



**Guascor Energy
Marine Electric
Propulsion Gensets**

1. Power Definition

Guascor Energy diesel engines ratings stated in this document are based on ISO3046-1:2002(E), ISO3046-3:2006(E) and ISO15550:2002(E) standards.

These ratings have been measured (including all engine driven mechanical pumps).

Our Guascor Energy diesel engines are designed following the reference conditions. On vessels approved and/or surveyed by IACS members, "standard design conditions" are to be observed.

Standard reference conditions ISO 15550:2002

- Total barometric pressure: 100 kPa / 1.000 mbar
- Air temperature: 25°C (77°F) / 298 K
- Relative humidity: 30%
- Charge air coolant (raw): 25°C (77°F) / 298 K
- Charge air coolant (treated): 29°C (84°F) / 302 K

Standard design conditions ISO 3046-1:2002 & 3046-3:2006

- Total barometric pressure: 100 kPa / 1.000 mbar
- Air temperature: 45°C (113°F) / 318 K
- Relative humidity: 60%
- Charge air coolant (raw): 32°C (89°F) / 305 K
- Charge air coolant (treated): 36°C (96°F) / 309 K

2 Rating Definition

Diesel Electric Propulsion

COP (continuous power)

Rated power (ISO8528) intended for continuous use in applications requiring uninterrupted service with high load factors for an unlimited number of hours per year; 10% overload available in a period of time of 1/12 operation hours and maximum 25 h/year

- Typical load factors: <80% of rated power
100% of time or 24/24h.
- Overload: 110% overload available 1/12h and max.
25 h/year.
- Operation time: 5.000 - 8.000 h/year.
- Typical applications: Ferries, research vessels, passenger cruiser, tugboats, offshore vessels, freighters, and tankers.

3. Fuel Consumption

The fuel consumption values published in this document have been calculated according to ISO8178 standard E 2 test cycles for auxiliary applications. These values must be considered as indicative guidance but not considered absolute values. Fuel consumption may vary as it can be influenced by external factors such as ship application, different environmental conditions, particular propeller design, hull form, etc.

E2 Test Cycle: Main propulsion engines at constant speed

Conditions	1	2	3	4	5
% Speed	100	100	100	100	100
% Power	100	75	50	25	10
Weight Factor	0.05	0.25	0.30	0.30	0.10

Fuel consumption rates are based on ISO3046-1 with a tolerance of +5% and is based on diesel gasoil B with LHV 42.700 KJ/kg (18.358 Btu/lb) when used at 29°C (85°F) and weighing 836 g/liter (6.977 lb/US gal).

4. Emission Certifications

IMO (International Maritime Organization)

On January 1, 2000, annex VI of MARPOL 73 / 78 went into effect for all marine diesel engines above 130 kW / 177 HP installed on vessels whose keel is laid after January 1 and which do not operate exclusively in national waters. Current revision (Tier II) entered into force from January 1, 2011.

- IMO apply to sea going vessels and on engines rated above 130 kW / 177 mHP.
- Emergency on-board engines are exempt to accomplish IMO regulations.

CCNR (Central Commission for the Navigation on the Rhine)

Effective January 1, 2003, the CCNR regulates exhaust emissions limits for all marine diesel engines above 37kW / 50HP installed on inland waterway-going vessels running through the Rhine or its tributary rivers. Members of the CCNR include: Belgium, Netherlands, Germany, France, Luxembourg, and Switzerland. Current revision (CCNR II) entered into force effective January 1, 2007.

- CCNR rules apply to inland waterway-going vessels and on engines rated above 37 kW / 50 mHP.
- Equivalent to EU directive for non-road mobile machinery 97/68/ EC, as amended by directive 2004/26/EC, mutual recognition agreement effective July 1, 2007.

5. Marine Classification Societies

Guascor Energy marine engines, gen-sets and gear boxes are designed and built according to the rules of major marine classification societies worldwide. Approvals from major marine classification societies worldwide include:

- **ABS** American Bureau of Shipping
- **BV** Bureau Veritas
- **LR** Lloyds Register

Some marine products or ratings may differ depending upon class society.

For more information on emission or marine classification society certifications, please contact your local Guascor Energy sales representative.

6. Abbreviations

This document contains the following abbreviations which will appear on subsequent pages to identify the emission regulation compliance of each engine type and/or rating.

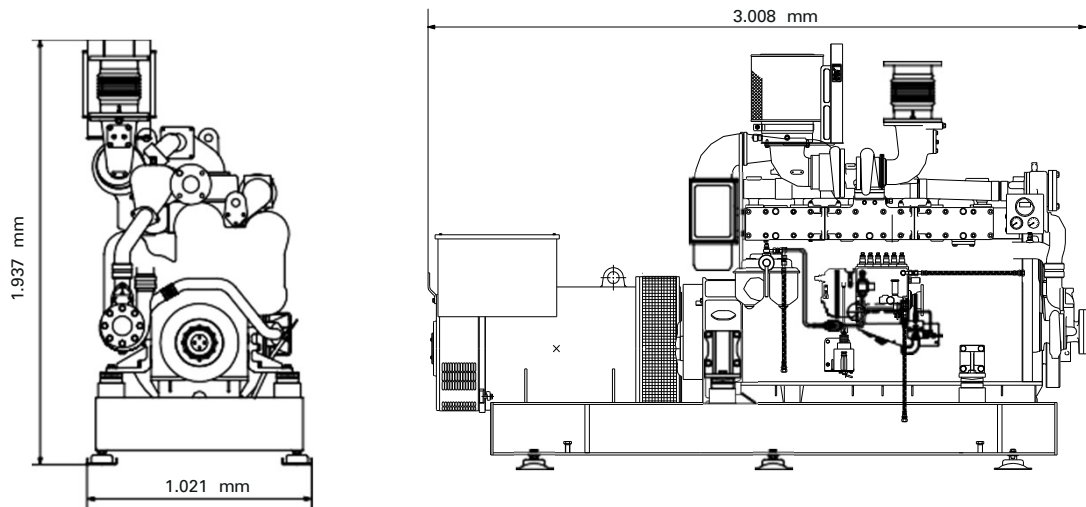
- **IMO2** IMO Tier II compliant; EIAPP certificates available since January 1, 2011
- **CCNR2** CCNR Stage II compliant
- **COP** Continuous power
- **V** Volt
- **kW** Kilowatt
- **KVA** Kilovolt amper

Extensions of this information should be compared with the specifications indicated in the mentioned standards.

All technical information and data within this document is subject to modification without prior notice.

F/SF180 Series

Marine Electric Propulsion Genset



Main data

Cycle (ISO 8178)	E2 (diesel - electric propulsion)
Disposition / Displacement	6 L / 17,96 liter
Bore and stroke	152 x 165 mm
Cycle	4-stroke diesel
Combustion system	Direct injection
Generator characteristics	Synchronous
Voltage regulation	AVR electronic
Excitation	AREP self-excited, brushless
Generator protection	IP23
Heating class	F
Insulation class	H
Construction	Simple bearing

DEP generator set COP ratings

Engine model	Speed (f)	Electrical power (cos ϕ 0,8)		Voltage V	Fuel consumption (ISO 8178) L/h	Emissions
		kVA	kWe			
F180TAiII2SG	1.500 (50Hz)	310	248	380 / 400	45,9	IMO2
		345	276		50,2	
SF180TAiII2SG		400	320		57,4	
		460	368		64,8	
F180TAiII2SG	1.800 (60Hz)	360	288	450 / 480	56,1	IMO2
		400	320		62,0	
SF180TAiII2SG		440	352		67,5	
		520	416		77,3	

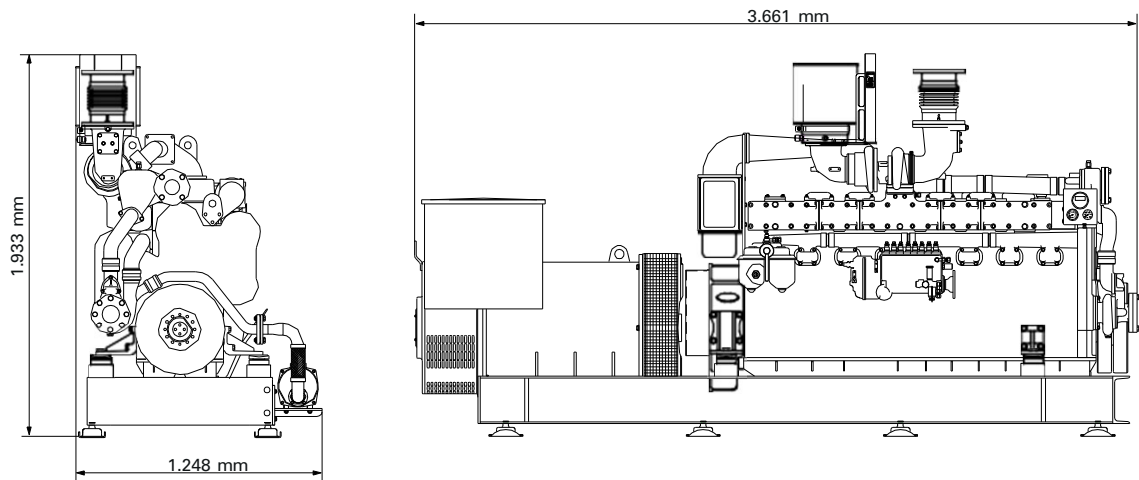
Weight

Dry weight (kg)	4.410
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Dimensions and weight may vary depending upon engine configuration.
Data subject to further modifications without prior notice.

F/SF240 Series

Marine Electric Propulsion Genset



Main data

Cycle (ISO 8178)	E2 (diesel - electric propulsion)
Disposition / Displacement	8 L / 23,96 liter
Bore and stroke	152 x 165 mm
Cycle	4-stroke diesel
Combustion system	Direct injection
Generator characteristics	Synchronous
Voltage regulation	AVR electronic
Excitation	AREP self-excited, brushless
Generator protection	IP23
Heating class	F
Insulation class	H
Construction	Simple bearing

DEP generator set COP ratings

Engine model	Speed (f)	Electrical power (cos ϕ 0,8)		Voltage V	Fuel consumption (ISO 8178)	Emissions
		kVA	kWe		L/h	
F240TAiII2SG	1.500 (50Hz)	500	400	380 / 400	71,2	IMO2
SF240TAiII2SG		600	480		84,3	
		640	512		89,1	
F240TAiII2SG	1.800 (60Hz)	560	448	450 / 480	84,4	IMO2
		600	480		89,5	
SF240TAiII2SG		650	520		96,8	CCNR2
		675	540		100,3	IMO2
		690	552		102,2	

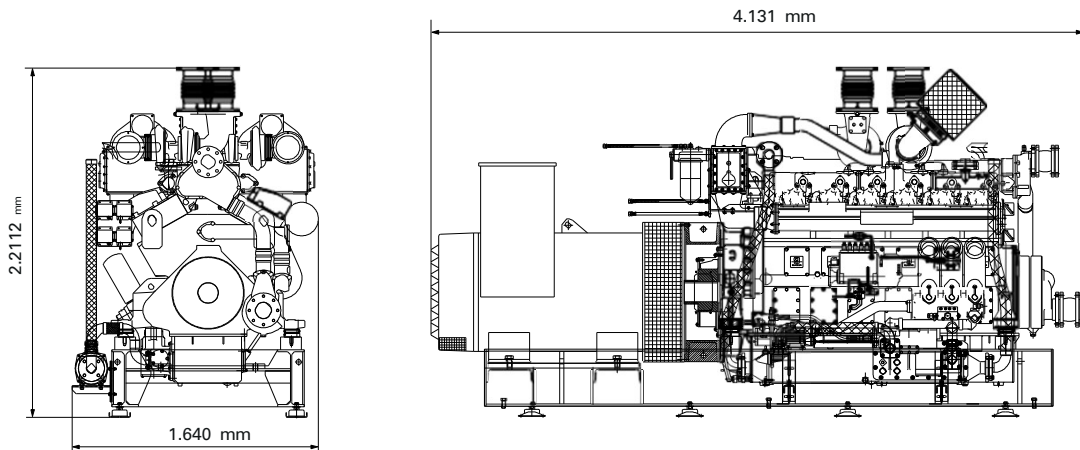
Weight

Dry weight (kg)	5.530
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Dimensions and weight may vary depending upon engine configuration.
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F/SF360 Series

Marine Electric Propulsion Genset



Main data

Cycle (ISO 8178)	E2 (diesel - electric propulsion)
Disposition / Displacement	12 V / 35,93 liter
Bore and stroke	152 x 165 mm
Cycle	4-stroke diesel
Combustion system	Direct injection
Generator characteristics	Synchronous
Voltage regulation	AVR electronic
Excitation	AREP self-excited, brushless
Generator protection	IP23
Heating class	F
Insulation class	H
Construction	Double bearing

DEP generator set COP ratings

Engine model	Speed (f)	Electrical power (cos ϕ 0,8)		Voltage V	Fuel consumption (ISO 8178)	Emissions
		kVA	kWe		L/h	
F360TAiII2SG	1.500 (50Hz)	700	560	380 / 400	100,4	IMO2 / CCNR2
SF360TAiII2SG		860	688		121,8	
		950	760		133,7	
F360TAiII2SG	1.800 (60Hz)	830	664	450 / 480	122,4	IMO2 / CCNR2
SF360TAiII2SG		950	760		139,1	
		1.050	840		151,3	

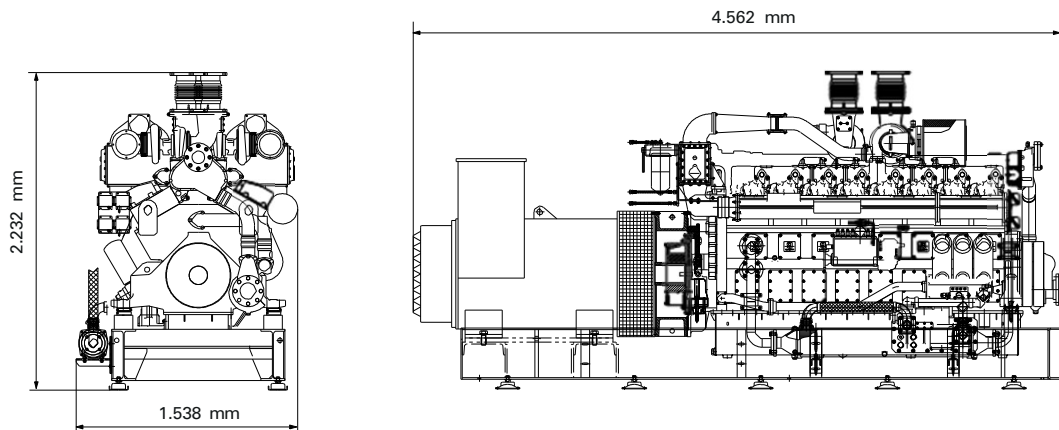
Weight

Dry weight (kg)	8.800
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Dimensions and weight may vary depending upon engine configuration.
Data subject to further modifications without prior notice.

F/SF480 Series

Marine Electric Propulsion Genset



Main data

Cycle (ISO 8178)	E2 (diesel - electric propulsion)
Disposition / Displacement	16 V / 47,90 liter
Bore and stroke	152 x 165 mm
Cycle	4-stroke diesel
Combustion system	Direct injection
Generator characteristics	Synchronous
Voltage regulation	AVR electronic
Excitation	AREP self-excited, brushless
Generator protection	IP23
Heating class	F
Insulation class	H
Construction	Double bearing

DEP generator set COP ratings

Engine model	Speed (f)	Electrical power (cos ϕ 0,8)		Voltage V	Fuel consumption (ISO 8178)	Emissions
		kVA	kWe		L/h	
F480TAiII2SG	1.500 (50Hz)	1.000	800	380 / 400	141,4	IMO2 / CCNR2
SF480TAiII2SG		1.100	880		154,1	
		1.250	1.000		174,3	
F480TAiII2SG	1.800 (60Hz)	1.100	880	450 / 480	164,1	IMO2 / CCNR2
SF480TAiII2SG		1.200	960		176,8	
		1.300	1.040		189,4	
		1.400	1.120		202,2	

Weight

Dry weight (kg)	9.840
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Dimensions and weight may vary depending upon engine configuration.
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