

A black and white photograph of a marine power generation set, showing various mechanical components like pipes, valves, and a large cylindrical tank.

**Guascor Energy  
Marine Power  
Generation Sets**

# 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

### Auxiliary and Generator Set

#### COP (continuous power)

Engines with this rating (ISO 8528) are available for supplying utility power at a constant 100% load for an unlimited number of hours per year. A 10% overload capability for a period of time of 1/12 operation hours and maximum 25 h/year is additionally allowed to that specified on ISO 8528.

- Typical load factors: 80-100% 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.

## 3. Fuel Consumption

The fuel consumption values published in this document have been calculated according to ISO8178 standard D 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.

#### D2 Test Cycle: Auxiliary engines at a 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.

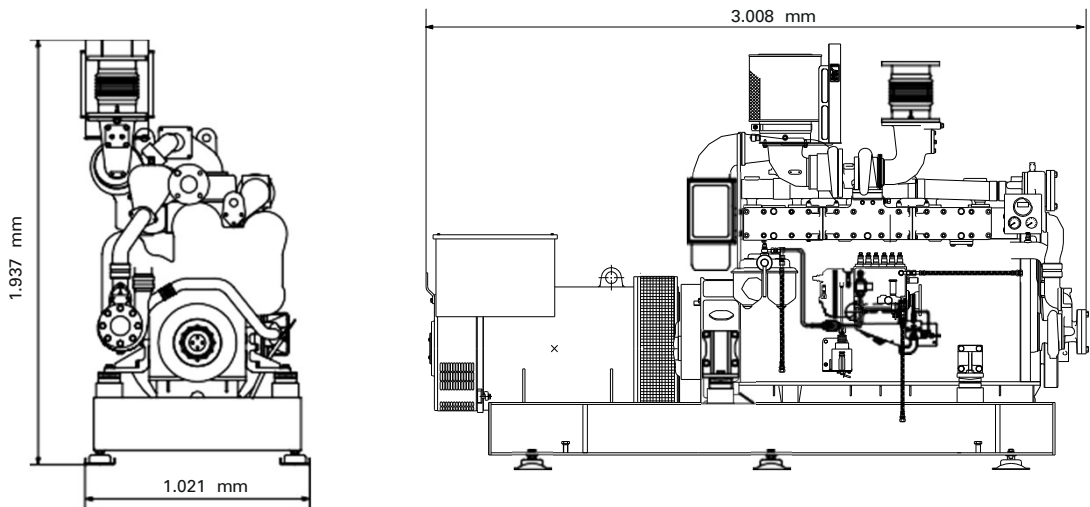
- **IMO2** IMO Tier II compliant; EIAPP certificates available since January 1, 2011
- **CCNR2** CCNR Stage II compliant
- **COP** Continuous power
- **kW** Kilowatt
- **KVA** Kilovolt amper

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 Power Generation Set



### Main data

<b>Cycle (ISO 8178)</b>	D2 (auxiliary generator set)
<b>Disposition / Displacement</b>	6 L / 17,96 liter
<b>Bore and stroke</b>	152 x 165 mm
<b>Cycle</b>	4-stroke diesel
<b>Combustion system</b>	Direct injection
<b>Generator characteristics</b>	Synchronous
<b>Voltage regulation</b>	AVR electronic
<b>Excitation</b>	AREP self-excited, brushless
<b>Generator protection</b>	IP23
<b>Heating class</b>	F
<b>Insulation class</b>	H
<b>Construction</b>	Simple bearing

### Auxiliary generator set COP ratings

Engine model	Speed (f)	Electrical power (cosφ 0,8)		Voltage (V)	Fuel consumption (ISO 8178)	Emissions
		kVA	kWe		L/h	
F180TAiII2SG	1.500 (50Hz)	345	276	380 / 400	37,1	IMO2
SF180TAiII2SG		460	368		47,5	
F180TAiII2SG	1.800 (60Hz)	400	320	450 / 480	46,3	IMO2
SF180TAiII2SG		520	416		56,0	

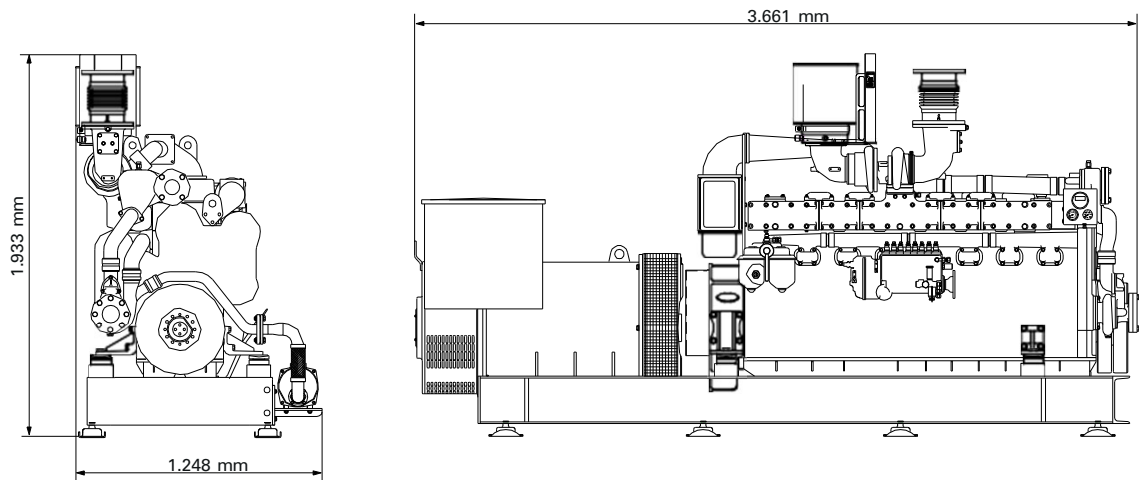
### Weight

<b>Dry weight (kg)</b>	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 Power Generation Set



### Main data

<b>Cycle (ISO 8178)</b>	D2 (auxiliary generator set)
<b>Disposition / Displacement</b>	8 L / 23,96 liter
<b>Bore and stroke</b>	152 x 165 mm
<b>Cycle</b>	4-stroke diesel
<b>Combustion system</b>	Direct injection
<b>Generator characteristics</b>	Synchronous
<b>Voltage regulation</b>	AVR electronic
<b>Excitation</b>	AREP self-excited, brushless
<b>Generator protection</b>	IP23
<b>Heating class</b>	F
<b>Insulation class</b>	H
<b>Construction</b>	Simple bearing

### Auxiliary generator set COP ratings

Engine model	Speed (f)	Electrical power (cosφ 0,8)		Voltage (V)	Fuel consumption (ISO 8178)	Emissions
		kVA	kWe		L/h	
F240TAiII2SG	1.500 (50Hz)	500	400	380 / 400	51,8	IMO2
SF240TAiII2SG		640	512		63,6	
F240TAiII2SG	1.800 (60Hz)	560	448	450 / 480	62,3	IMO2
SF240TAiII2SG		690	552		73,9	

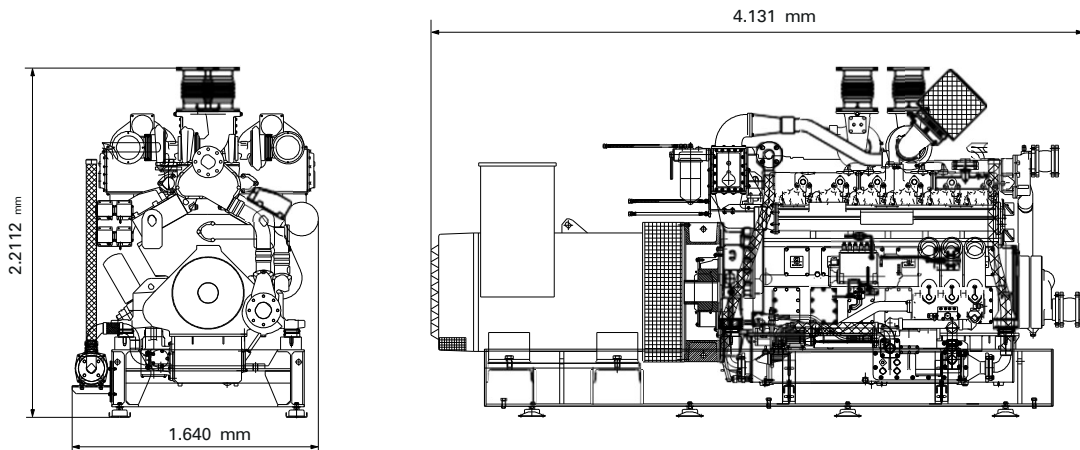
### Weight

<b>Dry weight (kg)</b>	5.530
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Dimensions and weight may vary depending upon engine configuration.  
Data subject to further modifications without prior notice.

# F/SF360 Series

## Marine Power Generation Set



### Main data

<b>Cycle (ISO 8178)</b>	D2 (auxiliary generator set)
<b>Disposition / Displacement</b>	12 V / 35,93 liter
<b>Bore and stroke</b>	152 x 165 mm
<b>Cycle</b>	4-stroke diesel
<b>Combustion system</b>	Direct injection
<b>Generator characteristics</b>	Synchronous
<b>Voltage regulation</b>	AVR electronic
<b>Excitation</b>	AREP self-excited, brushless
<b>Generator protection</b>	IP23
<b>Heating class</b>	F
<b>Insulation class</b>	H
<b>Construction</b>	Double bearing

### Auxiliary generator set COP ratings

Engine model	Speed (f)	Electrical power (cosφ 0,8)		Voltage (V)	Fuel consumption (ISO 8178)	Emissions
		kVA	kWe		L/h	
F360TAiII2SG	1.500 (50Hz)	700	560	380 / 400	73,9	IMO2 / CCNR2
SF360TAiII2SG		860	688		88,0	
		950	760		95,7	
F360TAiII2SG	1.800 (60Hz)	830	664	450 / 480	91,1	IMO2 / CCNR2
SF360TAiII2SG		950	760		101,9	
		1.050	840		109,7	

### Weight

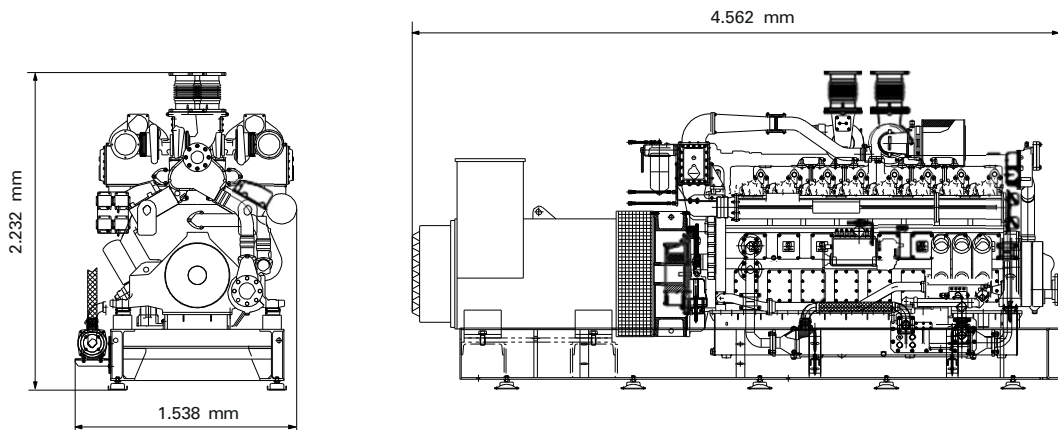
<b>Dry weight (kg)</b>	8.800
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Dimensions and weight may vary depending upon engine configuration.  
Data subject to further modifications without prior notice.



# F/SF480 Series

## Marine Power Generation Set



### Main data

<b>Cycle (ISO 8178)</b>	D2 (auxiliary generator set)
<b>Disposition / Displacement</b>	16 V / 47,90 liter
<b>Bore and stroke</b>	152 x 165 mm
<b>Cycle</b>	4-stroke diesel
<b>Combustion system</b>	Direct injection
<b>Generator characteristics</b>	Synchronous
<b>Voltage regulation</b>	AVR electronic
<b>Excitation</b>	AREP self-excited, brushless
<b>Generator protection</b>	IP23
<b>Heating class</b>	F
<b>Insulation class</b>	H
<b>Construction</b>	Double bearing

### Auxiliary generator set COP ratings

Engine model	Speed (f)	Electrical power (cosφ 0,8)		Voltage (V)	Fuel consumption (ISO 8178)	Emissions
		kVA	kWe		L/h	
F480TAiII2SG	1.500 (50Hz)	1.000	800	380 / 400	101,2	IMO2 / CCNR2
SF480TAiII2SG		1.100	880		109,6	
		1.250	1.000		123,1	
F480TAiII2SG	1.800 (60Hz)	1.100	880	450 / 480	122,2	IMO2 / CCNR2
SF480TAiII2SG		1.200	960		130,5	
		1.300	1.040		138,7	
		1.400	1.120		147,0	

### Weight

<b>Dry weight (kg)</b>	9.840
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Dimensions and weight may vary depending upon engine configuration.  
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