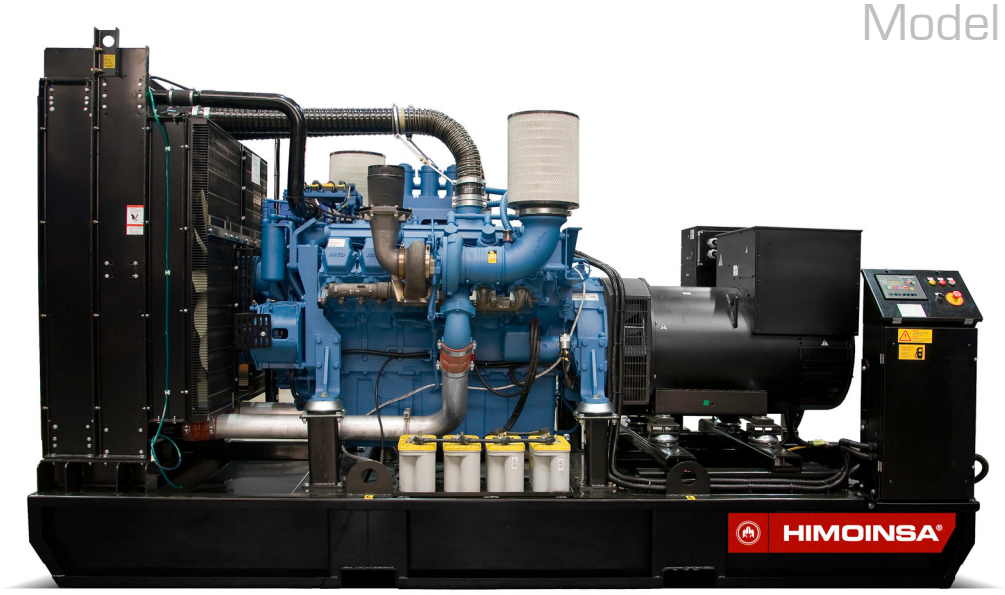
HIMOINSA®
THE ENERGY

Model: HMW-460 T5

INDUSTRIAL RANGE
Open Skid
Powered by MTU



- K9
- WATER-COOLED
- THREE PHASE
- 50 HZ
- STAGE 3A
- DIESEL

Generating Rates

SERVICE		PRP	STANDBY
Power	kVA	460	507
Power	kW	368	405
Rated Speed	r.p.m.	1.500	
Standard Voltage	V	400	
Available Voltages	V	230 - 230/132 - 400/230 V	
Rated at power factor	Cos Phi	0,8	

QR Code

HIMOINSA Company with quality certification ISO 9001
HIMOINSA gensets are compliant with EC mark which includes the following directives:

- 2006/42/CE Machinery safety.
- 2006/95/EC Low voltage.
- 2004/108/CE Electromagnetic compatibility.
- 2000/14/EC Sound Power level. Noise emissions outdoor equipment. (amended by 2005/88/EC)
- 97/68/EC Emissions of gaseous and particulate pollutants. (amended by 2002/88/EC & 2004/26/EC)
- EN 12100, EN 13857, EN 60204

Ambient conditions of reference: 1000 mbar, 25ºC, 30% relative humidity. Power according to ISO 3046 normative.

P.R.P. Prime Power - ISO 8528:
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 a 24 hours period shall not exceed 80% of the prime power. 10% overload available for governing purposes only.

Standby Power (ISO 3046 Fuel Stop power):
Power available for use at variable loads for limited annual time (500h), within the following limits of maximum operating time: 100% load 25h per year – 90% load 200h per year. No overload available. Applicable in case of failure of the main in areas of reliable electrical network.

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Subsidiaries:
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Engine Specifications 1.500 r.p.m.

ENGINE		PRP	STANDBY
Rated Output	kW	392	433
Manufacturer		MTU	
Model		10V1600G10F	
Engine Type		Diesel 4 strokes-cycle	
Injection Type		Direct	
Aspiration Type		Turbocharged and aftercooled	
Ciylinders Arrangement		10V	
Bore and Stroke	mm	122 x 150	
Displacement	L	17,5	
Cooling System		coolant	
Lube Oil Specifications		S10 W40	
Compression Ratio		17,5	
Fuel Consumption StandBy	l/h	108,87	
Fuel Consumption 100% PRP	l/h	101,75	
Fuel Consumption 75 % PRP	l/h	80,22	
Fuel Consumption 50 % PRP	l/h	55,37	
Fuel Consumption 25 % PRP	l/h	29,11	
Lube Oil Consumption Full Load		0,5 % of fuel consumption	
Total oil capacity including tubes, filters	L	60,5	
Total Coolant Capacity	L	94	
Governor	Type	Electrical	
Air Filter	Type	Dry	
Inner diameter exhaust pipe	mm	106	

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Generator

Generator		
Poles	Num	4
Winding Conections (standard)		Star-serie
Frame Mounting		S-1 14"
Insulation	Class	H class
Enclosure (according IEC-34-5)		IP23
Exciter System		self-excited, brushless
Voltage Regulator		A.V.R. (Electronic)
Bearing		Single bearing
Coupling		Flexible disc
Coating type		Standar (Vacuum impregnation)

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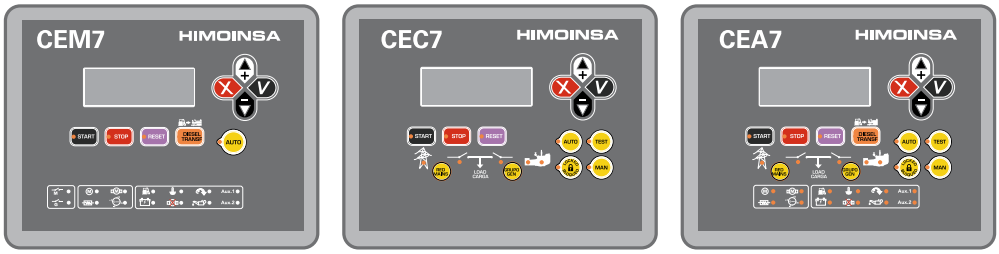
Control Panel Models



CEM7 CEC7 CEA7

FUNCIONALITY	PANEL MODEL	CONTROLLER MODE
Auto-start	M5	CEM7
Automatic Control Panel Without Mains Control	AS5	CEM7**
Automatic Control Panel With Mains Control (customer change over contactors)	AS5	CEA7
Automatic Control Panel With Mains Control (Himoinsa change over contactor with display)	AS5XCC2	CEM7+CEC7
Automatic Mains Failure (wall mounted panel)	AC5	CEA7

(**) Pre-heating resistance in the Genset and Battery charger in the control panel included.

Option available: Auto-start control panel without circuit breaker

General Description

CEM 7

The CEM7 controller unit is a device able to control de operation, monitoring and protection of a generating set. The controller unit consists of 2 different modules:
1.The VISUALIZATION module
2.The MEASUREMENTS module
VISUALIZATION MODULE
Provides information about the status of the device and, at the same time, allows the user to interact with it. It consists on a backlit display and various LEDs for monitoring the status of the controller and buttons that allow the user to control, program and configure the functions of the unit.
MEASUREMENTS MODULE
Controls and monitors the control board. It is located in the rear part of the panel, in order to reduce the wiring and to avoid electromagnetic disturbances. Every signal, sensor and actuator is connected to this module.
The connexion between the visualization module and the measurements module is made with a CAN communication bus.This feature allows the intercommunion of other modules to the main controller with a scalability warranty.

CEC 7

The CEC7 controller unit is a net sings supervision equipment, and control and supply supplier through generating set.The controller unit consists of 2 different modules:
1.The VISUALIZATION module
2.The MEASUREMENTS module
VISUALIZATION MODULE
The visualization module provides information about the status of the device and, at the same time, allows the user to interact with it.With this visualization module the user is able to control, program and configure the functions of the unit. It consists on a backlight display and various LEDs for monitoring the status of the controller and buttons that allow the user to control, program and configure the functions of the unit.
MEASUREMENTS MODULE
The measurements module controls and monitors the control board. It is located in the rear part of the panel, in order to reduce the wiring and to avoid electromagnetic disturbances.
Every signal, sensor and actuator is connected to this module
The connection between the measure module and visualization mode is made by means of a CAN BUS (Communication Bus).This produces an interconnection between additional modules which guarantees the proper working of the controller.

CEA 7

CEA7 controller is a supervision equipment for mains signal and also a supervision and electrical supply through the genset.This controller is composed by 2 different modules:
1.VISUALIZATION module
2.MEASUREMENTS module
VISUALIZATION MODULE
The visualization module provides information about the status of the device and, at the same time, allows the user to interact with it.With this visualization module the user is able to control, program and configure the functions of the unit.
MEASUREMENTS MODULE
The measurements module controls and monitors the control board. It is located inthe rear part of the panel, in order to reduce the wiring and to avoid electromagnetic disturbances. Every signal, sensor and actuator is connected to this module.
Connection between the measure module and visualization mode is made by means of a CAN BUS (Communication Bus).This produces an interconnection between additional modules which guarantees the proper working of the controller.

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Control & Power Panel

1. CM Control Panel.
2. CP Power Panel.
3. On/Off Switch..
4. Emergency Stop.
5. Main Line Circuit Breaker for overload protection.
6. Main bus /hardwire connection panel with safety protection.

CE-7 Auto-start multilingual control panel

1. Voltage between each Phase & Neutral
2. Voltage between Phases
3. Current (amps) on each Phase
4. Frequency
5. Active, Aparent & Reactive Power
6. Power Factor
7. Instant Power (KwH) and Accumulative power)
8. Fuel level
9. Oil pressure, coolant temperature, oil temperature
10. Battery voltage, battery charging alternator voltage
11. Engine Speed
12. Hours running
13. Multilingual (Spanish, English, French, Italian, Portuguese, Polish, German, Chinesse, Russian, Swedish, Norwegian)

Engine Alarms

1. High coolant temperature.
2. Low oil pressure.
3. Battery charge alternator
4. Start failure.
5. Low water level.
6. Fuel storage.
7. Overspeed.
8. Underspeed.
9. Low battery voltage.
10. High coolant temperature by sensor.
11. Low oil pressure by sensor.
12. Low fuel level by sensor.
13. Unexpected shutdown.
14. Stop failure.
15. Low engine temperature.
16. Genset voltage drops.
17. Emergency stop.

Genset Alarms

1. Over-load
2. Unbalanced voltage
3. Over voltage
4. Under voltage
5. Over frequency
6. Under frequency
7. Over load
8. Short-circuit
9. Inverse Power
10. Asymmetry among phases
11. Genset contactor Failure

Mains Alarms

1. Maximum Mains Voltage.
2. Minimum Mains Voltage.
3. Maximum Mains Frequency.
4. Minimum Mains Frequency.
5. Mains phase sequence failure.
6. Mains power failure.
7. Mains contactor switching failure.

Programmable Alarms:
There are 5 programmable alarms on text and action that could be associated to any engine alarms and showed on the auxiliary led 1 and 2 of the display

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INDUSTRIAL RANGE
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Controllers Features

	CEM 7	CEC 7	CEA 7	CEM7 + CEC7
GENERATOR READINGS				
Voltage among phases	•	•	•	•
Voltage among phases and neutral	•	•	•	•
Amperage	•	•	•	•
Frequency	•	•	•	•
Apparent power (kVA)	•	•	•	•
Active power (kW)	•	•	•	•
Reactive power (kVAr)	•	•	•	•
Power factor	•	•	•	•
MAINS READINGS				
Voltage among phases	x	•	•	•
Voltage among phase and neutral	x	•	•	•
Amperage	x	•	•	•
Frequency	x	•	•	•
Aparent power	x	X	•	•
Active power	x	X	•	•
Reactive power	x	X	•	•
Power factor	x	X	•	•
ENGINE READINGS				
Coolant temperature	•	X	•	•
Oil pressure	•	X	•	•
Fuel level (%)	•	X	•	•
Battery voltage	•	X	•	•
R.P.M.	•	X	•	•
Battery charge alternator voltage	•	X	•	•
ENGINE PROTECTIONS				
High water temperature	•	X	•	•
High coolant temperature by sensor	•	X	•	•
Low engine temperature by sensor	•	X	•	•
Low oil pressure	•	X	•	•
Low oil pressure by sensor	•	X	•	•
Low coolent level	•	X	•	•
Unexpected shutdown	•	X	•	•
Fuel storage	•	X	•	•
Fuel storage by sensor	•	X	•	•
Stop failure	•	X	•	•
Battery voltage failure	•	X	•	•
Battery charge alternator failure	•	X	•	•
Overspeed	•	X	•	•
Underspeed	•	X	•	•
Start failure	•	X	•	•
Emergency Stop	•	•	•	•
ALTERNATOR PROTECTIONS				
High frequency	•	•	•	•
Low frequency	•	•	•	•
High voltage	•	•	•	•
Low voltage	•	•	•	•
Short-circuit	•	X	•	•
Asymmetry among phases	•	•	•	•
Incorrect phase sequence	•	•	•	•
Inverse power	•	X	•	•
Overload	•	X	•	•
Genset signal droop	•	•	•	•

• Standard
x Not included
• Optional

NOTE: All protections are programmable to make “warning” or “stop with cooling time” or “without”

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Controllers Features

	CEM 7	CEC 7	CEA 7	CEM7 + CEC7
COUNTERS				
Total hour counter	•	•	•	•
Partial hour counter	•	•	•	•
Kilowatimeter	•	•	•	•
Starts valid counters	•	•	•	•
Starts failure counters	•	•	•	•
Maintenance	•	•	•	•
COMUNICATIONS				
RS232	•	•	•	•
RS485	•	•	•	•
Modbus IP	•	•	•	•
Modbus	•	•	•	•
CCLAN	•	x	•	•
Software for PC	•	•	•	•
Analogic modem	•	•	•	•
GSM/GPRS modem	•	•	•	•
Remote screen	•	x	•	•
Telesignal	•(8+4)		•(8+4)	•(8+4)
J1939	•	x	•	•
FEATURES				
Alarms history	(10) / (•+100)	-10	(10) / (•+100)	(10) / (•+100)
External start	•	•	•	•
Start inhibition	•	•	•	•
Mains failure start	•(CEC7)	•	•	•
Start under normative EJP	•	x	•	•
Genset contactor activation	•	x	x	•
Main & Genset contactor activation	x	•	•	•
Fuel transfer control	•	x	•	•
Engine temperature control	•	x	•	•
Manual override	•	x	•	•
Programmable alarms	•	x	•	•
Genset start function in test mode	•	x	•	•
Programmable outputs	•	x	•	•
Multilingual	•	•	•	•
SPECIAL FUNCTIONS				
Positioning GPS	•		•	•
Synchronization with mains	•		•	•
Mains Synchronism	•		•	•
Second Cero suppression	•		•	•
RAM 7	•		•	•
Remote screen	•		•	•
Timer	•		•	•

- • Standard
- x Not included
- • Optional

CEC7: available when the controller CEC7 is incorparted to the installation
MPS 5.0: available application when the module MPS 5. has been incorporated to the panel.
Note: AS5 + CC2 configuration, will have all CEM7 funcionality plus CEC7 mains readings.

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Generating Sets Standard and Optional Features

Engine

· Diesel engine
· 4 strokes-cycle
· 24V Electrical system
· Radiator with blowing fan
· Water separator decanting filter (visible level)
· Electronic governor
· Sender WT
· Senders OP
· Low water level sensor
· Dry air cleaner
· Hot components and radiator guards
· Mobile components guards

Alternator

· Self-excited and Self-regulated
· IP23 protection degree
· Insulation H class

Electrical system

· Control and power electric panel, with measurements devices and controller (according to necessity and configuration)
· 4 poles circuit breaker
· Battery disconnector
· Earth leakage protection adjustable (time & sensibility) standard in M5 and AS5 configuration with MCCB
· Battery charger (standard on automatic control panels)
· Pre-heating resistance (standard on automatic control panels) / water jacket heater
· Battery charge alternator with ground connection
· Starting battery/ies installed and connected to the engine (supports included)
· Ground connection electrical installation with connection ready for ground pike (not supplied)

Open set version

· Steel made chassis
· Emergency stop button
· Antivibration shock absorber
· Chassis with integrated fuel tank
· Fuel level sensor
· Drain cap fuel tank
· Steel made residential silencer -15db(A) attenuation

Optional :
· Fuel transfer pump
· Steel made residential silencer -35db(A) attenuation.

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Application Data

Exhaust System		
Maximum exhaust temperature	ºC	500
Exhaust Gas Flow	m3/min	93,6
Maximum allowed back pressure	mbar	150

Air Inlet System		
Intake Air Flow	m3/h	2052
Cooling Air Flow	m3/s	10,9
Alternator fan air flow	m3/s	1,035

Starting System		
Starting Motor	kW	8
Starting Motor	CV	10,88
Recommended Battery Capacity	Ah	75 x 2
Auxiliary Voltage	Vcc	24
Current of starter (Rush)	A	800
Current of starter (Cranking)	A	250

Fuel System		
Fuel Oil Specifications		Diesel
Fuel Tank	L	740

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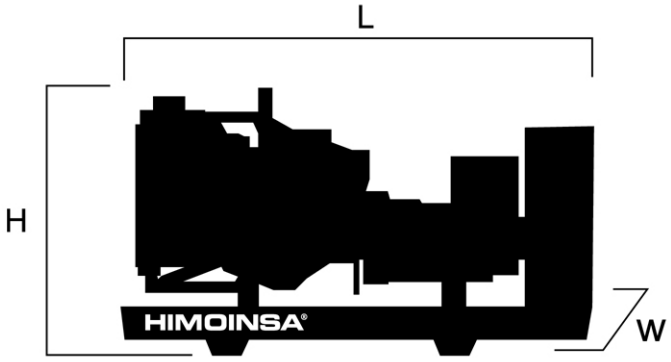
Dimensions



Weight and Dimensions		
(L) Length	mm	3.600
(H) Height	mm	2.121
(W) Width	mm	1.604
Shipping Volume seaworthy (standard suplier)	m3	12,25
(*) Wet weight	Kg	3.872
Fuel tank capacity	L	740
Autonomy	Hours	9

(*) (with standard accesories)

STANDARD VERSION

Himoinsa reserves the right to modify any characteristic without prior notice.
Weights and dimensions based on products standar. Illustrations may include optional equipment.
Technical data described here correspond with the available information at the moment of printing.
Industrial design under patent.

Local Distributor

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CONTROL PANEL MODEL

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M5

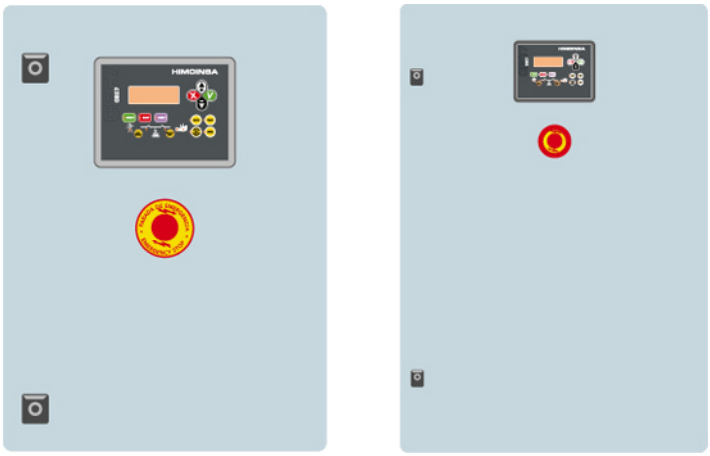
Digital manual auto-start control panel and thermal magnetic protection (according to voltage and phase) and differential relay. CEM7

AS5

Automatic control panel WITHOUT ATS (Automatic Transfer Switch) and WITHOUT mains control with CEM7. (*) As optional AS5 with CEA7. Automatic control panel without ATS (automatic transfer switch) and with mains control.

CC2

Himoinsa External ATS WITH visualization display. CEC7



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CONTROL PANEL MODEL

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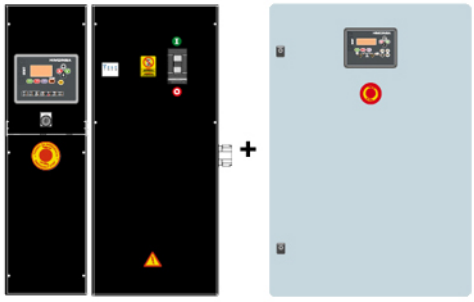
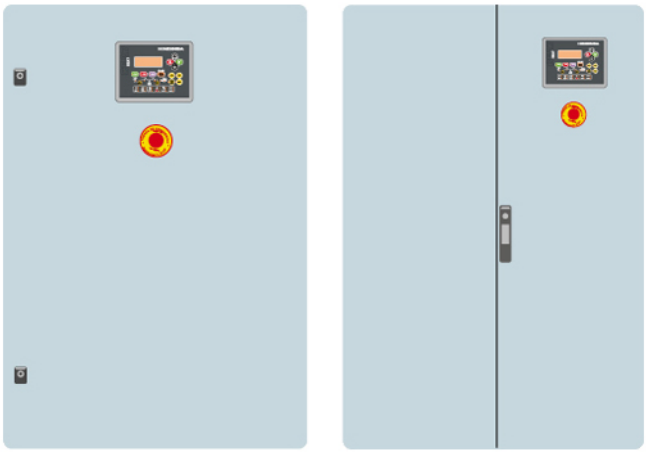
AS5 + CC2

Automatic with mains control and ATS with visualization. The visualization will be in the genset and in the ATS box. CEM7+CEC7



AC5

Automatic Mains Failure control panel. Wall mounted Automatic control panel including transfer switch with thermal magnetic protection (according to voltage and phase). CEA7



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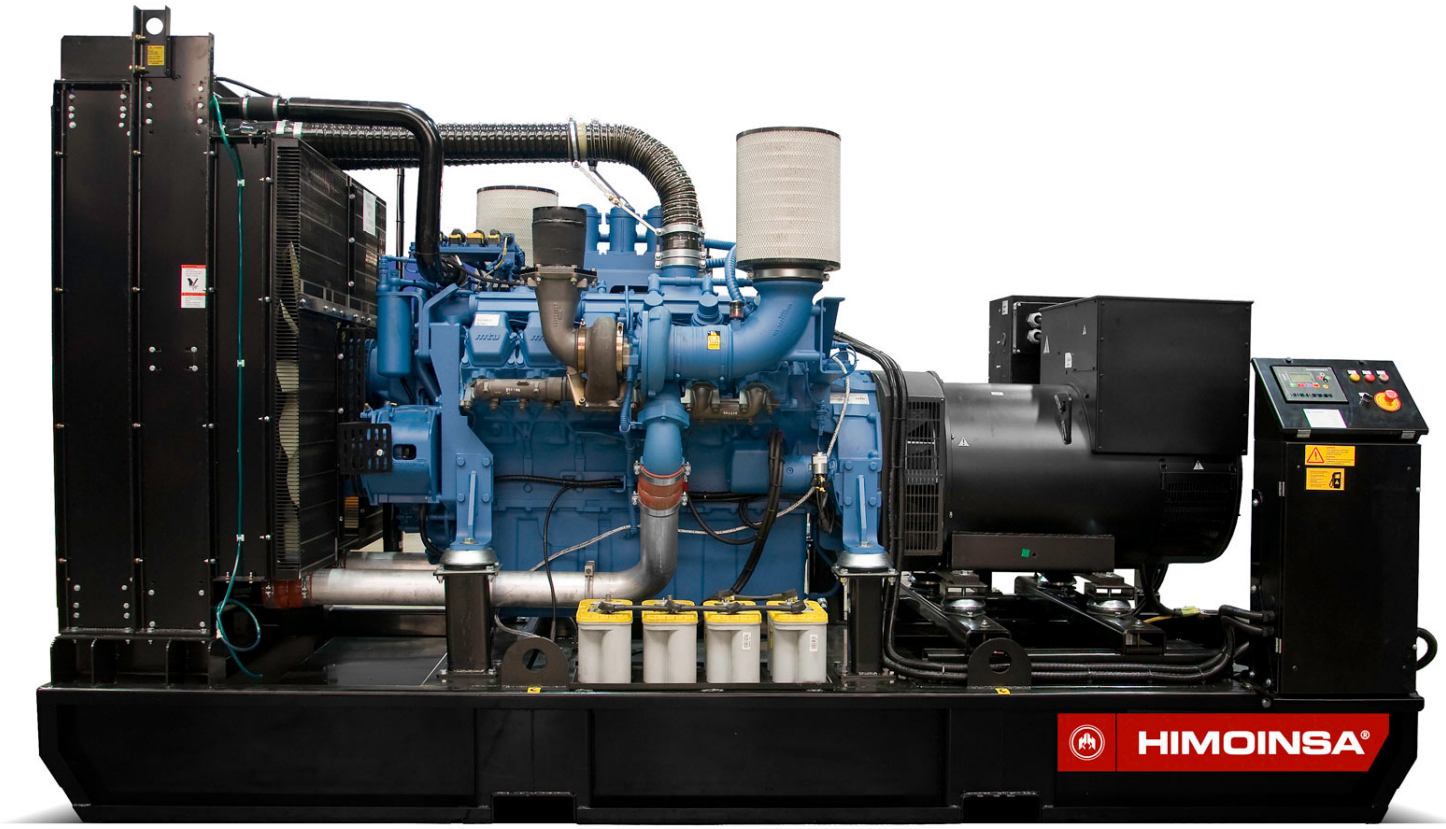

ISO 9001

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