



Enriching Lives

KIRLOSKAR OIL ENGINES LIMITED

A Kirloskar Group Company

DIESEL GENERATING SETS

| Model | | 50WS60 | 50W60 |
|---------------------|-----------|-----------------|-------|
| Type | | SAE | Open |
| Standby Power (ESP) | kVA / kWe | 50 / 40 | |
| Prime Power (PRP) | kVA / kWe | 45 / 36 | |
| Phase / Volts | | 3 Phase / 220 V | |

SAE: Sound Attenuated Enclosure, Ratings are as per ISO8528; refer page 5 for definitions



60 Hz

Power, Performance, Peace of mind



KIRLOSKAR
GREEN
POWER IDEAS

Note: Above picture shown for illustration purpose only, actual product may be different.



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| Generating Set Specifications | | | |
|---|-----------|-----------|-------|
| Model | | 50WS60 | 50W60 |
| Type | | SAE | Open |
| Line Voltage | V | 220 | |
| Phase Voltage | V | 127 | |
| Power factor | --- | 0.8 (lag) | |
| Fuel tank capacity | L | 95 | 95 |
| Fuel consumption % of PRP ¹ | 50% load | L/hr | 5.9 |
| | 75% load | L/hr | 8.1 |
| | 100% load | L/hr | 10.6 |
| Sound level at 7m at 75% load as per ISO8528-10 | dB(A) | 70 | --- |

| Engine, Alternator and Controller | | | |
|-----------------------------------|---------------|------------|----------------------|
| | Engine | Alternator | Controller |
| Make | Kirloskar | Stamford | Deepsea |
| Model | 3R1040TA G1 | S1L2N1 | DSE4522 A2 |
| Type | Liquid cooled | Brushless | Microprocessor based |

Product Benefits

- High Performance and Reliability
- Low Fuel Consumption
- Extended Service Interval
- Easy Installations
- Low maintenance cost

Performance Assurance

- Total Quality Management System
- Engines & Generating set fully manufactured by us in facilities certified to ISO9001, ISO 14001 & OHSAS 18001
- Generating set complies to ISO 8528
- Engines comply to ISO 3046 & AC Generators comply to BS5000, IEC34

Support

- Service support in all countries of operation

1. +5% tolerance is applicable as per ISO3046. Fuel consumption based on diesel fuel with a specific gravity of 0.85 and confirming to BS 2869, Class A2.





Engine Specifications

| Physical Data | | Air System | |
|----------------------|---------------------------|---|--|
| Engine rpm | 1800 | Air filter type | Dry replaceable |
| Configuration | Inline | Air volume required for combustion (m ³ /hr) | 187 |
| Cylinders | 3 | Air volume required for cooling (m ³ /hr) | 9300 |
| Type | Four stroke | Air volume required by alternator (m ³ /hr) | 634 |
| Bore x Stroke (mm) | 105 x 120 | Total fresh air required (m ³ /hr) | 10121 |
| Displacement (L) | 3.12 | | |
| Cooling | Liquid cooled | Cooling System | |
| Aspiration | Turbo charged aftercooled | Cooling system capacity (L) | 12 |
| Compression ratio | 18 : 1 | Coolant type | Ethylene glycol based premixed with water in ratio 50:50, antifreeze & anti corrosion type |
| Piston speed (m/s) | 7.2 | Radiator fan load (hp) | 3 |
| hp Prime @ 1800rpm | 62 | | |
| hp Standby @ 1800rpm | 68.2 | | |

| Fuel System | | Exhaust System | |
|---------------------|-----------------------------|--|------------------------------------|
| Type of fuel filter | Two stage spin on type | Exhaust gas flow rate (kg/hr) | TBA |
| Governor type | Mechanical | Maximum exhaust gas temperature (°C) | TBA |
| Class of governing | ISO 8528-5, Class G2 | Max. allowed back pressure (mm of Hg) | 50 |
| Recommended Fuel | Class A2, High speed diesel | Flange details for exhaust piping extension (mm) | PCD 148+/-0.5, 4 holes 12.0 +/-0.5 |

| Electrical System | | Lubrication System | |
|------------------------------|-------------------------------------|--|---------------------------|
| Starting arrangement | 12V Electric | Type of lube oil filter | Full flow spin on type |
| Starter battery rating | 110Ah | Oil to be used | SAE 15W40 API:CI4 |
| Battery charging alternator | Engine mounted 12V | Oil pump type | Through G-rotor gear pump |
| Battery charging alternator | 35 A | Lube oil sump capacity (L) refill / first fill | 7.5 / 9 |
| Battery charger ² | 12V 2A / 5A with float & boost mode | Lube oil consumption | 0.3% of fuel consumption |

2. Optional extra accessory.



Alternator Specifications

| Alternator Physical Data | | | Alternator Operating Data | |
|---------------------------|-----------------------|-------------------------------------|--|---|
| Continuous rating | Insulation Class | H | Over speed (RPM) | 2250 |
| | kVA at 0.8 PF | 45 | Excitation | Self-excited (brushless) |
| | Temperature rise (°C) | 125 /40°C | | |
| Number of bearings | | 1 | Cooling method | Forced through shaft mounted blower fan |
| Pole | | 4 | THD at full linear balanced load AC waveform | Less than 5% |
| Leads | | 12 | Efficiency at full load | 90.4 |
| Winding pitch | | 2/3 | Voltage Regulation (%) | ± 1.0 % |
| Ingress Protection Rating | | IP 23 | Reactance per unit (Xd) | 1.813 |
| Voltage regulator | | AS540 | Reactance per unit (X'd) | 0.110 |
| Recommended earthing type | | Solid separate for neutral and body | Reactance per unit (X''d) | 0.120 |

Control System Features and safeties

| On display screen | | Protections | Warning | Shutdown | Indication | Digital Input |
|-----------------------------------|----|--------------------------------------|---------|----------|------------|---------------|
| Generator Volts, Amps. Hz | ✓ | Low oil pressure | No | ✓ | ✓ | ----- |
| Generator kW, kVA, kVAr | ✓ | High coolant temperature | ✓ | ✓ | ✓ | ----- |
| Generator per phase PF | ✓ | Low fuel level | ✓ | ✓ | ✓ | ----- |
| Generator kWhr meter | ✓ | Low coolant level | No | ✓ | ✓ | ----- |
| Earth current (A) | No | Under & over speed | ✓ | ✓ | ✓ | ----- |
| Grid (Mains) Voltage (L-L) | ✓ | Low & high battery voltage | ✓ | No | ✓ | ----- |
| Battery Voltage (V) | ✓ | Low charge alternator | ✓ | ✓ | ✓ | ----- |
| Engine start attempts | ✓ | Emergency stop | No | ✓ | ✓ | ----- |
| Engine Temperature (°C) | ✓ | Fail to start & fail to stop warning | ✓ | No | ✓ | ----- |
| Engine speed (RPM) | ✓ | Auto remote start/stop DI | ----- | ----- | ----- | ✓ |
| Engine Run Hours (Hours & Min.) | ✓ | Under & over voltage | ✓ | ✓ | ✓ | ----- |
| Lube oil Pressure (kPa, PSI, bar) | ✓ | Under & over frequency | ✓ | ✓ | ✓ | ----- |
| Fuel level (%) | ✓ | Over kW or Overcurrent | No | ✓ | ✓ | ----- |

| Communication ports | | ✓ Available | No - Not available | ----- Not applicable |
|---------------------|----|-------------|--------------------|----------------------|
| RS485 | ✓ | | | |
| RS232 | No | | | |



Standard and Optional Features

Generating Set (*applicable only for SAE type)

- Top lifting arrangement*
- Silencer mounted inside canopy*
- External fuel filling access*
- Longer fuel tank breather tube
- Door for radiator access*
- Coolant drain arrangement
- Mesh on exhaust tail pipe
- Fuel transfer pump
- Stainless steel door hinges*
- Control panel door stopper*
- Fuel priming manual pump
- External standalone fuel tank

Engine

- SMF Battery
- Lube oil drain pump*
- Dual (electrical + mechanical) fuel gauge
- Guard for rotating parts
- Water separator
- Over-cranking protection
- Jacket water heater

Alternator

- Alternator space heater
- EBS
- Remote voltage adjustment potentiometer
- Alternator inlet louver filter

Controls

- Automatic Starting & AMF facility
- ATS Panel
- 4 Pole circuit breaker
- Communication port RS485 Kirloskar remote monitoring (KRM) unit
- 12V DC hooter
- Static Battery charger
- 3 Pole 160A MCCB
- Dummy Load bank

● Standard Feature ○ Optional Feature

Generating set ratings definitions as per ISO8528:

(De-rating is applicable for climatic conditions other than standard reference conditions of ISO8528-1)

Standby Rating / Emergency Standby power / ESP: These ratings are applicable for supplying electrical power at variable load in the event of a utility power failure. The standby power is maximum power available with no overload permitted on these ratings. The permissible average power output over 24 hours of operation shall not exceed 70% of the ESP. The alternator on this model is peak continuous rated (as defined in ISO 8528-3)

Prime Rating / PRP: These ratings are applicable for supplying continuous electrical power at variable load in lieu of commercial purchased power. There is no limitation to the annual hours of operation and this model can supply 10% overload power for 1 hour in 12 hours. The permissible average power output over 24 hours of operation shall not exceed 70% of the PRP.

Continuous Rating / COP: These ratings are applicable for supplying power continuously to a constant load up to the maximum output rating for unlimited hours. No sustained overload capability is available for this rating.





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Documents & Quality Standards

Documents

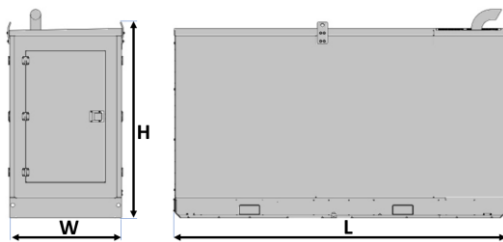
Generating set user manual, engine operation and maintenance manual – in soft form

Quality standards

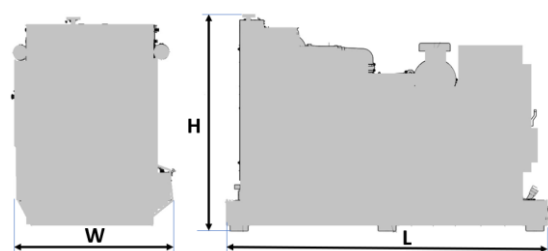
ISO 8528, ISO 3046, IS 10002, BS5514, DIN 6271, ISO 9001, ISO 14001

| Weight & Dimensions | | | | |
|---------------------------------|---------------------------|----|-----------------|-----------------|
| Model | | | 50WS60 | 50W60 |
| Type | | | SAE | Open |
| Overall dimensions ³ | Length x Width x Height | cm | 256 x 111 x 146 | 175 x 109 x 136 |
| Weight ⁴ | Weight with oil & coolant | kg | 1310 | 840 |

SAE



OPEN



- 3. Dimensions are for logistics purpose only. Please refer installation / GA drawing for installation.
- 4. Weight mentioned is for indicative only. Actual weight may vary based on configuration.

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