

# Biogas Electricity Generation Generator Set

## Introduction of Biogas Electricity Generation Generator Set

This series generator sets choose high quality Man, Cummins, Weifang ricardo, Biogas engine assembled with alternators (Stamford, Faraday or other famous brand), the control system adopts PLC automatic controller. This series of Biogas generator can be used in Biogas plant, Biogas digester, and others, as a 24-hour uninterrupted power or standby power.



### Advantages of Biogas Electricity Generation Generator Set

1. High efficiency and Cost effective
2. Low Emissions due to advantage technologies
3. Low space requirement due to compact design
4. Reliable service life resulting from application-specific design
5. Powerful to ensure uninterrupted operation
6. Adapt to harsh conditions

### Applications of Biogas Electricity Generation Generator Set

Supply Scope of Biogas electricity generation generator set	
Engine Brands	<b>Man, Cummins, Weifang Ricardo</b>
Man	from 36kW to 500kW
Cummins Series	from 15kW to 500kW
Weifang Ricardo Series	from 10kW to 250kW
Fuel Types	Biogas, methane gas.

Specifications of Biogas electricity generation generator set		
Generator Set	Model	HTG-XXG
	Rated Power	10KW-500KW/12.5KVA-625KVA
	Rated Voltage	400V/230V
	Rated Frequency	50Hz/60Hz
	Type	Open/Silent/Soundproof/Container
Gas Engine	Engine Brand	Man, Cummins, Weifang ricardo
Alternator	Type	Brushless
	Brand	Stamford, Leroy-Somer, Faraday, Lingyu, etc.
	Connection	3-pahse, 4-wire
Controller	Type	Auto PLC Controller
	Brand	Deepsea, SmartGen, ComAp etc.
Fuel		Biogas 0.6m <sup>3</sup> /kw·h
Application		Biogas Plant, Biogas Digester
Delivery		By Sea, By Air, By Train
Warranty		12 months or 1500 running hours (subject to the earlier)
Optional Parts		CHP/Cogeneration/CCHP/Trigeneration Soundproof Canopy (Super Silent canopy) Automatic Transfer Switch Synchronization Parallelling Panel Remote Control PMG Alternator

Oil and Water Heater  
 High Voltage Alternator 6.3kv and 10.5kv, High Voltage  
 Electrical Control Cells (PT Cabinet, CT Cabinet, High Voltage  
 outgoing cabinet, DC Panel, Groud Resistance Cabinet and low  
 voltage distribution cabinet etc)



## Cummins of Biogas Electricity Generation Generator Set

Cummins technology series gas generator is developed from cummins G-Drive 3.9L-38L engine on our independent research.

The engine used in this series of generators continues cummins compact design, using high-strength cylinders, integral crankshafts and efficient lubrication systems. The main heat load components were redesigned, such as cylinder head, piston, piston ring, the intake and exhaust valves, camshaft, exhaust pipe, etc.

According to the fuel type re-designed the piston compression ratio, optimizing the gas intake phase position, reducing the engine temperature, to ensure the stability of the engine power output, extended engine life under high heat load conditions, we have selected high-performance ignition system (ECU) and "Impco" brand gas-air mixer, "Madas" brand pressure regulator assembled on the engine. Meanwhile using the latest lean burning technology to reduce the engine emissions.

Generator spec.			Engine Spec.		Bore*Stroke	Dspl	
Model	Rated power		Frenquency /voltage	Engine model			Power/Speed
	k W	kVA			Hz/ V	kW/RPM	
HTG-15GF	15	20	50/400	HT4B3.9-NG	26/1500	102*120	3.9
HTG-20GF	20	25	50/400	HT4B3.9-NG	26/1500	102*120	3.9
HTG-25GF	25	30	50/400	HT4BT3.9-NG	30/1500	102*120	3.9
HTG-30GF	30	37.5	50/400	HT4BT3.9-NG	34/1500	102*120	3.9
HTG-35GF	35	43.75	50/400	HT4B3.9-NG	40/1500	102*120	3.9
HTG-40GF	40	50	50/400	HT4BTA3.9-NG	45/1500	102*120	3.9
HTG-50GF	50	62.5	50/400	HT6B5.9-NG	60/1500	102*120	5.9
HTG-60GF	60	72.5	50/400	HT6BT5.9-NG	70/1500	102*120	5.9
HTG-80GF	80	100	50/400	HT6BTAA5.9-NG	90/1500	102*120	5.9
HTG-100GF	100	250	50/400	HT6CT8.3-G1-NG	110/1500	114*135	8.3
HTG-120GF	120	150	50/400	HT6CTA8.3-NG	132/1500	114*135	8.3
HTG-150GF	150	200	50/400	HT6LTAA8.9-NG	180/1500	114*135	8.9
HTG-200GF	200	250	50/400	HTNTA855-NG	220/1500	140*152	14

HTG-250GF	250	300	50/400	HTKTA19-NG	280/1500	159*159	19
HTG-300GF	300	375	50/400	HTKTA19-NG	320/1500	159*159	19



## Weifang Ricardo of Biogas Electricity Generation Generator Set

This series of gas engine designed based on Ricardo and Steyr model technical for the fuel of natural gas and combustible gas,

which is special improved in accordance with the relevant state standard.

We have re-designed main parts like cylinder, piston, crankshaft, connecting rod etc, through adopt the importing spare parts, ensure the whole engine's severity and tolerance.

Model	Generator spec.			Engine Spec.		Bore*Stroke (mm)	Dspl (L)
	Rated power		Frenquency/voltage Hz/ V	Engine model	Power/Speed kW/RPM		
	kW	kVA					
HTG-15GF	15	20	50/400	HT485NG	22/1500	85*90	1.8
HTG-20GF	20	25	50/400	HT4102D	22/1500	102*120	4.1
HTG-25GF	25	30	50/400	HT4102D	32/1500	102*120	4.1
HTG-30GF	30	37.5	50/400	HT4105D	32/1500	105*120	4.5
HTG-35GF	35	43.75	50/400	HT4105ZD	38/1500	105*120	4.5
HTG-40GF	40	50	50/400	HT6105D	45/1500	105*130	6.7
HTG-50GF	50	62.5	50/400	HT6105D	58/1500	105*130	6.7
HTG-60GF	60	72.5	50/400	HT6105ZD	68/1500	105*130	6.7
HTG-80GF	80	100	50/400	HT10D-NG	88/1500	126*130	10
HTG-100GF	100	250	50/400	HT10ZD-NG	110/1500	126*130	10
HTG-120GF	120	150	50/400	HT10ZID-NG	132/1500	126*130	10
HTG-150GF	150	200	50/400	HT12ZD-NG	160/1500	126*155	12
HTG-200GF	200	250	50/400	HT13ZD-NG	210/1500	127*165	13

# Biomass Generator Set/Syngas Generator Set

## Characteristics of Biomass Gas Generator Set:

1) The external components (such as spark plug, mixer, electronic governor, ignition controller, etc.) all use high-quality products to ensure the quality and reliability of the straw gas machine.

In order to improve the sealing performance of the valve work, the intake and exhaust valves are equipped with valve rotation mechanism, which can work at the same time. Reduce the combustion of carbon deposits caused by uneven gas valve leakage.

2) generator sets imported by the brushless excitation of the production of non-polar motor, advanced motor design, high insulation, sensitive and reliable voltage regulator system. The control panel uses the domestic high quality main switch and the controller.

3) The unit set up all kinds of necessary safety protection device. Including speeding, low oil pressure, the machine water temperature high automatic alarm, off the gate, shut down. Oil and water temperature is high, the generator over-current, under-voltage protection; parallel (or grid) units of the reverse power gate, alarm protection. In the control panel with emergency stop button, the unit can be an emergency shutdown failure. Outer leakage of the moving parts are equipped with beautiful and safe protective cover.

4) The control panel is separately set to the floor cabinet structure, the control screen is equipped with the main switch, a variety of display instruments, adjustment knob, unit protection devices and indicators. Can be compartment monitoring the operation of the unit; control unit operating load; adjust unit operating parameters and unit operation.

5) The mixer uses the throat type mixer to increase the starting manifold, extremely easy to start, the automatic double disc voltage control. According to different conditions to adjust the gas mixture to ensure the realization of lean combustion.

### 1. Environment condition:

The biomass gas generator environment temperature in  $-20\text{ }^{\circ}\text{C} \sim +45\text{ }^{\circ}\text{C}$ , relative humidity  $< 90\%$  ( $20\text{ }^{\circ}\text{C}$ ), altitude 1200 m or less environmental conditions can be stable and reliable operation. Under the standard conditions (atmospheric pressure is 100 kpa, the environment temperature  $25\text{ }^{\circ}\text{C}$ , air relative humidity 30%) can output rated power, and continuous operation.

**3. Gas conditions:** Requirement of gas quality index of biomass generator set

Item	Index	Item	Index
Calorific value of gas	$\geq 4000 \text{KJ/ m}^3$	Hydrogen content	$\leq 10\%$ (Volume percentage)
Total sulfur content	$\leq 200 \text{mg/ m}^3$	Gas source pressure	10~100kPa
		Tar content (mg/m <sup>3</sup> )	$\leq 50$
Biomass gas should be processed. no liquid component, gas impurity particle size should be $\leq 0.005 \text{mm}$ , the content is not greater than 0.03g/M3.			