



Enriching Lives

KIRLOSKAR OIL ENGINES LIMITED

A Kirloskar Group Company

DIESEL GENERATING SETS

Model		1111WS60	1111W60
Type		SAE	Open
Standby Power (ESP)	kVA / kWe	1111 / 888.8	
Prime Power (PRP)	kVA / kWe	1010 / 808	
Phase / Volts		3 Phase / 380 V	

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



Power, Performance, Peace of mind

60 Hz



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		1111WS60	1111W60
Type		SAE	Open
Line Voltage	V	380	
Phase Voltage	V	220	
Power factor	---	0.8 (lag)	
Fuel tank capacity	L	900	425
Fuel consumption % of PRP ¹	50% load	L/hr	121
	75% load	L/hr	165
	100% load	L/hr	218
Sound level at 7m at 75% load as per ISO8528-10	dB(A)	80	---

Engine, Alternator and Controller			
	Engine	Alternator	Controller
Make	Kirloskar	Leroy Somer	Deepsea
Model	DV16 ETAG1	LSA49.1 L11	DSE7320 MKII
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	V	Air volume required for combustion (m ³ /hr)	TBA
Cylinders	16	Air volume required for cooling (m ³ /hr)	TBA
Type	Four stroke	Air volume required by alternator (m ³ /hr)	TBA
Bore x Stroke (mm)	130 x 150	Total fresh air required (m ³ /hr)	TBA
Displacement (L)	31.86		
Cooling	Liquid cooled	Cooling System	
Aspiration	Turbocharged Aftercooled	Cooling system capacity (L)	180
Compression ratio	16.5 : 1	Coolant type	Ethylene glycol based premixed with water in ratio 50:50, antifreeze & anti corrosion type
Piston speed (m/s)	9.0	Radiator fan load (hp)	42
hp Prime @ 1800rpm	1210		
hp Standby @ 1800rpm	1331		

Fuel System		Exhaust System	
Type of fuel filter	Two stage spin on type	Exhaust gas flow rate (kg/hr)	TBA
Governor type	Electronic	Maximum exhaust gas temperature (°C)	550
Class of governing	ISO 8528-5, Class G2	Max. allowed back pressure (mm of Hg)	80
Recommended Fuel	Class A2, High speed diesel		

Electrical System		Lubrication System	
Starting arrangement	24V Electric	Type of lube oil filter	Full flow spin on type
Starter battery rating	4 x 200Ah	Oil to be used	SAE 15W40 API:CI4
Battery charging alternator	----	Oil pump type	Through G-rotor gear pump
Battery charging alternator	----	Lube oil sump capacity (L) refill / first fill	126 / 130
Battery charger ²	24V 10A / 15A with float & boost mode	Lube oil consumption	0.12% of fuel consumption

2. Dual chargers.



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Alternator Specifications

Alternator Physical Data			Alternator Operating Data	
Continuous rating	Insulation Class	H	Over speed (RPM)	2250
	kVA at 0.8 PF	1010	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		6	Efficiency at full load (%)	95.1
Winding pitch		2/3	Voltage Regulation (%)	± 1.0
Ingress Protection Rating		IP 23	Reactance per unit (Xd)	2.9
Voltage regulator		D350 / R450	Reactance per unit (X'd)	0.154
Recommended earthing type		Solid separate for neutral and body	Reactance per unit (X''d)	0.121

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, kVA _r	✓	High coolant temperature	✓	✓	✓	----
Generator per phase PF	✓	Low fuel level	✓	✓	✓	----
Generator kWhr meter	✓	Low coolant level	No	✓	✓	----
Earth current (A)	✓	Under & over speed	✓	✓	✓	----
Grid (Mains) Voltage (L-L)	✓	Low & high battery voltage	✓	No	✓	----
Battery Voltage (V)	✓	Low charge alternator	✓	No	✓	----
Engine start attempts	✓	Emergency stop	No	✓	✓	----
Engine Temperature (°C)	✓	Fail to start & fail to stop warning	✓	No	✓	----
Engine speed (RPM)	✓	Auto remote start/stop	----	----	----	✓
Engine Run Hours (Hours & Min.)	✓	Under & over voltage	✓	✓	✓	----
Lube oil Pressure (kPa, PSI, bar)	✓	Under & over frequency	✓	✓	✓	----
Fuel level (%)	✓	Over kW or Overcurrent	No	✓	✓	----
		Earth fault	No	✓	✓	----
		Reverse power	No	✓	✓	----
		Phase unbalance	No	✓	✓	----

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





Standard and Optional Features

Generating Set (*applicable only for SAE type)

- Ladder on enclosure*
- Fuel pipe extension*
- 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
- Water in fuel sensor
- Dual (electrical + mechanical) fuel gauge
- Guard for rotating parts
- Water separator
- Electronic governor
- Over-cranking protection
- Jacket water heater
- Lube oil drain pump (loose)

Alternator

- Digital AVR
- Droop current transformer
- AREP excitation
- Alternator inlet louver filter
- Remote voltage adjustment potentiometer
- Alternator space heater

Controls

- Automatic Starting & AMF facility
- ATS Panel
- 4 Pole circuit breaker
- Communication port RS485/RS232
- Synchronization panels
- 24V DC hooter
- Static Battery charger
- Kirloskar remote monitoring (KRM) unit
- 3 Pole 1600A MCCB

● 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

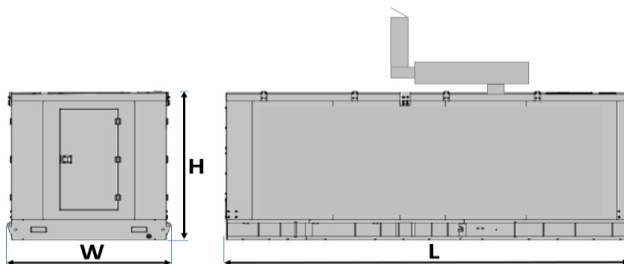
Generating set user manual, engine operation and maintenance manual – in soft form

Quality standards

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

Weight & Dimensions				
Model			1111WS60	1111W60
Type			SAE	Open
Overall dimensions ³	Length x Width x Height	cm	687 x 230 x 250	454 x 210 x 251
Weight ⁴	Weight with oil & coolant	kg	13200	8650

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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