

## Model: D 2 2 0 D 5

Powered by DOOSAN



### Generator Specification

Service	PRP <sup>(1)</sup>	ESP <sup>(2)</sup>
Power (kVA)	200	220
Power (kW)	160	176
Rated speed (r.p.m)	1500	
Standard voltage (V)	400/230V	
Rated at power factor (cos phi)	0.8	

Perform	Data	
Model	D 2 2 0 D 5	
Engine brand	Doosan	
Engine model	P086T1	
Speed control type	Electronic	
Phase	3	
Control system	Digital	
Starter motor voltage	24V	
Frequency	50 HZ	
Engine speed (RPM)	1500	
Fuel Consumption (L/H)	100% standby power	48.4
	100% prime power	43.1
	75% prime power	31.7
	50% prime power	21.1



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 ISO 8528-1, 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.

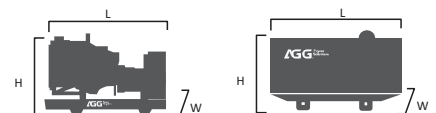
#### (2) ESP (Standby Power):

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	220	176	200	160	306.1
400/230	220	176	200	160	317.6
380/220	220	176	200	160	334.3

#### Standard reference Conditions

Note: Standard reference condition 25 °C (77°F) air inlet temp, 100m(328ft) A.S.L 30% relative humidity. Fuel consumption data 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)	2620 mm	3650 mm
Width (W)	950 mm	1300 mm
Height (H)	1625 mm	2170 mm
Net Weight	2040 KGS	2955 KGS
Fuel Tank (L)	400 L	427 L

Note: This parameters allows for some acceptable deviations.

## ■ Engine Specification: P086TI

Basic technical data	
No. of cylinders	6
Cylinder arrangement	In-line
Cycle	4 stroke
Injection timing	12° ± 1° BTDC
Compression ratio	16.4:1
Bore	111 mm
Stroke	139 mm
Displacement	8.071 L
Fly wheel housing	SAE NO. 1 M
Number of teeth on flywheel	146

Cooling system	
Cooling method	Freshwater forced circulation
Coolant capacity	14 L
Coolant flow rate	166 L/min
Pressure cap	Max. 49 kPa
Water temp	
-Maximum for standby and prime	103 °C
-Before start of full load	40 °C
Water pump	Centrifugal type
Thermostat type and range	Wax-Pellet type
Cooling fan	660 mm diameter, 7 blade
Max. external coolant system restriction	Not available

Fuel system	
Injection pump	Doowon in-line "P" type
Governor	Electric type
Speed drop	G3 Class
Feed pump	Mechanical type in pump
Injection nozzle	Multi hole type
Opening pressure	22.0 MPa
Fuel filter	Full flow
Maximum fuel inlet restriction	10 kPa
Maximum fuel return restriction	60 kPa
Fuel feed pump capacity	230 L/hr
Used fuel	Diesel fuel oil

Induction system	
Maximum intake air restriction	
-with clean filter element	2.16 kPa
-with dirty filter element	6.23 kPa
Max. static pressure after radiator	0.125 kPa

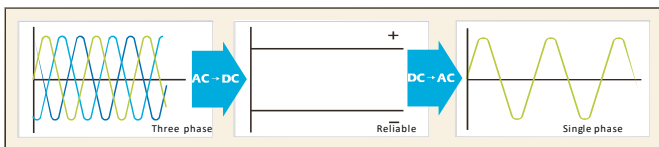
Lubrication system	
Lub. method	Fully forced pressure feed type
Oil pump	Gear type driven by crank-shaft gear
Oil filter	Full flow, cartridge type
Oil capacity	
-Max.	15.5 L
-Min	12 L
Lub oil pressure	Idle speed: Min 100 kPa
	Governed speed: Min 250 kPa
Maximum oil temp	120 °C
Lubrication oil	Refer to operation manual

Electrical system	
Battery charging alternator	28.5V X 45A Alternator
Voltage regulator	Built-in type IC regulator
Starting motor	24 V x 6.0 kW
Battery voltage	24V
Battery capacity	100 Ah
Starting aid (option)	Block heater

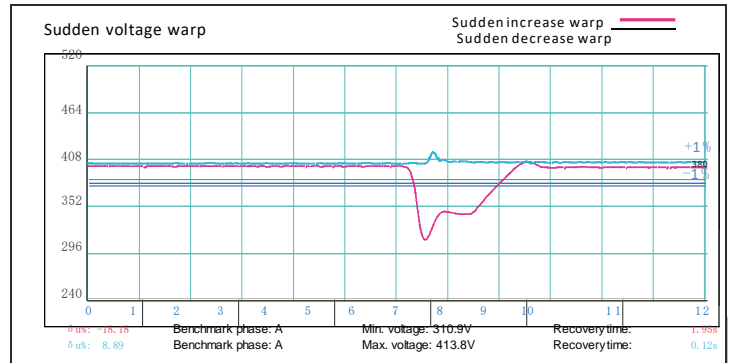
General installation	Prime power
Governed engine speed	1500 rpm
Engine idle speed	800 rpm
Over speed limit	1650 rpm
Gross engine power output	177 kW
Break mean effective pressure	1.75 MPa
Mean piston speed	6.95 m/s
Friction power	18 kW
Maximum lube oil consumption	168 g/h
Fan power	5 kW

## ■ Alternator Specification

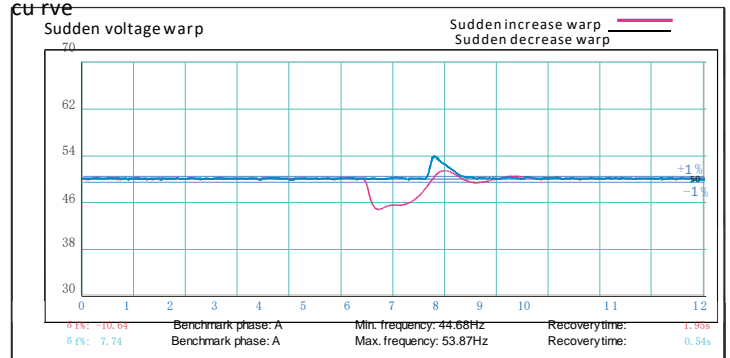
Alternator	
Number of phase	3
Powerfactor (Cos Phi)	0.8
Poles	4
Winding Connections (standard)	Star-serie
Terminals	12
Insulation type	H class
Winding Pitch	2 / 3
IP rating	IP23
Excitationsystem	Self-excited
Bearing	Single bearing
Coating	Vacuumimpregnation
Voltageregulator	A.V.R
Couping	Flexible disc



Emer g ency vol tage cur ve



Emergen cy freq u en cy 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-condensationheater</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>Remotecontrolpanel</li> <li>ATS</li> <li>Synchronizingcontroller</li> <li>Adjustableearth 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,  $\pm 1.6$  mm  
5-100Hz,  $a = 4g$
- Shocks:  $a = 500m/s^2$

### 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