Kirloskar Oil Engines

DIESEL GENERATING SETS

Model		1111WS50	1111W50
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

50 Hz

Power, Performance, Peace of mind

Generating Set Specifications				
Model			1111WS50	1111W50
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	120.6	
	75% load	L/hr	161	
	100% load	L/hr	208	
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 ETA G1	49.1 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 IS13364, 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	
Engine rpm	1500
Configuration	V
Cylinders	16
Type	Four stroke
Bore x Stroke (mm)	130 x 150
Displacement (L)	31.88
Cooling	Liquid cooled
Aspiration	Turbocharged Aftercooled
Compression ratio	16.5 : 1
Piston speed (m/s)	7.5
hp Prime @ 1500rpm	1210
hp Standby @ 1500rpm	1331

Air System	
Air filter type	Dry replaceable
Air volume required for combustion (m^3/hr)	4560
Air volume required for cooling (m^3/hr)	83700
Air volume required by alternator (m^3/hr)	3720
Total fresh air required (m^3/hr)	91980

Cooling System	
Cooling system capacity (L)	180
Coolant type	Ethylene glycol based premixed with water in ratio 50:50, antifreeze & anti corrosion type
Radiator fan load (hp)	42

Fuel System	
Type of fuel filter	Two stage spin on type
Governor type	Electronic
Class of governing	ISO 8528-5, Class G2
Recommended Fuel	Class A2, High speed diesel

Exhaust System	
Exhaust gas flow rate (kg/hr)	4820
Maximum exhaust gas temperature (°C)	550
Max. allowed back pressure (mm of Hg)	80
Flange details for exhaust piping extension (mm)	PCD 260+/-0.5, 8 holes 20.0 +/-0.5

Electrical System	
Starting arrangement	24V Electric
Starter battery rating	4 x 200Ah
Battery charging alternator	----
Battery charging alternator	----
Battery charger[2]	24V 10A / 15A with float & boost mode

Lubrication System	
Type of lube oil filter	Full flow spin on type
Oil to be used	SAE 15W40 API:CI4
Oil pump type	Through G-rotor gear pump
Lube oil sump capacity (L) refill / first fill	125 / 130
Lube oil consumption	0.3% of fuel consumption

2. Optional extra accessory.

Alternator Specifications

Alternator Physical Data		
Continuous rating	Insulation Class	H
	kVA at 0.8 PF	1010
	Temperature rise (°C)	125 /40°C
Number of bearings		1
Pole		4
Leads		6
Winding pitch		2/3
Ingress Protection Rating		IP 23
Voltage regulator		D350
Recommended earthing type		Solid separate for neutral and body

Alternator Operating Data	
Over speed (RPM)	2250
Excitation	Self-excited (brushless)
Cooling method	Forced through shaft mounted blower fan
THD at full linear balanced load AC waveform	Less than 5%
Efficiency at full load	95.2
Voltage Regulation (%)	± 1.0 %
Reactance per unit (Xd)	2.777
Reactance per unit (X'd)	0.154
Reactance per unit (X''d)	0.123

Control System Features and safeties

On display screen	
Generator Volts, Amps. Hz	✓
Generator kW, kVA, kVAr	✓
Generator per phase PF	✓
Generator kWHr meter	✓
Earth current (A)	✓
Grid (Mains) Voltage (L-L)	✓
Battery Voltage (V)	✓
Engine start attempts	✓
Engine Temperature (°C)	✓
Engine speed (RPM)	✓
Engine Run Hours (Hours & Min.)	✓
Lube oil Pressure (kPa, PSI, bar)	✓
Fuel level (%)	✓

Protections	Warning	Shutdown	Indication	Digital Input
Low oil pressure	No	✓	✓	-----
High coolant temperature	✓	✓	✓	-----
Low fuel level	✓	✓	✓	-----
Low coolant level	No	✓	✓	-----
Under & over speed	✓	✓	✓	-----
Low & high battery voltage	✓	No	✓	-----
Low charge alternator	✓	No	✓	-----
Emergency stop	No	✓	✓	-----
Fail to start & fail to stop warning	✓	No	✓	-----
Auto remote start/stop	----	----	----	✓
Under & over voltage	✓	✓	✓	-----
Under & over frequency	✓	✓	✓	-----
Over kW or Overcurrent	No	✓	✓	-----
Earth fault	No	✓	✓	-----
Reverse power	No	✓	✓	-----
Phase unbalance	No	✓	✓	-----

Communication ports	
RS485	✓
RS232	✓

✓ Available No - Not available ---- Not applicable

Standard and Optional Features

Generating Set (*applicable only for SAE type)

● Ladder on enclosure*	● Door for radiator access*	● Stainless steel door hinges*
● Fuel pipe extension*	● Coolant drain arrangement	● Control panel door stopper*
● External fuel filling access*	● Mesh on exhaust tail pipe	○ Fuel priming manual pump
● Longer fuel tank breather tube	○ Fuel transfer pump	○ External standalone fuel tank

Engine

● SMF Battery	● Guard for rotating parts	● Over-cranking protection
● Water in fuel sensor	● Water separator	○ Jacket water heater
● Dual (electrical + mechanical) fuel gauge	● Electronic governor	○ Lube oil drain pump (loose)

Alternator

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

Controls

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

Documents & Quality Standards

Documents

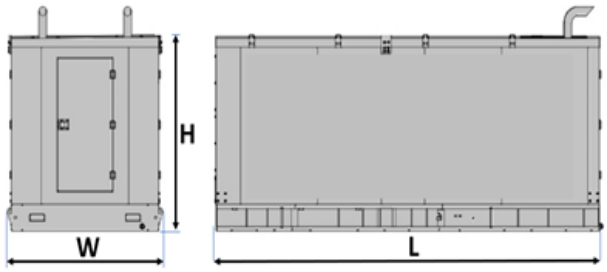
Generating set user manual, engine operation and maintenance manual – in soft form

Quality standards

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

Weight & Dimensions				
Model			1111WS50	1111W50
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



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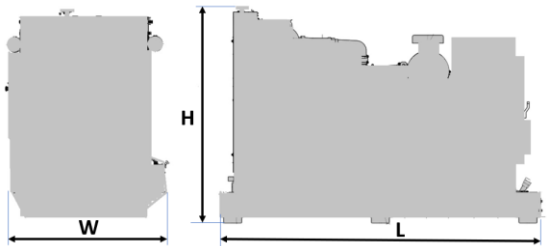

3. Dimensions are for logistics purpose only. Please refer installation / GA drawing for installation.
4. Weight mentioned is for indicative only. Actual weight may vary based on configuration.

Global Presence

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