



127 series gas genset

Engine model: 12V190ZDT1-1

500KW / 60HZ

Sec.1 Technical Parameters

1.1 Gas genset

Model of genset	500GF-T7
Model of engine	12V190ZDT1-1
Model of alternator	1FC6 series
Connecting method	Flexible connecting
Rated speed	1200 r/min
Rated power	500/625 kw/kva
Rated voltage	440 V
Rated frequency	60 Hz
Rated power factor	0.8 (lagging)
Voltage regulation	AVR
Supply mode	3 phase, 4 wire
Governor	Electrical controller (WOODWARD 2301A)
Control model	Remote electric control, Hand control
Starting method	24V DC motor
Cooling method	Water cooling
Overall dimension L×B×H	6195×2200×2778 mm
Net weight	12800 kg

1.2 Gas engine

Model of engine	12V190ZDT1-1
Rated power	660 kw
Rated speed	1200 r/min
No. of cylinder and layout	12-cylinder, 60°V type
Type	Four strokes, water cooled, turbocharged and after-cooled, spark plug ignition, electric controller, turbocharged and after-cooled
Gas pressure	1 ~ 4 Bar
Special heat consumption	≤11000 kJ/kW.h
Specific oil consumption	≤1.6 g/kW.h
Oil capacity	200L
Type of lub-oil	KCN 7805 (sulfur content ≤200mg/m ³) KCN 7810 (sulfur content ≤460mg/m ³)
Idle speed	700 r/min
Bore	190 mm
Stroke	210 mm
Compression ratio	10:1
Total displacement	71.45 L
Direction of rotation	Counter-clockwise(facing to flywheel)
Lubrication method	Pressure and splash lubrication

1.3 Alternator

Type	1FC6 series (SIEMENS Technology)
Rated power	500/625 kW/kVA
Rated voltage	440 V
Rated current	820 A
Rated frequency	60 Hz
Power factor	0.8 (lagging)
Excitation model	Brushless
Wiring method	3 wire, 4 phase
Number of pole	6
Rated speed	1200 r/min
Insulation class	Class F
Protection class	IP23
Cooling	Fan cooling
Bearing type, No.	Rolling bearing, 2 Pcs
Main performance index	
Stable voltage regulating rate	Single running: $\pm 1\%$ Parallel running: $\pm 2.5\%$
Instantaneous voltage regulating rate	-15%~+20% UN
Over load	1 hour operation time at 110% rated power (6 hours as a cycle)
Over current multiple	1.5I _N , 2 minutes
Ability of maintain short-circuit current	The excitation system can provide continuous current of three times of rated current, duration 5s, the alternator must be unloaded.

Note: *Rating and fuel consumption based on ISO Standard conditions

Ambient temperature: 25 degree Centigrade

Atmospheric pressure: 100kPa

Relative humidity at 30%

Site rating and fuel consumption should amend according to relative standard

Gas quality requirement:

Gas pressure: <400 Kpa

Total sulfur content: <480 mg/m³

H₂S content: <50ppm

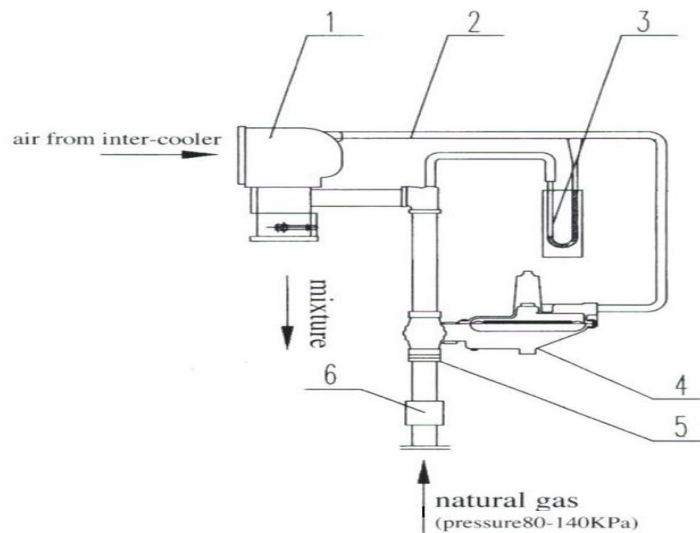
Impurity particles: <0.005mm

Impurity content: <0.03g/m³

Dust content: < 10mg/m³

Sec.2 Technical features

2.1. Fuel system



1. IMPCO mixer 2. Balance pipe 3. Different pressure meter
4. FISHER pressure regulator 5. Natural gas pipe 6. Solenoid valve

After filtration and pressure stabilization, natural gas enters into pressure regulator through solenoid valve. According to the different composition of natural gas, gas pressure is regulated to right level, it enter left and right mixer, where it mixes with air in proportion required then enter left and right intake manifolds.

2.2 Ignition system

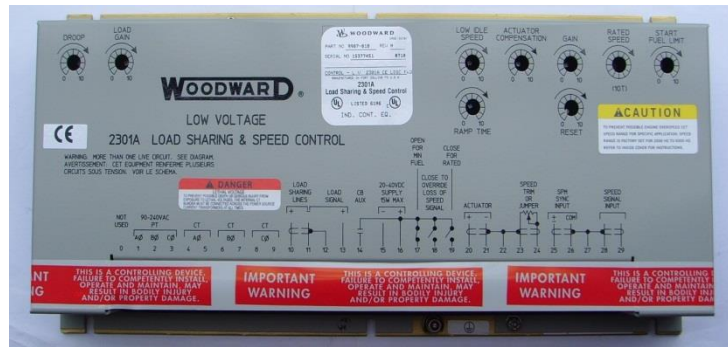


This gas engine adopts the high-energy MOTORTECH ignition system, which consisting of ignition controller (IC500), ignition coil (MOTORTECH), spark plug (STITT), low and high voltage lines, signal sensor, wires, etc.

- In case the engine is over speed, the ignition controller will stop working and the spark plug will misfire.
- Accurate ignition signal for the ignition controller.
- The highest output voltage is 50000V DC
- Long service life, easy maintenance and cleaning, good ignition performance spark plug.

2.3 Governor System

Governor system is composed of speed sensor, controller, executor, speed trim potentiometer, DC power and connecting wire. As below picture.



Speed control system 2301A controller is made by USA WOODWARD company, decades of uses in engine speed control system has been fully proved the reliability and stability of the controller. This controller is a full electronic design, it can quickly and accurately respond to load change to control engine's rotation speed.

2.4 Gas engine monitor and protection



The instrument panel includes item as follow:

- A. Water outlet temperature of the lubricating oil cooler
- B. Water inlet temperature of the intercooler
- C. Exhaust temperature
- D. Oil outlet temperature of engine
- E. Water inlet temperature of engine
- F. Water outlet temperature of engine
- G. Oil pressure in engine main oil passage
- H. Oil pressure before oil filter
- I. Oil inlet pressure of turbocharger
- J. Tachometer
- K. Timer
- L. Starting switch
- M. Ignition switch

Sec.3 Standard Supply Scope

- **Air inlet system**

Air filter, Air cooler and Bracket

- **Gas supply system**

Gas filter, Pressure regulating valve, Solenoid valve, Gas pressure gage and Gas control valve

- **Lubricating System**

Main oil pump, Pre-supplying oil pump, Lube oil filter, Lube oil cooler, Lube oil Centrifugal filter and Oil pipe and valve

- **Cooling System**

Water pump, Intercooler, Cooling pipe and Heat exchanger

- **Control system**

Electrical governor, Mechanic instrument and Control Panel

- **Exhaust system**

Exhaust gas turbocharger, Exhaust manifold, corrugated pipe, Exhaust pipe, Exhaust elbow and Exhaust silencer

- **Spares**

Standard repair tools, Standard spare parts and Technical documents

- **Instrument**

Instrument panel, Auto shutdown device for over-speed or low oil pressure, Explosion-proof device and Commodity inspection

- **Starting System**

24V DC starting motor with 4pcs batteries

- **Others**

Common base, cooling tower