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|---|--|-------------------------|--------------------------|
| DOOSAN DAEWOO Engine: P158LE Electrical Governor | Alternator: Leroy-somer LSA47.2VS2 | Generator Model: | TDA450X (Open) |
| | Optioanl: Stamford HCI444F Tide TPA354S1 | | TDA450XC (Silent) |

| | | | | |
|---------------------------|---------------------------|--|---------------------------------|-----|
| 60Hz 1800 r.p.m | 3 Phase 4 Wires | Power Factor: Cos ϕ = 0.8 | Emissions Certification: | N/A |
|---------------------------|---------------------------|--|---------------------------------|-----|

| RATINGS | Prime Power (PRP) | | Standby Power (LTP) | | Rated Current (A) |
|----------------|-----------------------------|------------|-------------------------------|------------|-----------------------------|
| | kW | kVA | kW | kVA | |
| Voltage (V) | | | | | Amps |
| 480/277 | 360 | 450 | 396 | 495 | 541.3 |
| 440/254 | 360 | 450 | 396 | 495 | 590.5 |
| 416/240 | 360 | 450 | 396 | 495 | 624.6 |
| 240/138 | 360 | 450 | 396 | 495 | 1082.6 |
| 220/127 | 360 | 450 | 396 | 495 | 1181.0 |

RATINGS:

All three Phase generator sets are rated at 0.8 power factor. All single-phase generator sets are rated at 0.8 or 1.0 power factor. **POWERGEN** reserves the right to change the design or specifications without notice and without any obligation or liability whatsoever.

Prime Power:

Available continuously at variable load in lieu of commercially purchased power for an unlimited number of hours per year in accordance with ISO8528-1, and an overload of 10% permitted for one hour in every twelve hours of operation in accordance with ISO 3046-1.

Standby Power:

Emergency Standby Power in variable load applications in accordance with ISO8528-1 in the event of a utility power failure. No overload available for this service as relevant alternators are peak continuous rated at 27°C.

Standard Features

- ▲ High efficient water cooled diesel engine
 - ▲ Brushless alternators (Class H, with AVR.)
 - ▲ Heavy duty rubber anti-vibration mountings
 - ▲ 12/24V starter batteries and connecting cables
 - ▲ Separate engine-drive battery charging alternator
 - ▲ Industrial silencer for open type generator sets
 - ▲ Residential silencer for open type generator sets
 - ▲ Auto start / Digital Tide Easycon Control Panel
 - ▲ Wiring with IEC standard
 - ▲ Factory Test Certificate
 - ▲ Operation & Maintenance Manual & Diagrams
 - ▲ Worldwide Product / Technical Support
- ▲ Radiator with cap and drain point.
 - ▲ Fully guarded engine driven fan
 - ▲ Circuit Breaker - 3 pole (MCCB)
 - ▲ Base fuel tank for 6 - 8 hours running at 100% load
 - ▲ Oil filter - Diesel filter - Air filter
 - ▲ Fully welded steel baseframe with lifting and fork-lifting facilities.
 - ▲ Sound proof & Weather protective enclosures for silent type generator sets.

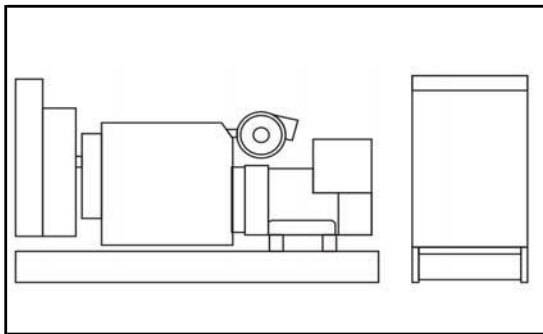
Optional

- △ Automatic Transfer Switch (ATS)
 - △ Water - fuel separator
 - △ Water heater for severe cold weather
 - △ Lub-oil heater for severe cold weather
 - △ 50°C-60°C Radiator
 - △ Dual wall fuel tank base
 - △ Fuel level sensor
 - △ Maintenance free battery
 - △ Additional **CE Features** Selection
- △ Extra air filters for time-maintenance
 - △ Extra diesel filters for time-maintenance
 - △ Extra oil filters for time-maintenance
 - △ Separated standing fuel tank
 - △ Low coolant level sensor
 - △ Full range of attachments and options available for alternator

Overall Dimensions (mm) & Weight (kg)

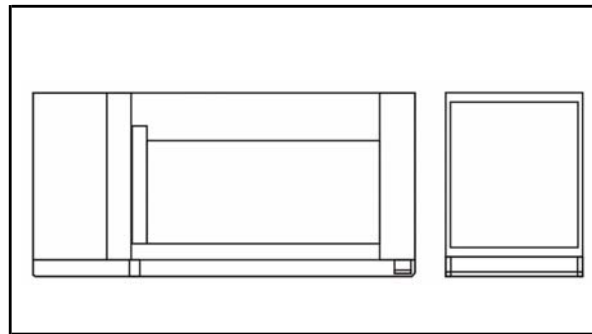
Open Type

Length:
2900
Width:
1400
Height:
1850
Weight:
2550



Silent Type

Length:
4200
Width:
1600
Height:
2100
Weight:
4700



Dimension and design are subject to change without notice.

Warranty

The goods of POWERGEN System are under warranty against defects in materials and workmanship for a period of 12 months or 1000 hours whichever come first from the date of delivery to the end user (except the damageable spare parts of genset caused by incorrect man-made operation), and that the aforementioned warranty for the same token is back up by the engine & alternator manufactures and their global distributors.

| General Performance | |
|----------------------------|---|
| Manufacture | DOOSAN DAEWOO |
| Engine Model | P158LE |
| Engine Type | 4 cycle,V-type,8-cylinder |
| Engine Speed | 1800 r.p.m |
| Base Output Power | 402kW/540Hp |
| Standby Power | 458kW/615Hp |
| Governor Type | Electronic |
| Air Intake Way | Turbocharged & Intercooled (air to air) |
| Displacement | 14.618L |
| Cylinder Bore * Stroke | 128mm × 142mm |
| NO. of Cylinders | 8 |
| Compression Ratio | 15:1 |
| Compression Pressure | Above 28kg/cm ² at 200rpm |
| Rotation | Counter clockwise viewed from flywheel |
| Firing order | 1-5-7-2-6-3-4-8 |
| Injection Timing | 16° BTDC |
| Max. permissible altitude | 1500m |

| Exhaust System | |
|-------------------------|--------------------------|
| Exhaust Gas Flow | 91.3 m ³ /min |
| Exhaust Gas Temperature | 606 °C |
| Maximum Back Pressure | 600 mmH ₂ O |
| Exhaust Pipe Size | N/A |

| Air Intake System | |
|--------------------------------|------------------------|
| Recommended intake piping size | N/A |
| Maximum Intake Air Restriction | |
| - Initial | 220 mmH ₂ O |
| - Final | 635 mmH ₂ O |

| Lubrication System | |
|-------------------------------|---------------------------------|
| Oil Pan Capacity (High - Low) | 21 - 17 Litres |
| Lubrication Method | Fully Forced Pressure Feed Type |
| Oil Pump | Gear Type Driven by Crankshaft |
| Oil Filter | Full Flow, Cartridge Type |

| Fuel System | |
|--|------------------------|
| Type Injection System | Direct Injection |
| Fuel Consumption at 100% Standby power | 118.6 Litres/hour |
| Fuel Consumption at 100% Prime power | 102.5 Litres/hour |
| Fuel Consumption at 75% Prime power | 74.7 Litres/hour |
| Fuel Consumption at 50% Prime power | 50.6 Litres/hour |
| Fuel Consumption at 25% Prime power | 28Litres/hour |
| Fuel Tank Capacity | |
| - Open Type Genset | 4-6 Hours at Full Load |
| - Silent Type Gensets | 615 Litres |

| Cooling System | |
|--|--------------------------------|
| Water Flow | 410Liters/min |
| Coolant Capacity - Engine Only | 20 Litres |
| Standard Thermostat (Modulating) Range | 71-85°C |
| Pressure System | Max. 0.5 kg/cm ² |
| Cooling Method | Fresh Water Forced Circulation |

| Electric System | |
|---------------------------|------------------|
| Electrical System Voltage | 24V |
| Battery | Maintenance-free |
| Connecting Cables | Aavailable |

| Thermal | |
|---------------------------|---------------|
| Radiated Heat to Ambient | N/A |
| Heat Rejection to Coolant | 40.1 kcal/sec |
| Heat Rejection to CAC | 18.6 kcal/sec |

Alternator Specification

| General Data | |
|----------------------|-------------------------|
| Manufacture / Brand | Leroy-somer |
| Model | LSA47.2VS2 |
| AVR Model | R250 |
| Coupling / Bearing | Direct / Single Bearing |
| Phase | 3 Phase |
| Power Factor | Cos ϕ = 0.8 |
| Winding pitch - Code | 2/3 - (N° 6) |
| Drip Proof | IP 23 |
| Excitation | Shunt |

| 60HZ/1800R.P.M | |
|--------------------------------|-------------------------|
| Prime Output Power | 363kW/454kVA |
| Standby Output Power | 400kW/500kVA |
| Insulation class | H |
| Voltage regulation | ± 0,5 % |
| Total harmonic (*) TGH / THC | no load<1.5%-on load<2% |
| Wave form : NEMA = TIF - (*) | < 50 |
| Wave form : I.E.C. = THF - (*) | < 2 % |
| Altitude | ≤ 1000 m |
| Overspeed | 2250 min -1 |

POWERGEN comprehensive Easycon range control panels are compact, versatile and easy to use.

Easycon 2.0L/H (GU601A / Deepsea DSE3110) panel is a key-start auto control panel, it's a basic control panel fits for generators up to 100kVA to provide basic operating parameters display and protection.



Easycon 3.0 L/H (GU641B / Deepsea DSE7210) panel is an auto & digital control panel, it's an entry level control panel which provides full power monitoring and protection facilities. All operating parameters are with LCD display. (Auto Main Failure Version DSE7220 also Available.)



Easycon 4.0L/H (GU620A / Deepsea DSE7310) panel is an auto & digital & Remote control panel which includes all the features of Easycon 3.0, and plus data communication of full telemetry via the RS232/RS485 interfaces, CANBus is also included. (Auto Main Failure Version DSE7320 also Available.)



Specifications

| | | | | |
|----------------------------|----------------------------|---|---|--------------------------------|
| 4 . 0 L / H | 3 . 0 L / H | 2 | Over Speed pre-alarm & shutdown - | Auto Start - |
| | | . | Low Oil Pressure Pre-Alarm & shutdown - | Oil Pressure - |
| 0 L / H | 0 L / H | 0 | High Water Temp. Pre-alarm & shutdown - | Genset Running Hours - |
| | | L | Volts, Current, Frequency, Rpm (Instruments)- | Battery Voltage and Charging - |
| / | / | / | Fuel Sensor as optional - | |
| | | H | AMF Module as optional - | |
| H | H | Digital Control Panel - | | Switch Opening as Optional - |
| | | Overcurrent Pre-alarm - | | AMF Module as optional - |
| | | Overcurrent Shutdown - | | Power Factor - |
| | | Prefix Start, Service Indicate, Fault History for Deepsea Module.- | | |
| | | Remote Start (Data communication of full telemetry via the RS232/RS485) - | | CANBus - |

Options

Easycon 5.0H (Deepsea DSE8610) panel fits for Gen-Gen automatic Synchronising and load sharing.

Easycon 6.0H (Deepsea DSE8620) panel fits for Single Gen - Mains automatic Synchronising.

Deepsea DSE7560 Synchronising Controller for Multi gen – Mains Synchronising. This is a separate control unit which enables multiple Easycon 5.0 equipped Gens to be synchronised with the Mains supply.

(For details specifications of Control Panels, please consult our sale department.)

The generators are supplied together with a circuit breaker that permits a thermal protection against overloads and magnetic protection against short-circuit.

Automatic Transfer Switch

A.T.S - 4 Poles

POWERGEN offers not only a changeover switch but also an integrated mains detection and switch system for your 24 Hour Power Protection. The system enables automatic start-up and operation of the generating set in the event of a mains power failure, overvoltage or loss of phase; and also mains automatic re-transfer once it come back.

ATS: Automatically transfer and re-transfer load from main power to gen-power without operator intervention. (Both Automatic and manual operation.)

Please consult our sales department for specifications.



Enclosure / Canopy

(Sound-attenuated & Weather Protective)

“Ensure a quieter life with our sound attenuation system.”

Features:

Extremely Rugged &

Highly Corrosion Resistant Construction

- ▲Body made from 2.0mm sheet steel components with powder coating
- ▲8-12 hours built-in fuel tank integrated into the skid-mount base
- ▲Excellent design and craftsmanship
- ▲Zinc alloy with black powder coated or Bright polished stainless steel hinges tested and proven to withstand corrosive conditions.
- ▲Compact structure and longer service life

Easy Commissioning and Maintenance

- ▲Separate & Standing control cabinet at one side, quick fix electrical power connections.
- ▲Lube oil drain and radiator drain
- ▲Side doors allowing 180° opening rotation
- ▲Radiator fill access through cover in canopy roof.
- △Sockets as Optional

Security and Safety

- ▲Earth leakage protection
- ▲40-50mm non-inflammable sponge inside
- ▲Control panel viewing window in a lockable access door
- ▲Emergency stop button mounted on canopy exterior
- ▲Fuel fill and battery can only be reached via lockable access doors
- ▲Exhaust silencing system enclosed for operator safety
- ▲Excellent cooling system to avoid high water temp., reliable operation under harshest conditions.
- ▲(Ambient temp. upto 40-52°C and altitudes up to 1000M)

Transportability

- ▲Lifting points on baseframe
- ▲Lifting shelf as optional

Quiet (Reduce Sound and Vibration)

Noice Level:

77-88dBA at 1m & 67-78dBA at 7m