

## Model: MS 1400D5

Powered by MHI Engine



### Generator Specification

Service	PRP <sup>(1)</sup>	ESR <sup>(2)</sup>
Power (kVA)	1250	1400
Power (kW)	1000	1120
Rated speed ( r.p.m)	1500	
Standard voltage (V)	400/230 V	
Rated at power factor(cos phi)	0.8	



AGG Power gensets are compliant with ISO 9001 and CE standard, which include the following directives:

- 2006/42/EC Machinery safety.
- 2006/95/EC Low voltage
- EN 60204-1: 2006+A1: 2009, EN ISO 12100: 2010, EN ISO 13849-1: 2008, EN 12601 : 2010

#### (1) PRP (Prime Power):

According to ISO8528-1, prime power is the maximum power available during a variable power sequence, which may be run for an unlimited number of hours per year, between stated maintenance intervals. The permissible average power output during at 24 hours period shall not exceed 80% of the prime power. 10% overload available for governing purposes only.

#### (2) ESP (Standby Power):

According to ISO 8528-1, It is defined as the maximum power available, under the agreed operating conditions, for which the generating set is capable of delivering for up to 500 hours of operation per year (of which no more than 300 hours for continuative use) with the maintenance intervals and procedures being carried out as prescribed by the manufacturers. No overload capability is available.

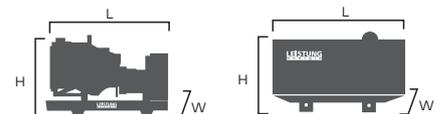
Powers Voltage (V)	ESP		PRP		Standby Amps
	KVA	KW	KVA	KW	
415/240	1400	1120	1250	1000	1947.7
400/230	1400	1120	1250	1000	2020.8
380/220	1400	1120	1250	1000	2127.1

### Performance Data

Model	MS1400D5	
Engine brand	Shanghai MHI Engine	
Engine model	S12R-PTA-C	
Speed control type	Electronic	
Phase	3	
Control system	Digital	
Starter motor voltage	24 V	
Frequency	50 HZ	
Engine speed (RPM)	1500	
Fuel Consumption (L/H)	100% standby power	288
	100% prime power	261
	75% prime power	202
	50% prime power	146

#### Standard reference Conditions

Note: Standard reference condition 25°C[77°F] air inlet temp, 100m(328ft) A.S.L 30% relative humidity. Fuel consumption dat with diesel fuel with specific gravity of 0.85 and conforming to BS 2869: 1998, Class A2



### Dimension and Weight

Dimension	Open	Silent
Length (L)	4530mm	6058mm
Width (W)	2085mm	2438mm
Height (H)	2375mm	2591mm
Net Weight	-	-
Fuel Tank (L)	Option	Option

Note: This parameters allows for some acceptable deviations.

## ■ Engine Specification: S12R-PTA-C

### Basic technical data

No. of cylinders	12
Cylinder arrangement	V
Cycle	4 stroke
Induction system	TBD
Compression ratio	14.0:1
Bore	170mm
Stroke	180mm
Displacement	49.03L
Firing order	1-12-5-8-3-10-6-7-2-11-4-9
Approximate engine weight	5350kg

### Cooling system

Capacity coolant	
Engine	TBD
Radiator	TBD
Piping	TBD
Total	TBD
Water pump	Gear drive centrifugal type
Capacity of water pump	1500min <sup>-1</sup> , 1650 L/min
Thermostat	Wax pellet type x 4pcs Open at 71-85 °C
Fan	Pusher type steel fan
Radiation area	
Inter cooler inside	TBD
Radiator side	TBD

### Fuel system

Fuel inlet pipings	Flexible hose (Rc ¾ joint)
Fuel return pipings	Flexible hose (Rc ¾ joint)
Injection pump	Bosch type "PS6" without timer
Feed pump	Piston type with priming pump
Injection Nozzle	Hole type O.325mm x 10 holes
Fuel filter	Paper element cartridge type

### Air intake system

Air cleaner	Donaldson FTG13L x 4 pcs
Turbocharger	Mitsubishi type TD13L-45QV23.5(55)
Air cooler	Plated element type
Air heater	Not supply

### Lubrication system

Oil pump	Gear pump type
Capacity of oil pump	480L/min
Lub. oil pressure at main gallery	0.5-0.65Mpa
Quantity of oil	
Oil pan full level	150L
Low level	110L
Others	30L
Total	180L
Lub. oil filter (full flow)	20 μ
Lub oil filter (By-pass flow)	2 μ
Lub oil cooler	Water cooled corrugated type

### Control system

Governor	Electronic speed governor
Actuator	DC24
Controller	XS-400B-03
Potentiometer	Not supply
Potentiometer	Not supply
Connector	Loose supply
Magnetic pick up	With connector
Cable	Loose supply

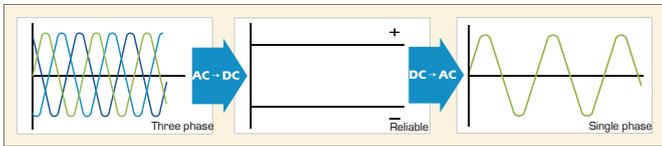
### Starting system

### Prime power

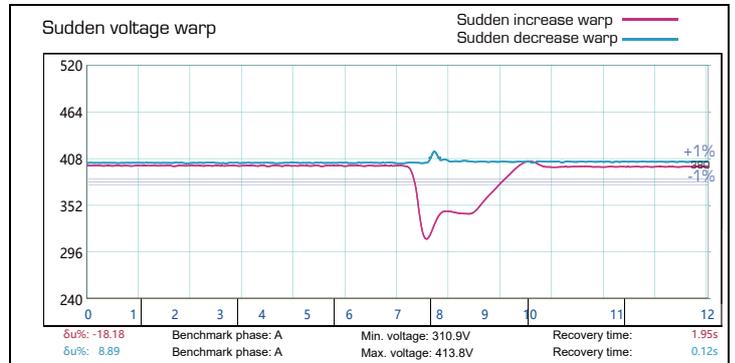
Starter switch	With key , with heat position
Starting motor	DC24V, 7.5KW
Safety relay	Loose supply
Current of starter	Rush 1250A Cranking 400A
Alternator	With voltage regulator
Recommended battery capacity	DC24V, 400AH

## ■ Alternator Specification

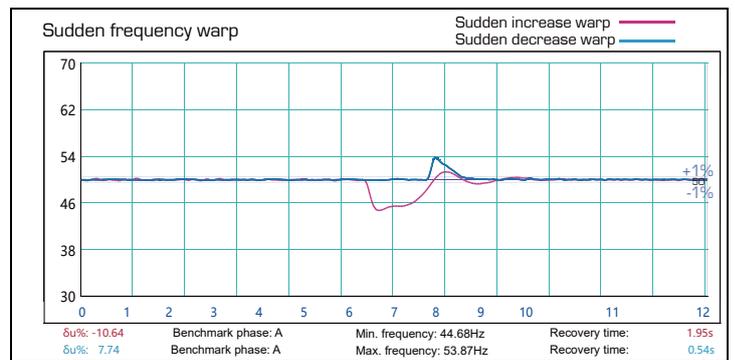
Alternator	
Number of phase	3
Power factor (Cos Phi)	0.8
Poles	4
Winding Connections (standard)	Star-serie
Terminals	12
Insulation type	H class
Winding Pitch	2/3
IP rating	IP23
Excitation system	Self-excited
Bearing	Single bearing
Coating	Vacuum impregnation
Voltage regulator	A.V.R
Couping	Flexible disc



Emergency voltage curve



Emergency frequency curve



## ■ Options

Engine	Alternator	Generator Sets	Fuel System
<ul style="list-style-type: none"> <li>Water Jacket Pre-heater</li> <li>Fuel heater</li> </ul>	<ul style="list-style-type: none"> <li>Winding Temp measuring Instrument</li> <li>Alternator Pre-heater</li> <li>PMG</li> <li>Anti-damp and anti-corrosion treatment</li> <li>Anti-condensation heater</li> <li>Winding and bearing RTD</li> </ul>	<ul style="list-style-type: none"> <li>Tools with the machine</li> <li>Extended range fuel tank</li> <li>Bunded fuel tank</li> </ul>	<ul style="list-style-type: none"> <li>Low fuel level alarm</li> <li>Automatic fuel feeding system</li> <li>Fuel T-valves</li> </ul>
Canopy	Lub oil system	Cooling System	Control Panel
<ul style="list-style-type: none"> <li>Rental type Canopy</li> <li>Trailer</li> </ul>	<ul style="list-style-type: none"> <li>Oil Pre-heater</li> <li>Oil temp sensor</li> </ul>	<ul style="list-style-type: none"> <li>Front heat protection</li> </ul>	<ul style="list-style-type: none"> <li>Remote control panel</li> <li>ATS</li> <li>Synchronizing controller</li> <li>Adjustable earth leakage relay</li> </ul>

## ■ Control Panel

### Configuration

- Emergency stop button
- Protection MCB
- Battery charger
- Integrated aviation plug
- ATS connection
- Digital control module

### Features

- 3 phase generator set monitoring
- Support of engines equipped with electronic control unit
- Comprehensive diagnostic message
- Automatic or manual start/stop of the gensets
- Push buttons for simple control, lamp test
- Graphic back-lit LCD display
- Parameters adjustable via keyboard or PC
- Mains measurements ( 50HZ/60HZ)
- Generator measurements ( 50HZ/60HZ)
- Comprehensive shutdown or warning on fault condition
- 3 phase Generator protections
  - Over-/under voltage
  - Over-/under frequency
  - Current/voltage asymmetry
  - Over current/overload
- 3 phase AMF function
  - Over-/under frequency
  - Over-/under voltage
  - Voltage asymmetry
- Configurable analog inputs
- Battery voltage, engine speed (pick-up) measurement
- Configurable programmable binary inputs and outputs
- Warm-up and cooling functions
- Generator C.B. and Mains C.B. control with feedback and return timer
- RS232 interface
- Modem communication support
- Hours counter
- Sealed to Ip65
- Event log

### Benefits

- Less wiring and components
- Integrated solution
- Less engineering and programming
- User friendly set-up and button layout
- Module can be configured to suit individual applications
- PC software for simplified configuration
- Wide range of communication capabilities

### Operation conditions

- Operation temp: -20 °C to + 70 °C
- Storage temp: -30 °C to + 80 °C
- Operating humidity: 95% w/o condensation
- Vibration : 5-25Hz,  $\pm 1.6\text{mm}$   
5-100Hz,  $a=4g$
- Shocks:  $a= 500\text{m/s}^2$

### Options

- Ethernet interface (Remote monitoring and control)
- GSM modem/wireless internet (Remote monitoring and control)
- RS232-RS485 Dual port interface
- Synchronizing control panel
- Distribution board with sockets kit and power busbar
- Battery trickle charge ammeter
- Earth leakage protection
- Earth fault protection
- Low fuel level alarm
- Low fuel level shutdown
- High fuel level alarm
- Fuel transfer system control
- Low coolant level shutdown
- High lube oil temp shutdown
- Overload via alarm switch on breaker
- Engine coolant heater controls
- Control panel heater
- Speed adjust switch
- Oil temp displayed on LCD screen
- Additional 8 inputs and outputs