

## Model: M2000D5

Powered by MTU

### Output Rating

MODEL		Power rating		Voltage available		
		PRIME(1)	STANDBY(2)			
M2000D5	400V/50HZ	1450KW	1600KW	380/220V	400/230V	415/240V
	PF:0.8	1813KVA	2000KVA			

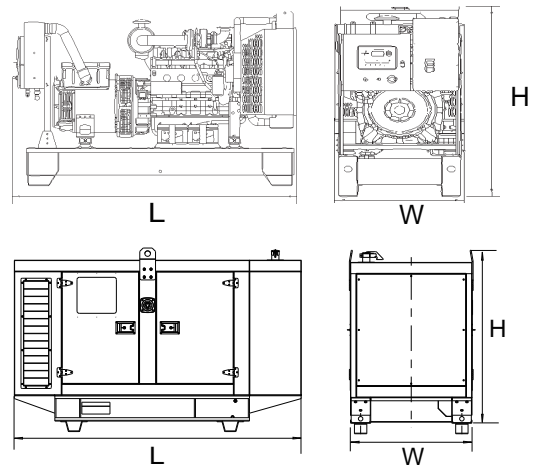
### General Information

Model	M2000D5	
Engine	12V4000G63	
Speed control type	ADEC	
Phase	3	
Control System	Digital	
System voltage	24V	
Frequency	50HZ	
Engine Speed(RPM)	1500	
Fuel Consumption (g/kwh)	Standby power(2)	N/A
	Prime Power(1)	196
	75% prime power	190
	50% prime power	198



### Dimension and Weight

Dimension	Open	Silent
Length (L)	5785mm	12192mm
Width (W)	2233mm	2438mm
Height (H)	2320mm	2896mm
Net Weight	10549KG	N/A



AGG POWER gensets are compliant with EC mark 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) Prime Power (PRP):

According to ISO 8528-1:2005, Prime power is the maximum power which a generating set is capable of delivering continuously whilst supplying a variable electrical load when operated for an unlimited number of hours per year under the agreed operation conditions with the maintenance intervals and procedures being carried out as prescribed by the manufacturer. The permissible average power output (Ppp) over 24h of operation shall not exceed 70% of the PRP.

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

According to ISO 8528-1:2005, standby power is the maximum power available during a variable electrical power sequence, under the stated operation conditions, for which a generating set is capable of delivering in the event of a utility power outage or under test conditions for up to 200h of operation per year with the maintenance intervals and procedures being carried out as prescribed by the manufacturers. The permissible average power output over 24h of operation shall not exceed 70% of the ESP.



## Engine Specification

### BASIC TECHNICAL DATA

Operating method-----Four stroke Diesel  
 Combustion system-----Direction Injection  
 Bore/Stroke-----170/210mm  
 Displacement, Total-----57.20Liter  
 Number of cylinders-----12  
 Compression ratio-----16.5:1  
 Flywheel housing flange-----SAE 0  
 Flywheel interface-----21"  
 Number of intercooler-----1  
 Number of Turbocharger-----4

### STARTER SYSTEM

Starter, rated voltage-----24V  
 Starter, rated requirement max-----N/A  
 Starter, power requirement at firing speed-----N/A

### COOLANT SYSTEM

Coolant temperature(at engine outlet to cooling equipment)-----100°C  
 Coolant temperature after engine, alarm-----102°C  
 Coolant temperature after engine, shutdown-----104°C  
 Coolant antifreeze content, max. permissible-----50%  
 Cooling equipment: coolant flow rate-----56 **m<sup>3</sup>/h**  
 Coolant pump: inlet pressure, min-----0.4bar  
 Coolant pump: inlet pressure, max-----1.50bar  
 Pressure loss in off-engine cooling system, max. permissible-----0.7bar  
 Cooling equipment: height above engine max. permissible-----15.2m  
 Cooling equipment: design pressure-----2.5bar

Recommended coolant:  
 Recommended coolant: 50% anti freeze / 50% water. For complete details of recommended coolant specifications, refer to the Operation and Maintenance Manual for this engine model.

### COMBUSTION AIR

Combustion air volume flow-----2.0 **m<sup>3</sup>/sec**  
 Intake air depression-----15mbar

### FUEL SYSTEM

Fuel supply flow, max.-----25l/min  
 Fuel temperature, max.-----55°C  
 Fuel pressure at supply connection on engine, max. admissible-----+1.5 bar  
 Fuel pressure at supply connection on engine, min. admissible----- -0.1 bar

### FUEL SPECIFICATION

USA Fed Off Highway - EPA2D 89.330-96  
 Europe Off Highway - CEC RF-06-99  
 Note: For further information on fuel specifications and restrictions, refer to the OMM Fuels section for this engine model.

### FUEL CONSUMPTION

Power rating %			
g/kwh			
110	100	75	50
N/A	196	190	198

### EXHAUST SYSTEM

Exhaust volume flow-----5.10**m<sup>3</sup>/sec**  
 Exhaust temperature after turbocharger-----470 °C  
 Exhaust backpressure limit value-----85mbar

### HEAT DISSIPATION

Engine coolant dissipation 100% load-----630kw  
 Charge-air heat dissipation 100% load-----340kw  
 Radiation and convection heat, engine-----75kw



## ▪ Alternator

Alternator		
Poles	Num	4
Winding Connections (standard)		Star-serie
Insulation	Class	H class
Enclosure (according IEC-34-5)		IP23
Exciter System		Brushless
Voltage Regulator		A.V.R. (Electronic)
Bearing		Single bearing
Coupling		Flexible disc
Coating type		Standard (Vacuum impregnation)

## ▪ Options

Engine	Alternator	Generator Sets	Fuel System	Canopy
<ul style="list-style-type: none"> <li>•Water Jacket Preheater</li> <li>•Oil Preheater</li> </ul>	<ul style="list-style-type: none"> <li>•Winding Temperature measuring Instrument</li> <li>•Alternator Preheater</li> <li>•PMG</li> <li>•Anti-damp and anti-corrosion treatment</li> <li>•Anti-condensation heater</li> </ul>	<ul style="list-style-type: none"> <li>•Tools with the machine</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>	<ul style="list-style-type: none"> <li>•Rental Type Canopy</li> <li>•Trailer</li> </ul>
Lubricating System	Exhaust System	Cooling System	Control Panel	Voltages
<ul style="list-style-type: none"> <li>•Oil with the machine</li> </ul>	<ul style="list-style-type: none"> <li>•Protection board from hotness</li> </ul>	<ul style="list-style-type: none"> <li>• Front heat protection</li> <li>• Coolant (-30°C)</li> </ul>	<ul style="list-style-type: none"> <li>•Remote control panel</li> <li>• ATS</li> <li>• Remote controller</li> <li>• Synchronizing controller</li> </ul>	<ul style="list-style-type: none"> <li>• 415/240V</li> <li>• 380/220V</li> <li>• 220/127V</li> <li>• 220/127V</li> <li>• 200-115V</li> </ul>



## Control Panel



## Product description

- Single gen-set controller for Stand-by and Prime-power applications
- Direct communication with EFI engines
- Total remote monitoring and control

## Key features

- Easy to install, configure and use
- Wide range of communication capabilities including:
  - connection via RS232, RS485, CAN and on board USB
  - internet access using Ethernet or GPRS
  - support for Modbus and SNMP protocols
- Cloud-based monitoring and control
- Active SMS and emails in different languages
- 2x 5 A binary outputs for cranking and fuel solenoid
- Option for up to 16 additional binary inputs/outputs
- Flexible event based history with up to 350 events
- Load shedding, dummy load capability
- Automatic temperature based cooling/heating
- Comprehensive gen-set protections
- Multipurpose flexible timers
- True RMS measurement

## Available extension modules

Product	Description	Order code
CM-Ethernet	Ethernet interface	CM2ETHERXBX
CM-GPRS	GSM modem / wireless internet	CM2GPRSXXBX
CM-RS232-485	Dual port interface	CM223248XBX
EM-BIO8-EFCP	8 additional binary inputs/outputs	EM2BIO8EXBX

## Functions and protections

Description	ANSI code	Description	ANSI code
Over voltage	59	Load shedding	32P
Under voltage	27	Overload	32
Voltage asymmetry and Phase rotation**	47	Power factor	55
Over frequency	81H	Temperature	49T
Under frequency	81L	Gas (fuel) level	71
Over current*	50 + 51	Earth fault current	50N + 64
Current unbalance	46		

\* Short current only

\*\* Fixed setting

