



# TECNOGEN

**SDEC GENSETS SERIES**

**DATA SHEET AS138 ENGINE 4HTAA4.3-G23**

**110 KW STAND BY**

**100 KW PRIME**



**TECNO GENERACION SAC**

**Lima - Perú**

**Powered by**

**4HTAA4.3-G23**

**100KW at 60Hz, 220V**

## General feature:

- ◆ Assembled by SDEC diesel engine and Aosif alternator.
- ◆ Three filters as standard, fuel and water separator as optional.
- ◆ Radiator and fan with safety guard.
- ◆ Single bearing alternator IP 23, Insulation Class H.
- ◆ Heavy duty steel as base frame and 8hrs operation base fuel tank.
- ◆ Automatic control panel and 3 poles circuit breaker, internal cable.
- ◆ 12V or 24V battery, battery wires.
- ◆ Battery charger and float battery charger as standard supply scope.
- ◆ Optional soundproof canopy, ATS, synchronization panel, movable trailers.

## Genset Main Technical Data:

Genset Model	AS138
Prime Power	100KW / 125KVA
Standby Power	110KW / 138KVA
Frequency/Speed	60Hz/1800rpm
Standard Voltage	220V
Phases	Three phases, four wires
Manufacturer	Xiamen AOSIF Engineering LTD.

(1) PRP: Prime Power is available for an unlimited number of annual operating hours in variable load applications, in accordance with ISO8528-1. A 10% overload capability is available for a period of 1 hour within 12-hour period of operation. In accordance with ISO 3046-1.

(2) ESP: The Standby Power Rating is applicable for supplying emergency power in variable load applications for up to 200 hours per year in accordance with ISO8528-1. Overload is not allowed.

## SDEC Engine Data:



### 4HTAA4.3-G23

#### ◎ Power

Engine Speed r/min	Type of Operation	Engine Power	Generator Power
		kW	kVA
1500	Prime Power	105	112.5
	Standby Power	116	125
1800	Prime Power	120	125
	Standby Power	132	137.5

-. The engine performance is as per GB/T2820

-. Ratings are based on GB/T1147.1.

→**Prime Power** : --- There is no time limit in the case of variable load operation. In any 250hours of continuous operation period, the variable load of average work load less than 70%of the prime power. The operation time in the situation of 100% prime power no more than 500 hours. Permit 10%overload running 1hours in any 12 hours of continuous operation period. The overload 10% power running time of every year no more than 25 hours..

→**Standby Power**: The annual total standby power load should be less than 80%and the average running time shall be less than200 hours. Among them the standby power point should be no more than 25 hours a year. ◦

#### ◎ SPECIFICATIONS

○ Engine Model	4HTAA4.3-G23
○ Engine Type	In-line, 4strokes, 4valves, water-cooled, Turbo charged with aftercooler
○ Combustion type	Direct injection
○ Cylinder Type	Dry liner
○ Number of cylinders	4
○ Bore × stroke	105× 124mm
○ Displacement	4.3 L
○ Compression ratio	16 : 1

#### ◎ FUEL CONSUMPTION

○ Power	L/h (1500r/min)	L/h (1800r/min)
25%	7.1	7.8
50%	14.1	14.8
75%	21.2	21.8
100%	28.3	28.8
110%	31.4	32.8

# AS138 technical Data



- Firing order 1-3-4-2
- Injection timing 10°BTDC
- Dry weight 450kg
- Dimension 1080×738×1078 mm

(L×W×H)

- Rotation CCW viewed from flywheel
- Fly wheel housing SAE NO.3
- Fly wheel SAE NO.11.5(tooth number of gear:127)

## ◎ MECHANISM

- Type Overhead valve
- Number of valve Intake 2, exhaust 2 per cylinder
- Valve lashes at cold Intake 0.25mm  
Exhaust 0.50mm

## ◎ VALVE TIMING

- |                 | Opening    | Close      |
|-----------------|------------|------------|
| ○ Intake valve  | 20.9° BTDC | 44.9° ABDC |
| ○ Exhaust valve | 51.7° BBDC | 11.7° ATDC |

## ◎ FUEL SYSTEM

- Injection pump Longkou in-line "P" type
- Governor Electric type
- Feed pump Mechanical type
- Injection nozzle Multi hole type
- Opening pressure 250 kg/cm<sup>2</sup>
- Fuel filter Full flow, cartridge type
- Used fuel Diesel fuel oil

## ◎ LUBRICATION SYSTEM

- Lub. Method Fully forced pressure feed type
- Oil pump Gear type driven by crankshaft
- Oil filter Full flow, cartridge type
- Oil pan capacity High level 13 liters  
Low level 11 liters
- Angularity limit Front down 25 deg.  
Front up 35 deg.  
Side to side 35 deg.
- Lub. Oil Refer to Operation Manual

## ◎ COOLING SYSTEM

- Cooling method Fresh water forced circulation
- Water capacity 6.8 liters
- (engine only)
- Lid Min. pressure 70kPa
- Water pump Centrifugal type driven by belt

## ◎ ENGINEERING DATA

- Heat rejection to coolant 12.1kcal/sec (1500r/min)  
12.1kcal/sec (1800r/min)
- Heat rejection to intercooler 7.5kcal/sec (1500r/min)  
7.5kcal/sec (1800r/min)
- Air flow 8.0m<sup>3</sup>/min (1500r/min)

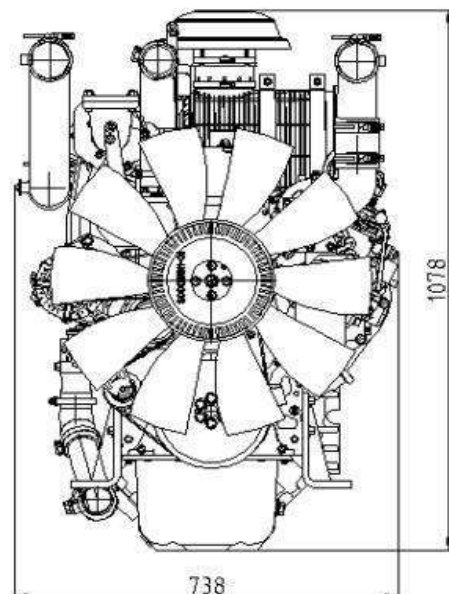
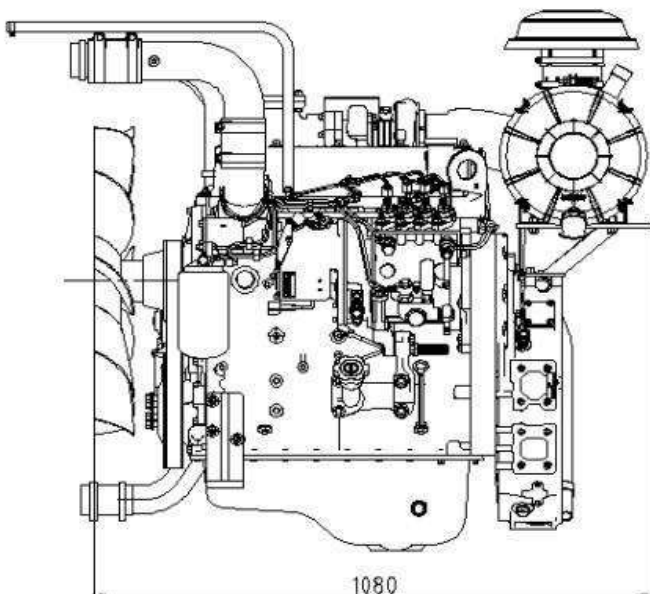
# AS138 technical Data



- Water pump: Centrifugal type driven by belt
- Water pump Capacity: 118L/min (1500r/min)  
142L/min (1800r/min)
- The maximum temp. of coolant in prime/ Standby power: 104/100
- Thermostat: Wax-pellet type  
Opening temp. 82°C  
Full open temp. 95°C
- Cooling fan: Blower type, plastic  
620 mm diameter, 10blades  
Power consumption 6kw
- Air flow: 8.0m3/min (1500r/min)  
10.0m3/min (1800r/min)
- Exhaust gas flow: 19.1m3/min (1500r/min)  
23.4m3/min (1800r/min)
- Exhaust gas temp.: 600 °C
- Max. permissible restrictions: 3 kPa initial  
6 kPa final (need charge filter element)
- Intake system: 8 kPa max.
- Exhaust system: 8 kPa max.
- Intercooler resistance limit: 5 kPa

## © ELECTRICAL SYSTEM

- Charging generator: 24V×55A
- Voltage regulator: Built-in type IC regulator
- Starting motor: 24V×4.5kW
- Battery Voltage: 24V
- Battery Capacity: 120 AH



# AS138 technical Data




## ALTERNATOR Specifications:

Manufacturer	Xiamen AOSIF Engineering LTD.
Model	AA-90-4
Output power	108KW
AVR model	SX460
Number of phase	3
Power factor (Cos Phi)	0.8
Altitude	≤ 1000 m
Overspeed	2250RPM
Number of Pole	4
Exciter type	Self -excited
Insulation class	H
Voltage regulation	±1%
Protection	IP23
Totale Harmonic distortion THD (**)	no load < 1.5%
Totale Harmonic distortion THD (**)	on load < 2%
Waveform: NEMA = TIF	< 50
Bearing	single
Coupling	Direct

## ALTERNATOR GENERAL DATA:

- ◆ Operate either 50Hz or 60Hz.
- ◆ Standard enclosure IP23, but IP44, IP55 for option
- ◆ Insulation class H.
- ◆ Shunt excitation systems.
- ◆ AREP or PMG system for options.
- ◆ Automatic voltage regulator
- ◆ Single bearing alternator
- ◆ Stator grease insulation covered
- ◆ Rotator and excitation high polymer
- ◆ Resist the corruption oil and acid
- ◆ Rotator balance is in accordance with BS5625 standard 12.5
- ◆ High-quality lubrication sealed long-time bearing
- ◆ Rotator silicon steel close tight

## AOSIF Circuit breaker specification:

	Delixi Group
	Delixi
	Delixi 315Amp,3P
	315amp
	220V

## AOSIF Starting Battery specification:

	12V
	60aH
	2 pcs
	Free maintenance, sealed lead-acid type

## Control system:



## Auto start and AMF control panel



Deepsea 6120 is an auto mains failure controller for single generator, it can monitor and protect the generator working all the time. it has a LCD display which clearly shows the status of the engine. this controller include seven inputs and six outputs. This controller can also be programmed using the frong panel or by using DSE configuration Suite PC software.

Parameters:  
This controller can provide Generator frequency, Under/over speed, Generator volts, Generator current, Engine oil pressure, Engine coolant temperature, Flexible fuel level

- ◆ Volt adjuster and frequency adjuster.
- ◆ Emergency stop
- ◆ Fail to start

### Features:

- ◆ Protection: Automatic start/stop, load transfer and alarming of generator;
- ◆ CAN and magnetic pick-up versions.
- ◆ PC and front panel configurable
- ◆ 4 digital inputs and 3 analogue inputs.
- ◆ 6 outputs(4 configurable on magnetic pick-up, 6 configurable on Canbus version).
- ◆ 3 phase generator and mains voltage monitoring.
- ◆ remote start on or off load.
- ◆ advanced metering capability.
- ◆ test button.
- ◆ protected solid state outputs.
- ◆ transfer between mains and generator power.
- ◆ user-friendly set-up and button layout.
- ◆ multiple engine parameters are monitored simultaneously.
- ◆ module can be configured to suit individual applications.
- ◆ IP 65 rating offers advanced resistance to water ingress when gasket is fitted.

- ① Power switch
- ② Lamp switch
- ③ Power indicator
- ④ Operation buttons
- ⑤ LCD display

## AS138 technical Data



### AOSIF Soundproof Enclosure Specification:

AOSIF silent generator is designed by professional acoustic engineers based on 12 years experience.



- ★ multi-way air intake and exhaust guarantee the power performance of the generator.
- ★ large-scale impedance combined type silencer effectively reduce noise of the generator.
- ★ internal high performance rubber damper and flexible materials reduce vibration.
- ★ Base mounted fuel tank supports the generator running for 8 hours.
- ★ Cold steel materials of the canopy.
- ★ Best powder paint.
- ★ Zinc plated and Corrosion resistance.
- ★ Elegant appearance and reliable quality.
- ★ Stainless steel locks and hinges.
- ★ Access to all weather conditions.
- ★ Fireproof, waterproof and dustproof.
- ★ High quality soundproof materials could efficiently reduce noise.
- ★ Big base fuel tank in the frame guarantee sufficient diesel supply.
- ★ 180° revolvable and disassemble door for easy maintenance.
- ★ Concave lockable access door for easy operation and indefatigable
- ★ Transparent viewing window make the control panel clear at a glance.
- ★ Emergency stop button mounted on the canopy exterior for urgency.
- ★ Cooling fluid injection hole is kept on the ceiling crust.
- ★ Pipe of lube oil and cooling fluid is mounted on the bottom of generator for easy let.
- ★ Fuel fill and battery can easy be accessed by lockable door.
- ★ Cooling fan and battery are fully guarded.
- ★ Heat insulation of exhaust smoke system inside the canopy.
- ★ Forkman slot is for choice.
- ★ Lifting ear is mounted in the base frame.



# AS138 technical Data



## Supply scope

### 1. Standard supply scope

Exhaust siler

Starting batt

⑨ Float battery charger

⑩ Bellow

① Auto Control Panel  
② Main Circuit Breaker  
③ Cooling Radiator

④ Base Frame  
⑤ Filter  
⑥ Starting Motor

### 2. Optional supply scope:

① ATS

② fuel and water separator

③ Auto Fuel Pump

④ External daily fuel tank

⑤ ABB Breaker

⑥ Synchroni zation System

⑦ Lub oil heater

⑧ Elec.coolant Heater

⑨ Oil drain Pump

⑩ Trailer & Silent Canopy

Contact your local distributor for more information:



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