

## 300kw Gas Generating Set Technical Specification



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## Sec.1 Brief introduction

300GF-T is type of high speed generator with JC15T engine and XN5C series alternator, supplemented by WOODWARD electric control system and MOTORTECH ignition system. JC15T is widely used in oilfield drilling rigs, oil field auxiliary power generation, mobile power station, standby power and construction machinery.

The gen-set has good power performance, which could overload to 330kw. All of the main components have been fatigue test to keep good reliability and durability. The electric control system can meet one button start, data transmission and remote monitoring. Besides, the high efficiency cooler is suitable for the ambient temperature exceed 50 °C.

300GF-T is also compliant with emission standards Euro III and American TIRE2.

## Sec.2 Technical parameters

### Genset

Model of genset	300GF-T
Model of engine	JC15D/T
Model of alternator	XN5C Series
Connecting method	Flexible connecting
Rated speed	1500 r/min
Rated power	300kw/375kVA
Rated voltage	415V AC Three phrases
Rated frequency	50 Hz
Rated power factor	0.8 ( lagging )
Voltage regulation	AVR
Supply mode	3 phase, 4 wire
Governor	Electrical controller
Control model	Remote electric control, Hand control
Starting method	24V DC motor
Cooling method	Water cooling
Overall dimension L×B×H	3701×1345×1701 mm
Net weight	3900 Kg

### Gas engine

Model of engine	JC15D/T
Rated power	350 Kw
Rated speed	1500 r/min
No. of cylinder and layout	6-cylinder,L type
Type	Four strokes, water cooled, spark plug ignition
Gas pressure	1 ~ 4 Bar

Natural gas consumption	0.27 Nm <sup>3</sup> /kw
Specific oil consumption	≤0.8 g/kWh
Type of lube oil	KCN 7805 (sulfur content≤200mg/m <sup>3</sup> ) KCN 7810 (sulfur content ≤460mg/m <sup>3</sup> )
Idle speed	700 r/min
Bore	140 mm
Stroke	165 mm
Total displacement	15.2 L
Direction of rotation	Counter-clockwise(facing to flywheel)
Lubrication method	Pressure and splash lubrication

### Alternator

Type	XN5C Series
Rated power	300kw/375kVA
Rated voltage	415V AC Three phrases
Rated current	521.7 A
Rated frequency	50 Hz
Power factor	0.8 (lagging)
Excitation model	Brushless
Wiring method	3-wire, 4-phase
Number of pole	4
Rated speed	1500 r/min
Insulation class	Class H
Protection class	IP23
Cooling	Fan cooling
Bearing type, No.	Rolling bearing, 2 Pcs
Main performance index	
Stable voltage regulating rate	Single running: ±1% Parallel running: ±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	1.5IN, 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.

(Natural gas heat value based on 36000kj/Nm<sup>3</sup>)

### Sec. 3 Standard configuration

#### •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**

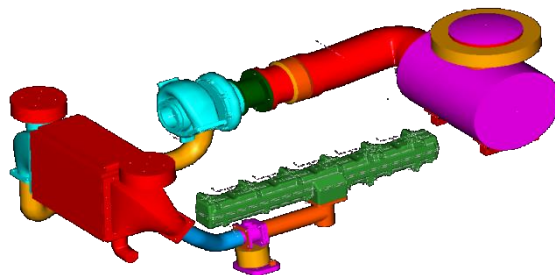
Common base, cooling radiator

## **Sec.4 Main system introduction**

### **1. Air inlet system: Process**

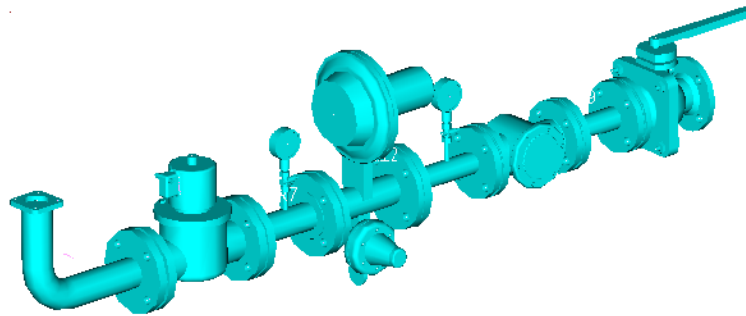
Air → Air filter → Mixer → Turbocharger → Intercooler → Throttle → Intake cavity

Water cooling intercooler, an integrated throttle is installed between the intercooler and the intake pipe



## 2. Gas inlet system

Manual ball valve, gas filter, pressure regulation valve, emergency shutdown valve, gas control valve, mixer and pipeline.



Natural gas requirements: Pressure:1-4Bar, Natural gas should be processed to have no liquid content, total sulfur (calculated as sulfur) content is not more than 460mg/m<sup>3</sup>, hydrogen sulfide content is not more than 20mg/m<sup>3</sup>, impurity particle size is not more than 5μm, and content is not more than 0.03g.

## 3. Ignition system

The ignition system provides sufficient energy to ignite the mixed gas in the combustion chamber according to the set rules, and the firing sequence of each cylinder is the same as the timing sequence of the gas distribution 1-5-3-6-2-4. It is composed of Ignition controller, signal sensor, input/output wiring harness, ignition coil, open spark plug (including high voltage wire).



Features of MIC3 ignition system:

The cost is reduced, the open structure spark plug is adopted, the structure is simple, and the failure rate is low. The software parameter is abundant, can adjust in real time, it is easy to debug and check the trouble on the spot.

The MIC3 system spark plug has a simple structure, low failure rate, low cost, and convenient software parameter adjustment. The ignition energy and advance angle can be set separately at the starting speed, which is easy to start the engine.

## 4. Engine control system

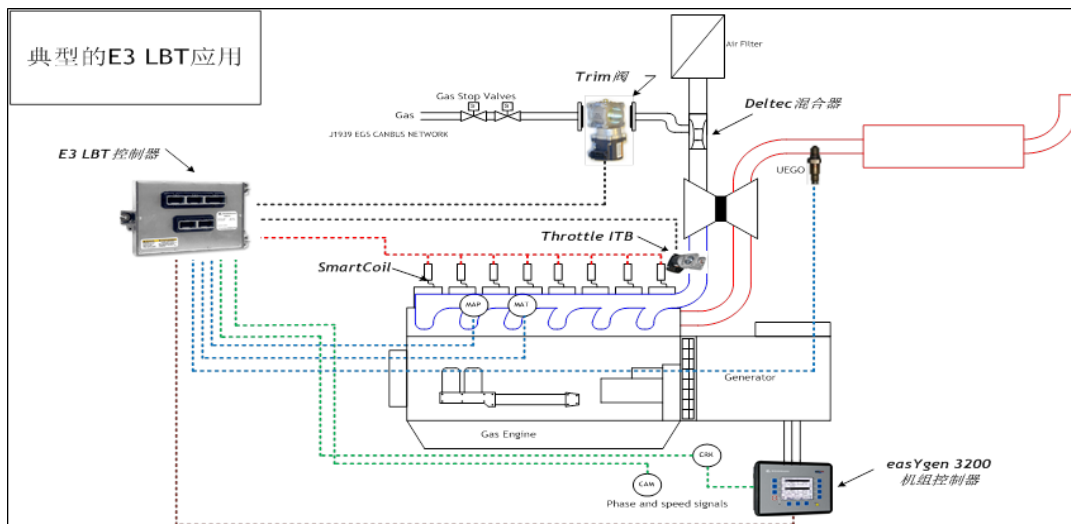
◆Speed regulation is integrated in the EGS Trim system, and the speed is regulated by an

integrated throttle.



◆ Air-fuel control, Use the gas control valve to keep the air and gas ratio within the set range

◆ System component: EGS Trim controller, speed sensor, temperature/pressure sensor, power sensor, oxygen sensor, Trim valve, integrated speed control valve, mixer, etc.



## 5. Control module

The control loop of the unit adopts DC24V power supply, equipped with maintenance-free battery and battery charger. The control system is based on the intelligent management module of the generator set, which can realize the following functions:

- It can automatically protect and stop through instructions and alarm signals;
- Automatically adjust the output voltage;
- Failure sound and light alarm;
- Automatic synchronous switch closing and load distribution;
- Display and query of unit operating data;
- Configure multiple remote communication interfaces to facilitate data transmission;
- When the operating parameters of the unit reach the critical value, the control system can unload, stop, switch opening, and record the accident time;