



Enriching Lives

## KIRLOSKAR OIL ENGINES LIMITED

A Kirloskar Group Company

# DIESEL GENERATING SETS

Model		15WS60	15W60
Type		SAE	Open
Standby Power (ESP)	kVA / kWe	150 / 120	
Prime Power (PRP)	kVA / kWe	135 / 108	
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		150WS60	150W60
Type		SAE	Open
Line Voltage	V	220	
Phase Voltage	V	127	
Power factor	---	0.8 (lag)	
Fuel tank capacity	L	225	225
Fuel consumption % of PRP <sup>1</sup>	50% load	L/hr	16.9
	75% load	L/hr	23.6
	100% load	L/hr	31.0
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	4K1080TA	UCI274D1	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 <sup>3</sup> /hr)	665
Cylinders	4	Air volume required for cooling (m <sup>3</sup> /hr)	18000
Type	Four stroke	Air volume required by alternator (m <sup>3</sup> /hr)	1850
Bore x Stroke (mm)	105 x 125	Total fresh air required (m <sup>3</sup> /hr)	20515
Displacement (L)	4.32		
Cooling	Liquid cooled	Cooling System	
Aspiration	Turbocharged Aftercooled	Cooling system capacity (L)	54
Compression ratio	15.5 : 1	Coolant type	Ethylene glycol based premixed with water in ratio 50:50, antifreeze & anti corrosion type
Piston speed (m/s)	7.5	Radiator fan load (hp)	6.5
hp Prime @ 1800rpm	170		
hp Standby @ 1800rpm	187		

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)	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 190+/-0.5, 8 holes 17.0 +/-0.5

Electrical System		Lubrication System	
Starting arrangement	12V Electric	Type of lube oil filter	Full flow spin on type
Starter battery rating	120Ah	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	35A	Lube oil sump capacity (L) refill / first fill	14 / 17
Battery charger <sup>2</sup>	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	135	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	90.8
Winding pitch		2/3	Voltage Regulation (%)	± 1.0
Ingress Protection Rating		IP 23	Reactance per unit (Xd)	2.36
Voltage regulator		AS440	Reactance per unit (X'd)	0.20
Recommended earthing type		Solid separate for neutral and body	Reactance per unit (X''d)	0.14

## 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
- Alternator inlet louver filter
- Remote voltage adjustment potentiometer
- Droop current transformer
- PMG

### Controls

- Automatic Starting & AMF facility
- ATS Panel
- 4 Pole circuit breaker
- Communication port RS485
- Kirloskar remote monitoring (KRM) unit
- Synchronization panels
- Static Battery charger
- 3 Pole 400A 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

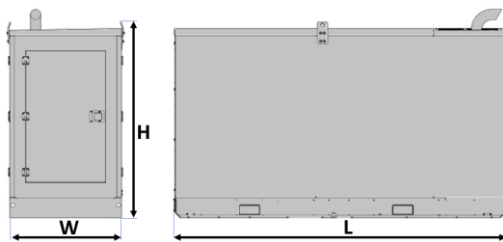
Generating set user manual, engine operation and maintenance manual – in soft form

### Quality standards

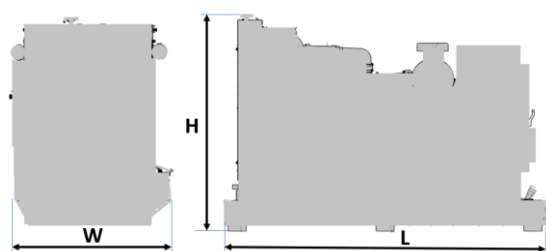
ISO 8528, ISO 3046, IS 10002, BS5514, DIN 6271, ISO 9001, ISO 14001

Weight & Dimensions				
Model		150WS60	150W60	
Type		SAE	Open	
Overall dimensions <sup>3</sup>	Length x Width x Height	cm	327 x 116 x 193	224 x 104 x 164
Weight <sup>4</sup>	Weight with oil & coolant	kg	2180	1510

#### 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.

## KIRLOSKAR OIL ENGINES LIMITED

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