

VGD402M 50Hz POWER BY DOOSAN SERIES



General feature:

- ◆ Assembled by Doosan diesel engine and Mecc Alte alternator.
- ◆ Three filters as standard, fuel and water separator as optional.
- ◆ Radiator and fan with safety guard.
- ◆ Single bearing alternator IP 22, Insulation Class H.
- ◆ Heavy duty steel as base frame and 8hrs operation base fuel tank.
- ◆ Automatic control panel and 3 poles circuit breaker, internal cable.
- ◆ 12V or 24V battery, battery wires.
- ◆ Battery charger and float battery charger as standard supply scope.
- ◆ Optional soundproof canopy, ATS, synchronization panel, movable trailers.

Genset Main Technical Data:

Genset Model	VGD402M
Prime Powe	292KW/365KVA
Standby Power	321KW/402KVA
Frequency/Speed	50Hz/1500rpm
Standard Voltage	230V/400V
Phases	Three phases, four wires
Manufacturer	Vega Power International PTE.LTD

- (1) PRP: Prime Power is available for an unlimited number of annual operating hours in variable load applications, in accordance with ISO8528-1. A 10% overload capability is available for a period of 1 hour within 12-hour period of operation. In accordance with ISO 3046-1.
- (2) ESP: The Standby Power Rating is applicable for supplying emergency power in variable load applications for up to 200 hours per year in accordance with ISO8528-1. Overload is not allowed.

Doosan Engine Data:

Manufacturer	Doosan Infracore Co.,Ltd.
Model	P158LE-1
Engine speed	1500rpm
Engine power	
-----Prime Power	362kw
-----Standby Power	327kw
Engine type	4-Cycle, In-line, water cooled, Turbo charged & intercooled
Combustion type	Replaceable dry liner
Cylinder quantity	8
Bore * Stroke	128 x 142 mm
Displacement	14.618 liters
Compression ratio	15:01
Firing order	1-5-7-2-6-3-4-8
Injection timing	16°±1° BTDC

Fuel Consumption:

Load	Type of operation and application	
	Prime power (l/hr)	Standby power (l/hr)
100%	78,7	88,3
75%	58,4	64,7
50%	40	43,7
25%	21	23,1

Mechanism:

Type	Over head valve
Number of valve	Intake 1, exhaust 1 per cylinder
Valve lashes at cold	Intake 0.25mm (0.0098 in.)
	Exhaust 0.35mm (0.0138 in.)

Lubrication system:

Lub. Method	Fully forced pressure feed type
Oil pump	Gear type driven by crankshaft
Oil filter	Full flow, cartridge type
Oil capacity	Max. 21 liters , Min. 17 liters
Angularity limit	Front down 10 deg , Front up 10 deg , Side to side 22.5 deg

Valve timing:

	Opening	Close
Intake valve	24 deg. BTDC	36 deg. ABDC
Intake valve	63 deg. BBDC	27 deg. ATDC

Fuel system:

Injection pump Zexel in-line "A" type	Bosch in-line "P" type
Governor	Electric type (all speed control)
Feed pump	Mechanical type
Injection nozzle	Multi hole type
Opening pressure	27.9 Mpa
Fuel filter	Full flow, cartridge type
Used fuel	Diesel fuel oil

Cooling system:

Cooling method	Fresh water forced circulation
Water capacity	Engine Only : Approx. 20 lit, With Radiator(standard) : Approx 80 lit.
Water pump	Centrifugal type driven by belt
Coolant flow rate	600 liters / min
Thermostat	Wax – pellet type Opening temp. 71°C Full open temp. 85°C
Cooling fan	Blower type, steel 915 mm diameter, 7 blade

Electrical system:

Charging generator	28.5V x 45A alternator
Voltage regulator	Built-in type IC regulator
Starting motor	24V x 4.5 kW
Battery Voltage	24V
Battery Capacity	2 x 100 Ah (recommended)

Alternator Specifications:

Manufacturer	Mecc Alte S.p.A.
Model	ECO40-1S/4A
Output power	400KVA
AVR model	DER-1
Number of phase	3
Power factor (Cos Phi)	0,8
Altitude	≤ 1000 m
Overspeed	2250RPM
Overload long-term	1 hour in a 6 hours period 110% rated load
Overload per 20 sec.	300,0
Balancing	ISO1940-1
Number of Pole	4
Insulation class	H
Accuracy	±1 %
Telephone Interference (THF)	< 2%
Waveform Distors.(THD) at full load (LL/LN)	2,6 / 2,6
Waveform Distors.(THD) at no load (LL/LN)	2,9 / 2,9


Alternator general data:

- ♦ operate either 50Hz or 60Hz.
- ♦ standard enclosure IP23
- ♦ insulation class H.
- ♦ Shunt excitataion systems.
- ♦ AREP or PMG system for options.
- ♦ automatic voltage regulator
- ♦ single bearing alternator
- ♦ Stator grease insulation covered
- ♦ Rotator and excitation high polymer
- ♦ Resist the corruption oil and acid
- ♦ Rotator balance is in accordance with BS5625 standard 12.5
- ♦ High-quality lubrication sealed long-time bearing
- ♦ Rotator silicon steel close tight

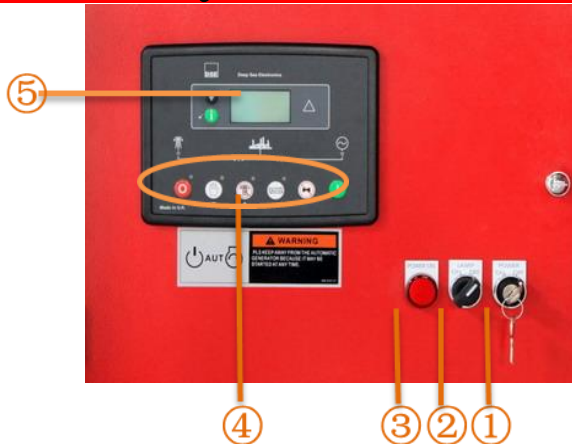
Circuit breaker specification:

	Manufacturer	Delixi group
	Brand	Delixi
	Model	DZ20Y-630/630 3300
	Capacity	630amp
	Voltage	400V

Starting Battery specification:

	Battery Voltage	12V
	Battery Capacity	200AH
	Quantity	2pcs
	Battery type	Free maintenance, sealed lead-acid type

Control system:



Deepsea 6120

Auto start and stop control panel



Deepsea 6120 is an auto mains failure controller for single generator, it can monitor and protect the generator working all the time. it has a LCD display which clearly shows the status of the engine. this controller include seven inputs and six outputs. This controller can also be programmed using the frong panel or by using DSE configuration Suite PC software.

Parameters:

This controller can provide Generator frequency, Under/over speed, Generator volts, Generator current, Engine oil pressure, Engine coolant temperature, Flexible fuel level, Hours run counter, Battery volts, Fail to start/stop, Emergency Stop. Failed to reach loading voltage/frequency, Charge fail, Loss of magnetic pick-up signal, Low DC voltage, CAN diagnostics and CAN fail/error, Mains volts 3 phase, Mains frequency, AMF indications

Protection:

- ♦ Low Oil Pressure
- ♦ High water Temperature
- ♦ High voltage and low voltage
- ♦ Overspeed

- ♦ Volt adjuster and frequency adjuster.
- ♦ Emergency stop
- ♦ Fail to start
- Features:**
 - ♦ Protection: Automatic start/stop, load transfer and alarming of generator;
 - ♦ CAN and magnetic pick-up versions.
 - ♦ PC and front panel configurable
 - ♦ 4 digital inputs and 3 analogue inputs.
 - ♦ 6 outputs(4 configurable on magnetic pick-up, 6 configurable on Canbus version).
 - ♦ 3 phase generator and mains voltage monitoring.
 - ♦ remote start on or off load.
 - ♦ advanced metering capability.
 - ♦ test button.
 - ♦ protected solid state outputs.
 - ♦ transfer between mains and generator power.
 - ♦ user-friendly set-up and button layout.
 - ♦ multiple engine parameters are monitored simultaneously.
 - ♦ module can be configured to suit individual applications.
 - ♦ IP 65 rating offers advanced resistance to water ingress when gasket is fitted.

- ① Power switch
- ② Lamp switch
- ③ Power indicator
- ④ Operation buttons
- ⑤ LCD display

Enclosure Specification:

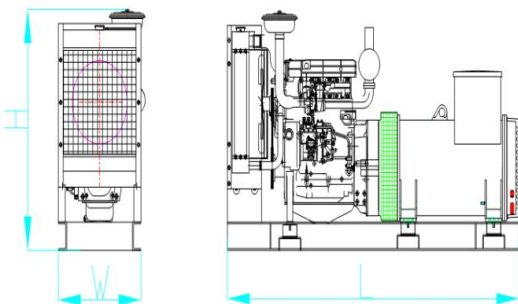
- ★ multi-way air intake and exhaust guarantee the power performance of the generator.
- ★ large-scale impedance combined type silencer effectively reduce noise of the generator.
- ★ internal high performance rubber damper and flexible materials reduce vibration.
- ★ Base mounted fuel tank supports the generator running for 8 hours.
- ★ Cold steel materials of the canopy.
- ★ Best powder paint.
- ★ Zinc plated and Corrosion resistance.
- ★ Elegant appearance and reliable quality.
- ★ Stainless steel locks and hinges.
- ★ Access to all weather conditions.
- ★ Fireproof, waterproof and dustproof.
- ★ High quality soundproof materials could efficiently reduce noise.
- ★ Big base fuel tank in the frame guarantee sufficient diesel supply.
- ★ 180° revolvable and disassemble door for easy maintenance.
- ★ Concave lockable access door for easy operation and indefectible.
- ★ Lights inside of the canopy for maintenance.



- ★ Transparent viewing window make the control panel clear at a glance.
- ★ Emergency stop button mounted on the canopy exterior for urgency.
- ★ Cooling fluid injection hole is kept on the ceiling crust.
- ★ Pipe of lube oil and cooling fluid is mounted on the bottom of generator for easy let.
- ★ Fuel fill and battery can easy be accessed by lockable door.
- ★ Cooling fan and battery are fully guarded.
- ★ Heat insulation of exhaust smoke system inside the canopy.
- ★ Forkman slot is for choice.
- ★ Lifting ear is mounted in the base frame.

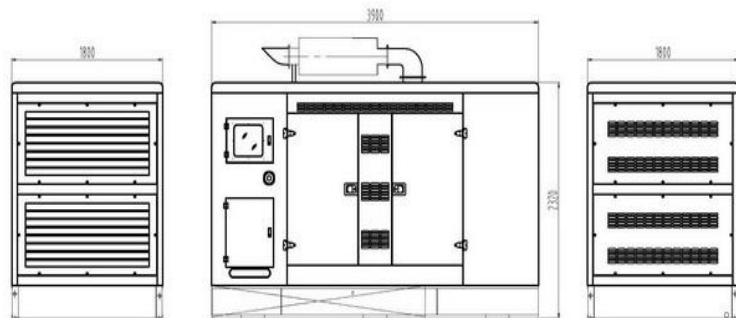
Weight and Dimensions

1. Open Version:



Open Type (Standard Configuration)
Overall Size: 3000×1270 ×2040mm(L*W*H)
Weight: 2500kg

2. Soundproof Version:



Soundproof Type
Overall size: 3600× 1700×2100mm(L*W*H)
Weight: 3350kg