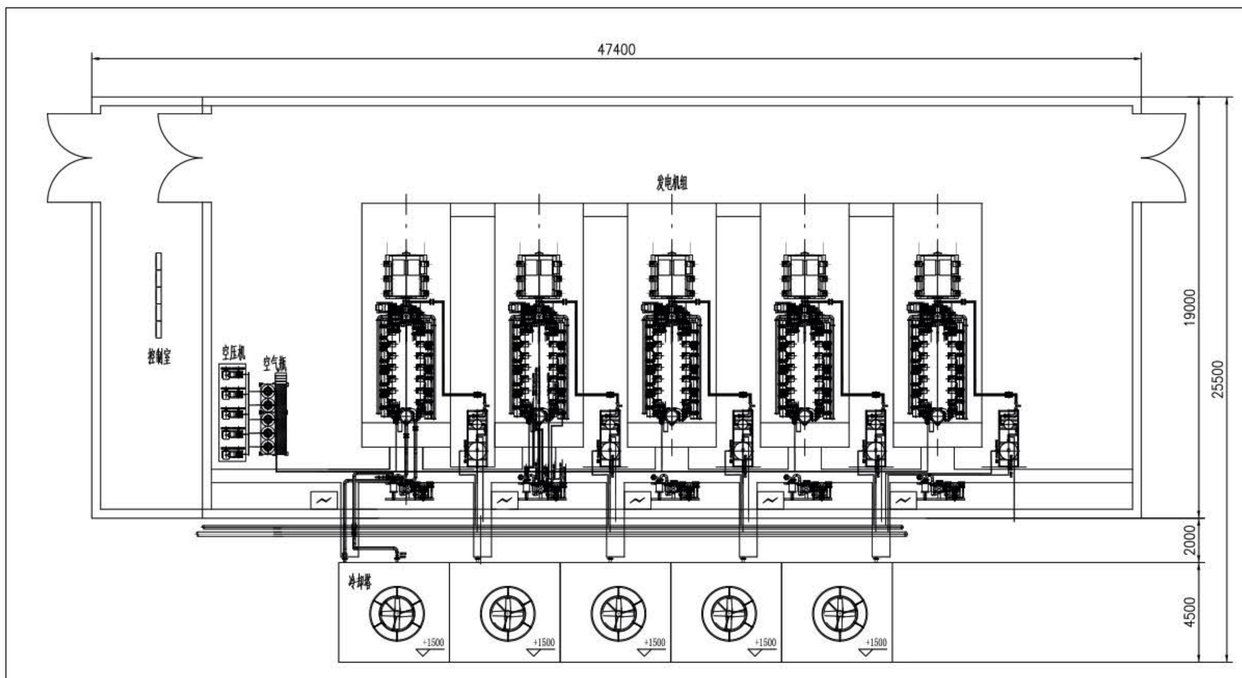
Due to the increasing demand of energy, the worldwide energy crisis is the trend of the times. Natural gas, due to its own characteristics and rich reserves, is a promising clean alternative fuel, in terms of balancing energy consumption structure, energy conservation and environmental protection requirements. 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.

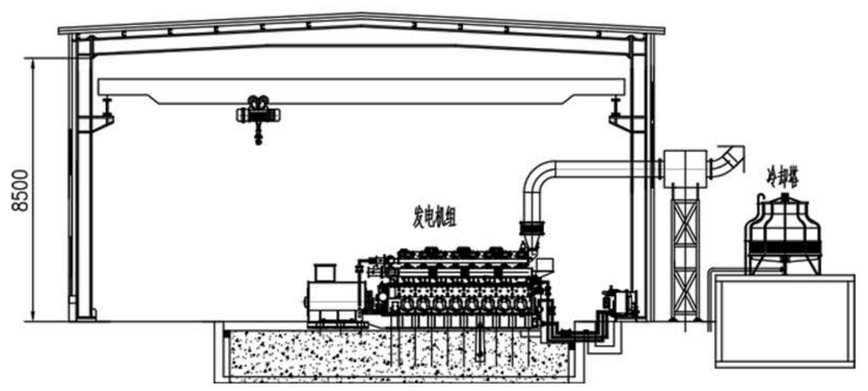


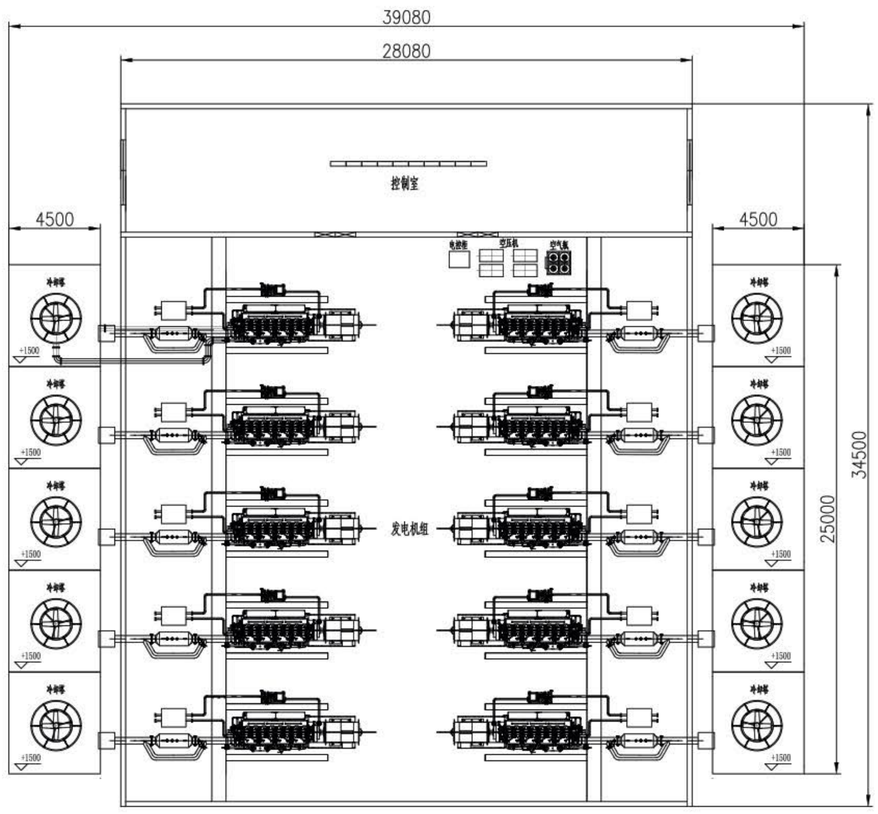
LAYOUT OF POWERMAX 300 SERIES BIOMASS GASIFICATION POWER GENSETS



Layout Plan of 5*16V300 Gas Genset

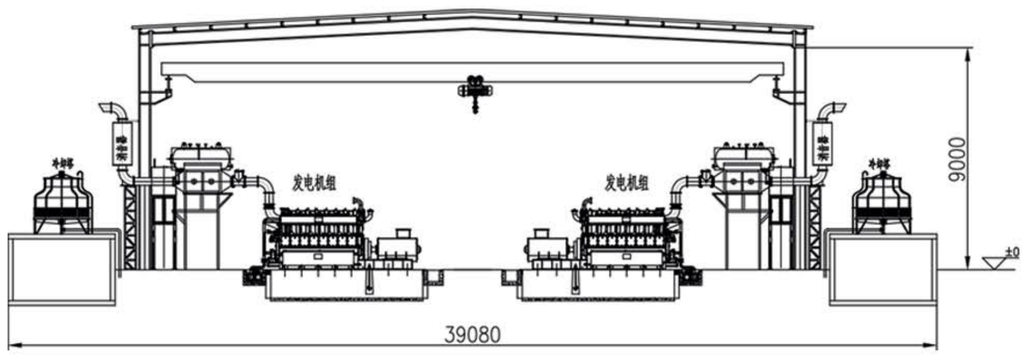
Elevation of 5*16V300 Gas Genset



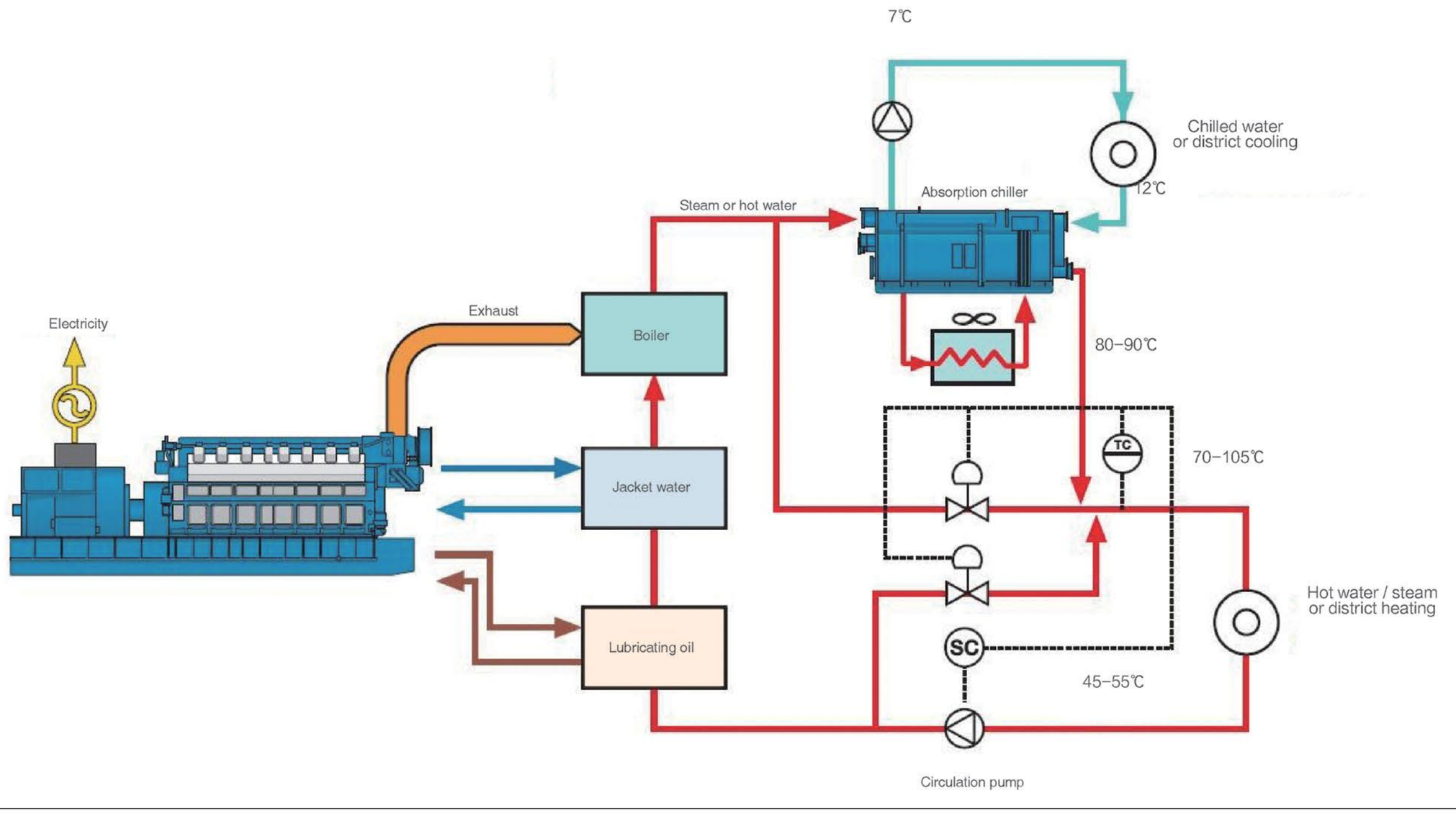


Layout Plan of 10*8300 Gas Genset

Elevation of 10*8300 Gas Genset



Gas Power Generation Power Plant Chart(CHP/Trigeneration)



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	$H_2O(mg/m^3)$	Tar (mg/m^3)	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: Nm^3/d	18	Methane content (V/V%) : %
16	Gas temperature: ℃	19	Gas purification measures (desulfurization equipment) : Yes/No
17	Hydrogen sulfide content: H2S≤ mg/m^3	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

WUXI TENENG POWER MACHINERY CO.,LTD.

ADD: NO.123 Jiaoshan RD,Yangjian Town, Wuxi City, Jiangsu Province, China, 214107
TEL: +86 510 83795866 83910196 Fax: +86510 83795006 SKYPE: tnjd168
Mobile: +86 138 120 83566 WhatsAPP: +8613812083566
WEB: www.powermaxgen.com sales@powermaxgen.com