

DIESEL GENERATOR SET

110-480V 3P4W

ISO 9001:2000



Standard Features and Characteristics

SWT DIESEL GENERATOR SET

Rating Range

1500RPM 50Hz

| | | |
|----------|-----|-----|
| Standby: | kW | 160 |
| | kVA | 200 |
| Prime: | kW | 144 |
| | kVA | 180 |



The picture only for reference.

ALTERNATOR RATINGS

| | | |
|---------------------|-------------------|-------------------------|
| Alternator Model | UCI274H(STAMFORD) | LSA46.2 M5(LEROY SOMER) |
| Frequency and Speed | 50Hz 1500rpm | 50Hz 1500rpm |

Prime Power Data

| Class-TEMP Rise(°C) | Cont.H -125K/40°C | | | | Cont.H -125K/40°C | | | |
|-----------------------|---------------------|-------|-------|-----|-------------------|------|------|------|
| | Voltage series star | 380 | 400 | 415 | 440 | 380 | 400 | 415 |
| Voltage parallel star | 190 | 200 | 208 | 220 | 190 | 200 | 208 | 220 |
| Voltage series delta | 220 | 230 | 240 | 254 | 220 | 230 | 240 | N/A |
| Rating capacity(kVA) | 200 | 200 | 200 | N/A | 200 | 200 | 200 | 200 |
| Rating power(kW) | 160 | 160 | 160 | N/A | 53.0 | 56.0 | 55.0 | 55.0 |
| Power efficiency(%) | 93.0 | 93.3 | 93.4 | N/A | 89.7 | 89.7 | 89.7 | 89.7 |
| Input power(kW) | 172.0 | 171.5 | 171.3 | N/A | 59.1 | 62.4 | 61.3 | 61.3 |

Standby Power Data

| Class-TEMP Rise(°C) | Standby.H -125K/40°C | | | | Standby.H -150K/40°C | | | |
|-----------------------|----------------------|-------|-------|-----|----------------------|------|------|------|
| | Voltage series star | 380 | 400 | 415 | 440 | 380 | 400 | 415 |
| Voltage parallel star | 190 | 200 | 208 | 220 | 190 | 200 | 208 | 220 |
| Voltage series delta | 220 | 230 | 240 | 254 | 220 | 230 | 240 | N/A |
| Rating capacity(kVA) | 212 | 212 | 212 | N/A | 71.0 | 74.0 | 73.0 | 73.0 |
| Rating power(kW) | 169.6 | 169.6 | 169.6 | N/A | 57.0 | 59.0 | 58.0 | 58.0 |
| Power efficiency(%) | 92.8 | 93.1 | 93.3 | N/A | 89.2 | 89.2 | 89.2 | 89.2 |
| Input power(kW) | 182.8 | 182.2 | 181.1 | N/A | 63.9 | 66.2 | 65.1 | 65.1 |

● QUALITY STANDARDS

- The SUPERWATT generator set compliance with all main standards, such as ISO8528 (GB/T2820-97), GB755, BS5000, VDE0530, ISO3046, IEC34-1, CSA22-2, AS1359, ISO14001.
- Diesel engine and alternator OEM authorization certificate and their quality assurance.
- Other standards and certifications can be considered on request.

● ASSEMBLY

- The engine and alternator are close coupled by means of an SAE flange. A full torsional analysis has been carried out to guarantee no harmful vibration will occur.
- Anti-vibration pads are affixed between engine alternator feet and the baseframe. Thus ensuring complete vibration isolation of the rotating assemblies and enabling the machine to be placed on an uneven surface without any detrimental effects.
- For durability and corrosion resistance, all iron and steel surfaces of canopy fabrications have been treated for coating by grit blast cleaning. Then covered by a polyester powder paint which provides an excellent corrosion resistant surface.

● CONTROL SYSTEM AND PROTECTION

- Controllers are available for all applications. The controller system is used to start and stop the engine, indicate electric date and protect the generator set. See controller features inside.
- The revolving parts are covered by safety net, and the place which easy to scald and got an electric shock all to have the obvious warning slogan.

● WARRANTY

- SUPERWATT Company provides one-source responsibility for the generator set and accessories.
- Each SUPERWATT generating set has been got through 2 hours load test for running 0%,25%,50%,75%,100% and 110% load, all protective devices and control function are stimulated and checked before dispatch.
- All equipment is guaranteed for the period of 1000 hours or 12 mouths from the date of commissioning or 18 months from shipping, whichever occurs first.
- Convenience for operation and maintenance, backed by PERKINS, NEWAGE and LEROY SOMER global service network.

RATINGS: All three-phase units are rated at 0.8 power factor. **Standby ratings :** Standby ratings apply to installations served by a reliable utility source. The standby rating is for this rating. Ratings are in according with ISO-3046/1, BS 5514 ,AS 2789 , and DIN 6271.

Prime Power Ratings: Prime power ratings apply to installations where utility power is unavailable or unreliable. At varying load, the number of generator set operating hours is unlimited. A 10% overload capacity is available for one hour in twelve. Ratings are in accordance with ISO-8528/1, overload capacity in accordance with ISO-3046/1, BS 5514, AS 2789, and DIN 6271. For limited running time and base load ratings, consult the factory. The generator set manufacturer reserves the right to change the design or specifications without notice and without any obligation or liability whatsoever.

GENERAL GUIDELINES FOR DERATION: Altitude: Derate 2.0% per 300m(984 ft.) elevation above 1000m(3279 ft.) up to a maximum elevation of 2450m(8000 ft.). More than 2450m(8000ft), please contacts with us or our dealer seek the help.
Temperature: Derate 2.0% per 11 °C (20°F) temperature above 40°C (104°F).

ALTERNATOR

| Specification | 1500RPM 50Hz |
|-------------------------|--|
| Type | 4-Pole, Rotating Field |
| Exciter type | Brushless, Self excited |
| Voltage regulator | Solid State, Volts/Hz |
| Voltage regulation | ≤1.5% |
| Insulation | Class H |
| Protection | IP23 |
| Rated power factor | 0.8 |
| Stator winding | Double layer concentric |
| Winding pitch | Two thirds |
| Winding leads | 12 |
| Maximum overspeed | 2250 Rev/min |
| Sustained short circuit | Self excited machines do not sustain a short circuit current |
| Waveform distortion | No load < 1.5% Non-distorting balanced linear load < 5.0% |
| Altitude | ≤1000 m |

- Alternators meet the requirement of BS EN60034 and the relevant section of other international standards such as BS5000, VDE 0530, NEMA MG1-32, IEC34, CSAC22.2-100, As1359, and other standards and certifications can be considered on request.
- The 2/3 pitch design avoids excessive neutral currents. With the 2/3 pitch and carefully selected pole and tooth designs, ensures very low waveform distortion.
- Brushless alternator with brushless pilot exciter for excellent load response.
- The insulation system is class H, easy paralleling with mains or other generators, standard 2/3 pitch stator windings avoid excessive neutral currents.
- Backed by worldwide service network.

DIESEL ENGINE

- 1106C-E66TAG4 diesel engines are manufactured by Perkins Engines Company Limited(UK).
- It is a compact 4-cylinders naturally aspirated diesel engine. It is premium features provide economic and durable operation for standby duty, low gaseous emissions, overall performance and reliability. It's rating speed is 1500rpm.

Application Data

| Engine Specifications | 1500RPM 50Hz |
|-----------------------------------|--|
| Manufacturer | PERKINS(UK) |
| Number of cylinders | 6 |
| Cylinder arrangement | Vertical in-line |
| Cycle | Four stroke |
| Induction system | Turbocharged air-to-air aftercooling |
| Compression ratio | 16.2:1 |
| Bore | 105 mm |
| Stroke | 127 mm |
| Cubic capacity | Clockwise viewed from front |
| Direction of rotation | 6.6litres |
| Firing order | 1, 5, 3, 6, 2, 4 |
| Max.Power at rated rpm | 180.4KW |
| Estimated total weight(dry) | 714 kg |
| Frequency regulation steady state | ±0.75% |
| Frequency | Fixed |
| Mean piston speed | 6.8 m/s(22.3ft/s) |
| Combustion air flow | 13.5 m ³ /min(447 ft ³ /min) |

Exhaust

| Exhaust System | 1500RPM 50Hz |
|-------------------------------|---|
| Maximum back pressure | 10.7 kPa (3.2 in Hg) |
| Exhaust outlet size | TBA |
| Exhaust gas flow (max) | 40.3m ³ /min (1424 ft ³ /min) |
| Exhaust gas temperature (max) | 524°C(975°F) |

Lubrication

| Lubrication system | 1500RPM 50Hz |
|------------------------|--------------------------------|
| Total system | 28.3litres(59.8UKpints) |
| Minimum | 26.4 litres(55.7UKpints) |
| Relief valve opens | 552kPa(80lbf/in ²) |
| Normal oil temperature | 121°C(250°F) |

Engine Electrical

| Engine Electrical System | 1500RPM 50Hz |
|---------------------------------|--------------|
| Battery charging alternator: | |
| Ground(negative/positive) | Negative |
| Volts(DC) | 12V |
| Ampere rating | 100A |
| Starter motor rated voltage(DC) | 12V |
| Starter motor rated Capability | 7.6KW |
| Minimum cranking speed | 105 rev/min |
| Battery voltage | 12V |

Fuel

| Fuel System | 1500RPM 50Hz |
|-------------------------|-----------------------------------|
| Type of injection | Direct |
| Fuel injection pump | Electronic |
| Fuel injector | Multi-hole |
| Nozzle opening pressure | 29.0Mpa(4208lbf/in ²) |

| Fuel lift pump | 1500RPM 50Hz |
|---------------------------------------|----------------------------------|
| Fuel lift pump type | Electrical |
| Flow/hour | 180litres/hr(39.59UK gals/hr) |
| Pressure | 137.9kPa(20lbf/in ²) |
| Maximum fuel pump suction | 14kPa(4 lbf/in ²) |
| Governor type | Electronic governor |
| Fuel specification | |
| Density (kg/l @ 15 °C) | 0.85 - 0.85 |
| Viscosity (mm ² /s @ 40°C) | 2.0 - 3.2 |
| Sulphur Content | 0.03%-0.05% |
| Cetane Number | 40-48 |

| Fuel consumption | | | | 1500RPM | 50Hz |
|------------------|-----|-----|-----|---------|------|
| Power rating % | | | | | |
| g/kWhr | | | | | |
| 110 | 100 | 75 | 50 | | |
| 208 | 210 | 223 | 250 | | |

Application Data

Cooling System

| Radiator | 50Hz |
|--|--|
| Face area | 0.6m ² (930in ²) |
| Rows and materials | 3, brass |
| Matrix density and material | 12, copper |
| Width of matrix | 745 mm (29.3in) |
| Height of matrix | 750 mm (29.5in) |
| Pressure cap setting | 68.9kPa (10 lb/in ²) |
| Fan | 50Hz |
| Diameter | 711.2 mm (28 in) |
| Drive ratio | 1.2 : 1 |
| Number of blades | 7 |
| Material | Plastic |
| Type | Pusher |
| Coolant | 50Hz |
| Total system capacity with radiator | 37.2 litres (65.5UK pints) |
| without radiator | 12.8 litres (22.55 UK pints) |
| Drain down capacity | TBA litres (UK pints) |
| Maximum top tank temperature | 110 °C (230°F) |
| Minimum temperature to engine | 79 °C (175°F) |
| Temperature rise across engine | 5 °C (41°F) |
| Max permissible external system resistance | 35 kPa(5lbf/in ²) |
| Thermostat operation range | 87.8 - 96.1°C (190 - 205 °F) |
| Recommended coolant: | 50% ethylene glycol with a corrosion inhibitor (BS 6580 :1992 or ASTM D3306-89 or AS2108) and 50% clean fresh water. |

CONTROLLERS

DSE 702 MANUAL CONTROLLER(Standard)



The controller made in UK
DEEPSEA genset controller

Control panel for open

The Model 702 is a Manual Engine Control Module designed to control the engine via a key switch and pushbuttons on the front panel. The module is used to start and stop the engine and indicate fault conditions, automatically shutting down the engine and indicating the engine failure by LED, giving true, first up fault annunciation.

Panel introduction:

- Indicator type frequency, voltmeter and ampere meter demonstration unit's electrical parameter.
- The voltage change-over switch and the rheotrope uses for to choose the different phase voltage and current to display.
- The big red button uses for the operator to stop the genset peremptorily.
- The oil pressure gauge, coolant temperature gauge and the battery voltage gauge.
- The controller. And an integral anti-tamper LCD hours run counter is also provided.
- If the customer needs to use the preheating function, we will be able to increase the preheating button.

Protection:

Low Oil Pressure
High Engine Temperature
Auxiliary Shutdown
Over speed

DC Supply: 8 to 35 V Continuous.

DSE 704 AMF CONTROLLER(Optional)



The controller made in UK
DEEPSEA genset controller

Control panel for soundproof

The DSE704 is an Automatic Mains Failure module with generator monitoring, protection and start facilities. It utilises advanced surface mount construction techniques to provide a compact yet highly specified module. This model can start the unit automatically when the MAINS failure and then control the ATS turn to the genset side. Operation of the module is via three pushbuttons mounted on the front panel with STOP, MANUAL and AUTO positions.

Panel introduction:

- Indicator type frequency, voltmeter and ampere meter demonstration unit's electrical parameter.
- The voltage change-over switch and the rheotrope uses for to choose the different phase voltage and current to display.
- The oil pressure gauge, coolant temperature gauge and the battery voltage gauge.
- The controller.
- Preheating button.

Protection:

Over Speed Shutdown.
Low Oil Pressure Shutdown.
High Engine Temp Shutdown.
Charger failure alarm.
Mains failure alarm.
Optional Under speed Protection.

DC Supply: 8 to 35 V Continuous.

DSE7320 AMF CONTROLLER(Optional)



The controller made in UK
DEEPSEA genset controller

Control panel for soundproof

The DSE7320 is an Automatic Mains Failure module with generator monitoring, protection and start facilities. The controller has a large LCD screen, display the generator's each parameter, running and alarm information. The off/replacement button, mode switch button, start/stop button and the LED indicator light, makes the user easy to operate and maintain the generator.

Panel introduction:

- Indicator or digital type frequency, voltmeter and ampere meter demonstration unit's electrical parameter.
- The big red button uses for the operator to stop the genset peremptorily.
- The controller.

Function:

- Communication: RS232 connection, uses the industry rank MODBUS protocol can easily communicate with others intelligence control system.
- Display function: LCD screen can display the generator's parameter and the control system's running information.
- Set up parameter: Engineer can set up the controller parameter from the control panel or through the PC, 6 programmable fan-out may satisfy the user each kind of demand.
- Protection: The control system can protect the generator set, manage each kind of electrical failure.
- Control Function of ATS.

DC Supply: 8 to 35 V Continuous.

Standard Features and Accessories

Standard Features

- Battery, Battery Rack and Battery Cables
- Integral Vibration Isolation
- Oil Drain Extension
- Air cleaner ,Heavy Duty
- 3 Pole Circuit Breaker
- Heavy duty industrial type exhaust silencer with flexible pipe(supplied loose).

Maintenance and Literature

- General Maintenance Literature Kit
- Test Certificate and design paper
- Quality certificate and Maintenance card

Accessories

Enclosed Unit

- Sound Enclosure
- Weather Enclosure (with enclosed critical silencer)
- Weather Housing (with roof-mounted critical silencer)
- Trailer(Causes the genset easily to move)

Open Unit

- Exhaust Silencer, Critical kit
- Flexible Exhaust Connector, Stainless Steel

Cooling System

- Block Heater (recommended for ambient temperatures below 0°C)
- Radiator Duct Flange
- Remote Radiator Cooling

Fuel System

- Auxiliary Fuel Pump
- Flexible Fuel Lines
- Mechanical dipstick or fuel level sensor
- Subbase Fuel Tank with Day Tank
- Fuel fill cap with breather
- 10 hours running tank
- Automatic fuel--providing device
- Hand primer pump

Electrical System

- Battery Charger, Equalize/Float Type

Engine and Alternator

- 3 or 4 Pole Circuit Breaker with Shunt Trip
- Fuel/Water Separator
- Oil Preheater
- Air Preheater
- Alternator Strip Heater

Maintenance and Literature

- Maintenance Kit (includes air, oil, and fuel filters)
- Overhaul Literature Kit

Paralleling System

- Reactive Droop Compensator
- Voltage Adjust Control
- Voltage Regulator Relocation Kit

Controller System

- Common Failure Relay Kit
- Customer Connection Kit(Except Open Style)
- Communications Products and PC Software
- Engine Pre-alarm Sender Kit
- Remote Annunciator Panel
- Remote Audiovisual Alarm Panel
- Remote Emergency Stop Kit
- PCRC series control system, with RS232 or RS485 communication connection and communication agreement.

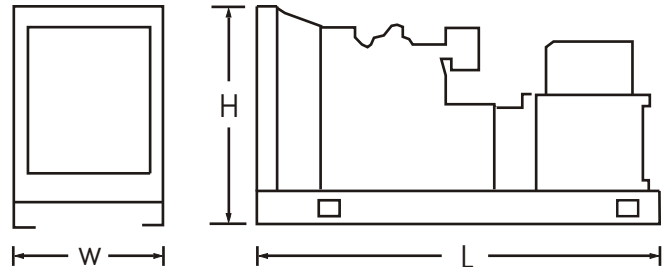
Miscellaneous Accessories

- _____
- _____
- _____
- _____
- _____

Dimensions and Weights

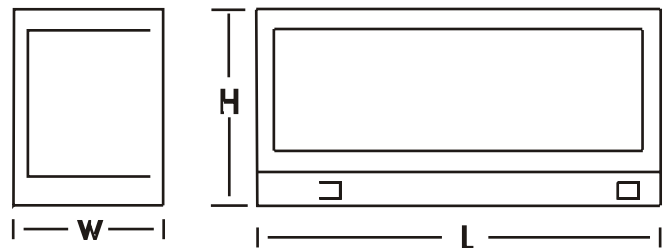
Open Style

| | |
|-------------------------------|---------------|
| Overall Size, L×W×H, mm | 2645×730×1630 |
| Weight(radiator model),net,Kg | 1644 |



Soundproof Style

| | |
|-------------------------------|----------------|
| Overall Size, L×W×H, mm | 3430×1110×2060 |
| Weight(radiator model),net,Kg | 2487 |



NOTE: This drawing is provided for reference only and should not be used for planning installation. Contact your local distributor for more detailed information.

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