

THIS IS



FOR TELECOMMUNICATION PROJECTS



Shwe Ein Machinery Ltd.



SHWE EIN MACHINERY LTD.



TECHNICAL DATA

SEMPT30S

TELECOM SERIES OF GENERATING SET
Powered by PERKINS

30KVA @ 50HZ



Photos are for reference only

Features

- 1000L big base tank
- Compact structure & high-strength chassis
- 50°C radiator
- ATS & AMF function
- Compliance with international electrical safety standards
- High-performance free-maintenance batteries with Isolation switch
- Top lifting point, fork lift holes, easy for transportation.
- Super silent configuration
- IP56 (control system)

Automatic

Long maintenance period

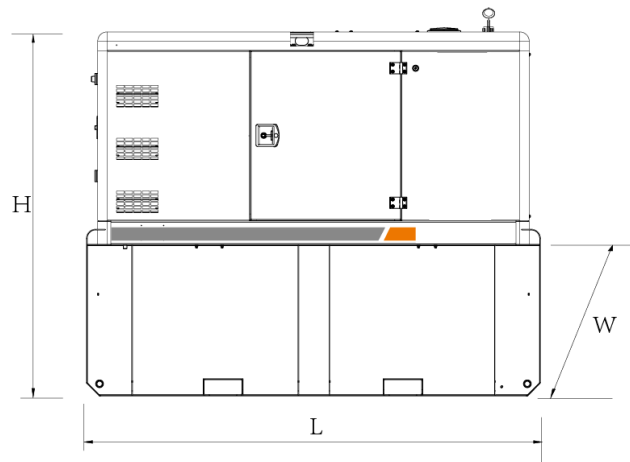
Safe, reliable

**Suitable for different
climate**



SHWE EIN MACHINERY LTD.

Dimension



Length(L)	mm	2950
Width(W)	mm	1230
Height(H)	mm	1929
Dry weight	k g	2100
Tank capacity	L	1000
Working hours	H	140

Gensets Technical Data

Prime power	KVA	30
Standby power	KVA	33
Rated voltage	V	400
Phase		3
Fuel consumption of 100% load	Litres/h	7.1
Fuel consumption of 75% load	Litres/h	5.4
Voltage regulation rate	%	≤±1
Random voltage variation	%	≤±1
Frequency regulation rate	%	≤±5
Random frequency variation	%	≤±0.5



SHWE EIN MACHINERY LTD.

Engine Specifications

Engine model		1103A-33G
Engine manufacturer		PERKINS
Number of cylinders		3
Cylinder arrangement		In-line
Cycle		Four stroke
Aspiration		Naturally aspirated
Bore x Stroke	mm	105 x 127
Displacement	Liter	3.3
Compression Ratio		23.3:1
Prime power/speed	kW / rpm	27.7/ 1500
Standby power/speed	kW / rpm	30.4 / 1500
Speed governor		Mechanical
Cooling system		Forced Water Cooling Cycle
Steady speed droop	%	≤5
Total lubrication system capacity	Liter	8.3
Coolant capacity (with radiator)	Liter	4.4
Fuel consumption at 100% load	g/kW.h	214 (at 1500 rpm)
Starter motor	V	DC 12V
Alternator	V	DC 12V

1000L Base tank (Standard)

EAGLE telecom silent gen-sets have big base fuel tank of 1000L as standard. It can run 185 hours continuously under 75% loading with full fuel one-time;

It is designed reasonably with fuel trap and easily to maintain and clean daily;

The gen-sets can be designed with fully- bunded fuel tank according to customers' requirements;

Other capacity base fuel tank can be customized, such as 800L, 500L etc.

Fuel Preliminary Filter (Standard)

EAGLE telecom silent gen-sets have fuel preliminary filter (oil-water separator) as standard. If the oil in the region where the gen-sets are working is in poor quality, the oil can be filtered to secure the quality and improve the engine fuel system life.



SHWE EIN MACHINERY LTD.

Water-Jacket Heater (Optional)

EAGLE small water-jacket heater is made up of heater element and temperature switch. It applies to all small size water cooling engines. The water-jacket heater is good for improving the performance of cold start, reducing the loss of start and mechanical abrasion and also saving the fuel.

Feature :

- Thermostatic control;
- Aluminum casting water cover;
- Rubber cover to Reduce heat loss;
- Small space needed with tight design;

Electronic Oil Gauge (Optional) and Mechanical Oil Gauge is Standard.

The base fuel tank has electronic liquid level sensor with alarm for high and low level and the percentage of remaining oil. It will remind the user to fill oil when in low level. Independent fuel tank, fuel transfer pump and hoses and control cabinet can be customized to meet automatic oiling.

Feature :

- Simple structure, precise measurement, long service life, good corrosion resistance;
- Electromagnetic induction principle, stable signal output, good continuity;
- Working temperature -40~ +85°C;
- H data $\leq \pm 5\text{mm}$;
- Suitable to SAE K series fuel level gauge;

Probe Type Water Level Switch (Optional) and Normal Float Type is Standard.

The volume of telecom gen-sets engine is small. It's not proper to use normal float type level switch which has big volume. Therefore we choose the probe type liquid level switch which is small delicate with high measurement accuracy.

Feature :

- Alarm after 10s when low level, in case the false alarm by the liquid wobble;
- Switch volume signal, duration adjustable with 0~25s (Factory Settings: Specifications:
- Working temperature: -40~ +125°C;
- Voltage: 10~32VDC;
- Current: $\leq 1.5\text{mA}$;
- Output signal: liquid lower than probe, switch ON (Switch volume:

Heavy-Duty Filter (Optional)

Heavy-duty filter can be customized to ensure the clearance and smooth of supply air and to make the fuel burned fully in the sand area. It not only has excellent performance for air filter and also has strong mechanical strength and weather fastness.

Specifications:



SHWE EIN MACHINERY LTD.

- Working temperature :-40~ +80°C;
- Rated current: 650m³/h;
- Original air intake resistance: ≤2.5kPa;
- Original filtration efficiency: ≥99.5%, whole life filtration efficiency: ≥99.98%;
- Pre-filtering Efficiency: ≥70%, dust capacity≥4200g;

Electronic governor (Optional)

For small power engines, they are mostly designed with mechanical speed governors. Electronic speed governors are essential to satisfy higher performance of speed governors and automation. The electronic speed governor that we EAGLE use is PID adaptive control technology. It can act quickly with precision to the momentary loading change of the engines. The closed speed control system is made up of speed controller, electromagnetic actuator and rotational speed sensor. This will ensure the engines run stably under constant speed.

Specifications:

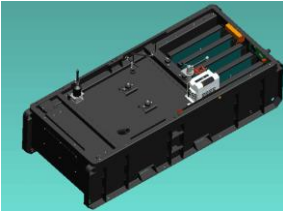



- Power voltage: DC12V;
- Power Consumption < 0.1A (actuator exclude) ;
- Speed fluctuation rate: ≤ ±0.25 %;
- Steady speed droop: 0~5 % available;
- Ambient temperature: -40°C ~ +85°C;
- Ambient humidity: < 95%;

Oil Automatic Maintenance Device (Optional)

For 1103 series Perkins engine, ONLY automatic oil refueling system is available, however, still needs normal maintenance by manual.

Oil automatic maintenance device can be equipped for the gen-sets that are unattended in long time to ensure the normal work of lubrication system. The service intervals can be extended from 500hours to 1000hours.

Necessary Devices

			
1000L Base tank (Standard)	Fuel Preliminary Filter (Standard)	Water-Jacket Heater (Optional)	Electronic Fuel Gauge (Optional)



SHWE EIN MACHINERY LTD.



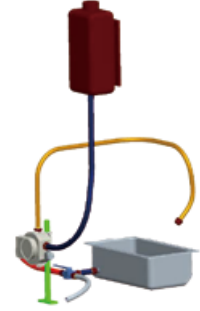
Probe Type Water Level Switch (Optional)



Heavy-Duty Filter (Optional)



Electrical Control System (Optional)



Oil Automatic Maintenance Device (Optional)

Alternator Specifications

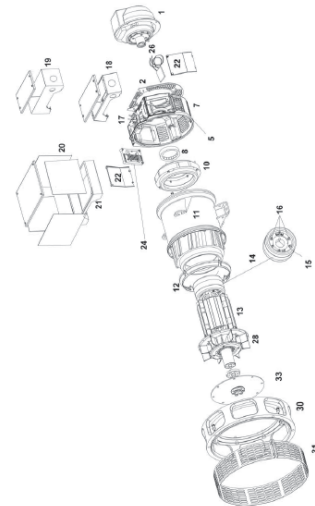
Alternator model		EAGLE184G
Brand		EAGLE
Rated output prime power	KVA	30
Efficiency	%	87
Rated speed	rpm	1500
Rated frequency	Hz	50
Phase		3
Rated voltage	V	400
Exciter type		Self excitation, Brushless
Power factor		0.8
Voltage adjust range	%	≥5
Voltage regulation rate	%	≤±1
Insulation grade		H
Protection grade		IP23



SHWE EIN MACHINERY LTD.

Auxiliary Winding (Standard)

It will lead to machine halt caused by sudden drop of voltage and frequency when the momentary start loading current is large, such as motors, nonlinear loading UPS、EPS etc. At this time, we need to add Auxiliary Winding to provide individual output voltage to the excitation system till the breakdown is disappeared or the loadings like motors start successfully and the recovery of voltage.(As Figure 1)



RFI (Optional)

There is a lot of radio frequency signal around the telecomm base station. In order to ensure the interference when the radio transmitting is small, RFI can be configured when necessary.(As Figure 20)

Space Heater (Optional)

It's necessary to install a space heater to keep the winding surface dry without

RTD/PTC (Optional)

To ensure the generator run safely and reliably, it's necessary to embed winding temperature sensors RTD or thermistor PTC on the generator winding when genset work temperature is high or heavily loaded. One or two (one for use another for spare)sets are optional to protect the winding. (As Figure 26)
Remark: RTD is a kind of temperature sensor. It should be used with DSE2255 to show the resistance data to monitor every winding temperature in time; PTC is a kind of thermistor to output the switch volume matched with a temperature controller.
It will output the alarm signal to protect the generator by cut off the excitation circuit when break down.

Winding RTD



Bearing RTD



MCCB (Standard)

ABB 4P circuit breaker is mainly applied to circuit overload and short circuit protection of AC 50Hz with rated voltage upto 400V and rated current upto 63A.



SHWE EIN MACHINERY LTD.

Control System DSE7320

All EAGLE generating sets have a control cabinet mounted on the gen-set base frame.

NANO3 (ComAp)



Suitable for ≤ 250 kVA Gen-sets

DSE4520 (Deepsea)







Suitable for >250 kVA Gen-sets

DSE7320 (Deepsea)



Suitable for all series Gen-sets

The Controller LCD Display	NANO3 control system	DSE4520 control system	DSE7320 control system	Controller Optional
Voltage between phases(L-L)	√	√	√	IL-NT-AMF25(ComAp)
Voltage between neutral and phase(L-N)	×	√	√	
Frequency	√	√	√	IC-NT-MINT(ComAp)
3 Phase current	√	√	√	
Real power(kW) and apparent power(kVA)	√	√	√	DSE8610(Deepsea)
Power factor	√	√	√	
Engine speed	√	√	√	HGM6120(SmartGen)
Running hours	√	√	√	
Coolant temperature	√	√	√	
Oil pressure	√	√	√	
Battery voltage	√	√	√	
LCD alarm indication	√	√	√	
3 Phase mains (utility) sensing	×	√	√	
Protecting Functions				
Emergency stop button	√	√	√	
High coolant temperature	√	√	√	
Low oil pressure	√	√	√	
Over current/load	√	√	√	
under/over speed, frequency & voltage	√	√	√	
Low/High battery voltage	√	√	√	
Low coolant level	Optional	Optional	Optional	



SHWE EIN MACHINERY LTD.

Battery Floating Charger (Standard)

Smartgen BAC06A -12V BAC06 series switching battery charger adopts the latest switch power components, which is designed for charging lead-acid starting battery according to its property. The charger is suitable for lead-acid battery float charge. The maximum charge current for 12V charger is 6A. Feature:

1. Designed in switching power structure, wide range of AC voltage input, small volume, light weight and high efficiency;
2. Two-stage charging method (constant current firstly and then constant voltage), fully considering charging property of the lead-acid battery, can avoid overcharging and extent extend the battery life to the fullest;
3. With short circuit and reverse connection protection;
4. Charging voltage and current can be adjusted via potentiometer on the spot;
5. LED display: Power indication and charging indication;
6. Horizontal type for installation of BAV06A, easy to install;
7. Vertical type for installation of BAC06V, furthest decreased installation dimension.

Surge Protector (Optional)

Type 1 power surge protector GBL-I 50kA/4F is installed in the main panel to avoid the destroy from direct lightning, indirect ray and induction lightning. It's used for protection in 0A-1 area.

Specification:

Maximum continuous voltage U_c (VAC): 275/385/420

Voltage Protection Level U_p (kV): ≤ 3.0

Maximum impact current I_{imp} (kA): 50.0

Response Time (ns) : < 25

Protection Level: IP20 / Front Fuse: 160A



Industrial Plugs & Sockets (Optional)

The gensets are installed industrial plugs & sockets which meet international standard IEC60309、EN60309、CEE17 etc, as standard.

This will meet the users to connect the small power loading very quickly. In the meantime, we install earth-leakage protection device over the connectors to ensure workers safety.

Specification

·Rated voltage: 220~380Vac

·Rated current: 16A/32A/63A/125A

·Poles: 2P+E/3P+N+E

·Protection level: IP44/IP67

Remark: The genset has one set of 16A IP44 380V industrial connector (city power/input from other genset) as standard with one installation space available. Multi-sets can be customized.





SHWE EIN MACHINERY LTD.

Built-in ATS (Standard)

4P EAGLE series ATS is PC level and apply to reliable dual voltage switching under 50/60 hz with low voltage and AC power system. There are both automatic and manual operation mode with mechanical and electrical interlock.

Telecom genset has built-in ATS as standard. It can switch the city power with other genset when connected with loading. Such as when the city power stop, it will start the automatic switch mode and standby mode.

Specification:

- Operating temperature: $-20\sim+45^{\circ}\text{C}$;
- Relative humidity: under $+40^{\circ}\text{C}$ average humidity $\leq 50\%$, no condensation;
- Altitude: $\leq 2000\text{m}$;
- Pollution class: III;
- Protection class: IP20 (nomenclature);



Silencer (Standard)

Industry type muffler, which will control the noise level within 75dB(A)@75% load at 1m. Secondary muffler with micro perforated mesh plate and mute foam can be installed for super silent configuration to control noise level within 70dB(A)@75% load at 1m.





SHWE EIN MACHINERY LTD.

Options

Engine

- Perkins & Kobuta
- Electronic governor
- Heavy duty filter
- battery heater
- Oil heater

Alternator

- Intake air filter device (drop power by 5%)
- Space heater
- RTD/PTC

Generator Set

- Maintenance tools
- Coolant (-30°C)

Control Model

- CGC413
- AMF25
- 4poles MCCB

Fuel System

- full bunded base fuel tank
- Outside fuel tank
- Automatic fuel feeding
- Automatic oil feeding
- oil pump drain pump

Canopy

- For tropical type
- For ocean climate

ISO 9001



No. (20), Myaing Hay Wun Street, Thaketa Industrial Zone, Yangon, Myanmar.

Tel: +95-9-777049522/24
www.sem.com.mm

Email: toewin@sem.com.mm