



HIMOinsa®
THE ENERGY



Model: **HFW-100 T5**

INDUSTRIAL RANGE

Open Skid

Powered by FPT_IVECO



K4



WATER-COOLED



THREE PHASE



50 HZ



STG.2 (FLEXIBLE SCHEME)



DIESEL

Generating Rates



SERVICE		PRP	STANDBY
Power	kVA	100	107
Power	kW	79	86
Rated Speed	r.p.m.	1.500	
Standard Voltage	V	400	
Available Voltages	V	400/230 - 230/132 - 230 V	
Rated at power factor	Cos Phi	0,8	

ISO 9001
BUREAU VERITAS
Certification



HIMOinsa Company with quality certification ISO 9001

HIMOinsa gensets are compliant with EC mark which includes the following directives:

- EN ISO 13857:2008 Machinery safety.
- 2006/95/EC Low voltage.
- 89/336/EEC 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)

Ambient conditions of reference: 1000 mbar, 25°C, 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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ISO 9001
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Engine Specifications 1.500 r.p.m.

ENGINE		PRP	STANDBY
Rated Output	Kw	87	96
Manufacturer		FPT_IVECO	
Model		NEF45 TM 2A	
Engine Type		Diesel 4 strokes-cycle	
Injection Type		Direct	
Aspiration Type		Turbocharged and aftercooled	
Cylinders Arrangement		4 - L	
Bore and Stroke	mm	104x132	
Displacement	L	4,5	
Cooling System		Liquid (water + 50% Paraflu11)	
Engine Specifications		ACEA E3 - E5	
Compression Ratio		17,5 : 1	
Fuel Consumption Stand By	l/h	24,4	
Fuel Consumption 100% PRP	l/h	22	
Fuel Consumption 80 % PRP	l/h	16,2	
Fuel Consumption 50 % PRP	l/h	11	
Lube Oil consumption full load		0,5 % of fuel consumption	
Total Oil Capacity	L	8,5	
Total Coolant Capacity	L	18,5	
Governor	Type	Mechanical	
Air Filter	Type	Dry	
Inner diameter exhaust pipe	mm	70,3	



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Generator

Generator		
Poles	Num	4
Winding Conections (standard)		Star-serie
Frame Mounting		S-3 11"1/2
Insulation	Class	H class
Enclosure (according IEC-34-5)		IP23
Exciter System		self-excited, brushless
Voltage Regulator		A.V.R. (Electronic)
Steady Voltage Precision		± 1,5%
Bearing		Single bearing
Coupling		Flexible disc
Coating type		Standar (Vacuum impregnation)



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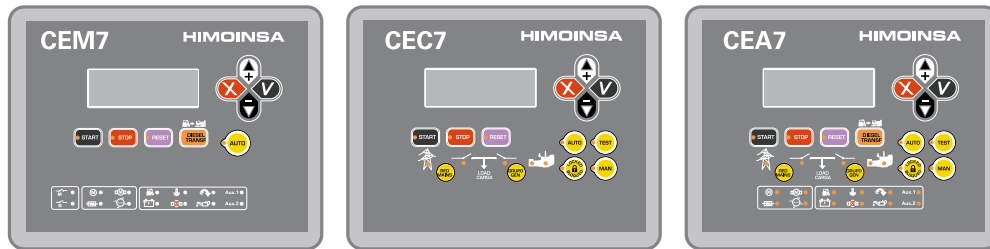
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Control Panel Models



CEM7

CEC7

CEA7

FUNCTIONALITY	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 intercommunication 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 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
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 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.

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

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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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	•	•	•
Apparent 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 coolant 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



COUNTERS

	CEM 7	CEC 7	CEA 7	CEM7 + CEC7
Total hour counter	•	•	•	•
Partial hour counter	•	•	•	•
Kilowattmeter	•	•	•	•
Starts valid counters	•	•	•	•
Starts failure counters	•	•	•	•
Maintenance	•	•	•	•



COMMUNICATIONS

	CEM 7	CEC 7	CEA 7	CEM7 + CEC7
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

	CEM 7	CEC 7	CEA 7	CEM7 + CEC7
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

	CEM 7	CEC 7	CEA 7	CEM7 + CEC7
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 incorporated 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 functionality plus CEC7 mains readings.



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Generating Sets Standard and Optional Features

Engine

- Diesel engine
- 4 strokes-cycle
- Water-cooled
- 12V Electrical system
- Radiator with blowing fan
- water separator decanting filter (no visible level)
- Mechanical governor
- Dry air cleaner
- Hot components and radiator guards
- Mobile components guards
- Optional :
 - Sender WT
 - Senders OP
 - Low water level sensor

Alternator

- Self-excited and Self-regulated
- 4 poles
- AVR governor
- IP23 protection degree
- Insulation H class
- Single drive-shaft
- Flexible disc coupling

Electrical system

- Control and power electric panel, with measurements devices and controller (according to necessity and configuration)
- 4 poles circuit breaker
- 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)
- Optional :
 - Battery disconnecter

Open set version

- Emergency stop button
- Oil sump extraction kit
- Steel made chassis
- Antivibration shock absorber
- Chassis with integrated fuel tank
- Fuel level sensor
- High mechanical strenght
- Powder coating
- 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 100% Stand By	°C	535
Exhaust Gas Flow 100% Stand By	Kg/s	0,148
Maximum allowed back pressure	kPa	5
Heat evacuated through exhaust pipe	KCal/Kwh	731,6

Air Inlet System

Intake Air Flow 100% Stand By	m3/h	617
Cooling Air Flow 100% Stand By	m3/s	2,25
Alternator fan air flow	m3/s	0,514

Starting System

Starting Motor	Kw	3
Starting Motor	CV	4,08
Recommended Battery Capacity	Ah	100
Auxiliary Voltage	Vcc	12

Fuel System

Fuel Oil Specifications		Diesel
Fuel Tank	L	145



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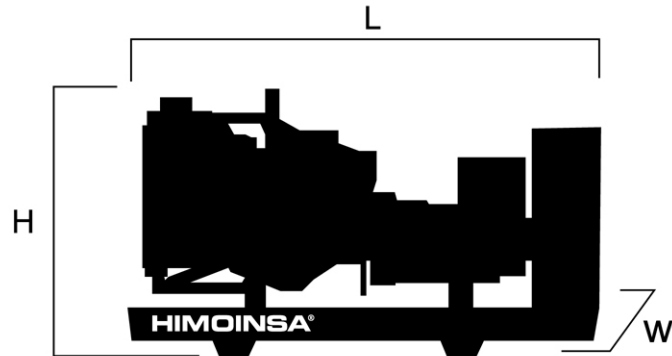
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Dimensions



Weight and Dimensions

(L) Length	mm	2.150
(H) Height	mm	1.500
(W) Width	mm	780
Shipping Volume seaworthy (standard supplier)	m3	2,52
(*) Dry weight	Kg	1.125
Fuel tank capacity	L.	145
Autonomy	Hours	9

(*) (with standard accessories)

STANDARD VERSION

Himoinsa reserve the right of modify any characteristic without prior notice.

Weights and dimensions based on products standar and dry / illustrations may include optional equipment.

Technical data here described correspond with the available information at the moment of printing.

Industrial design under patent.

Local Distributor



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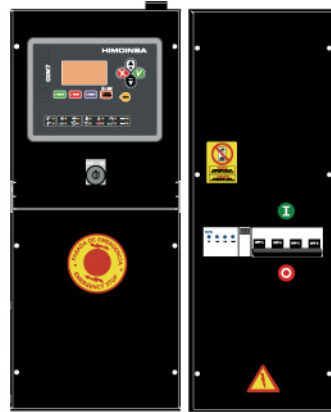


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CONTROL PANEL MODEL

M5

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

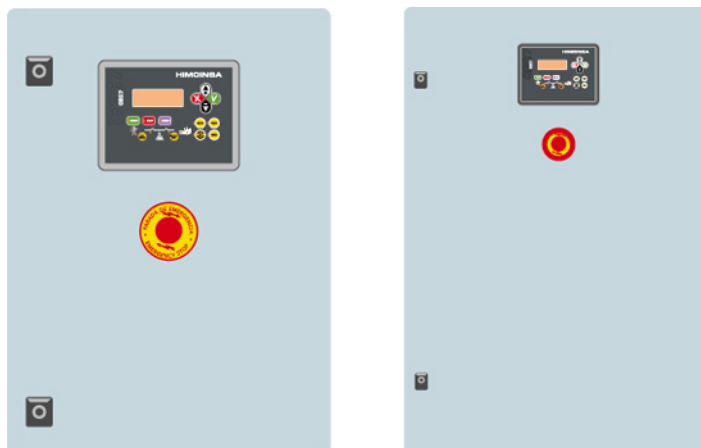


AS5



CC2

Himoinsa External ATS WITH visualization display. CEC7





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CONTROL PANEL MODEL

Model: **HFW-100 T5**

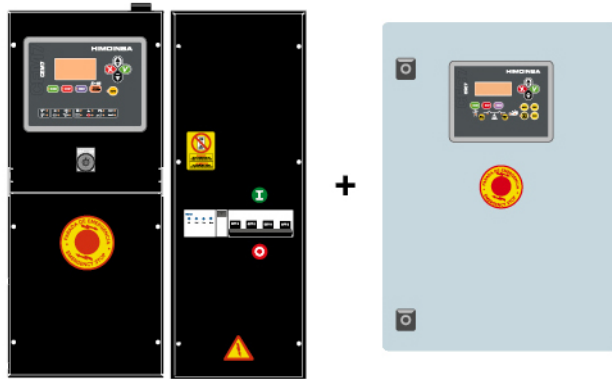
AS5 + CC2

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

INDUSTRIAL RANGE

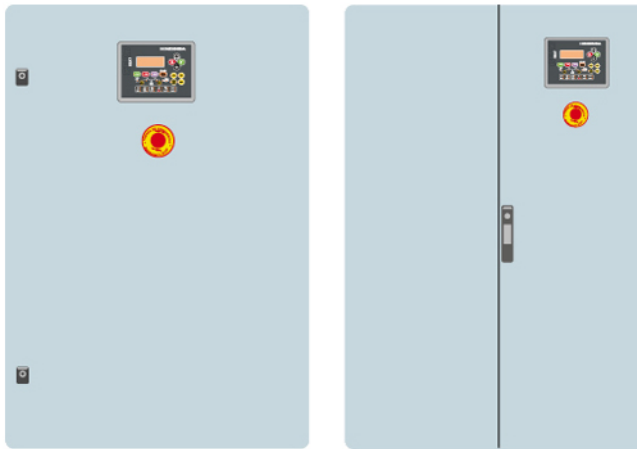
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AC5

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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PDF Summary

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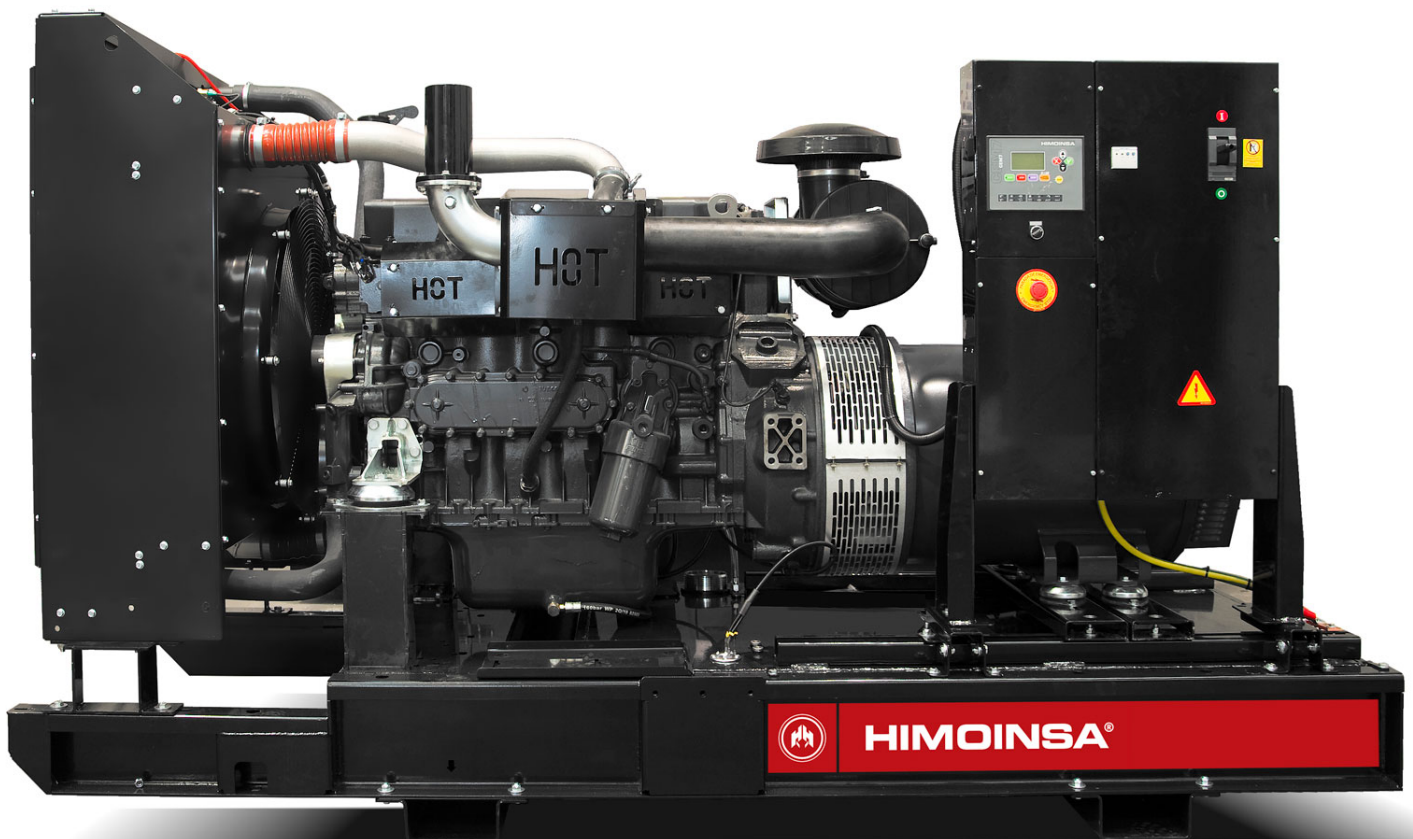
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