Guascor Energy

Guascor Energy Marine Power Generation Engines

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: 25ºC (77ºF) / 298 K
- Relative humidity: 30%
- Charge air coolant (raw): 25ºC (77ºF) / 298 K
- Charge air coolant (treated): 29ºC (84ºF) / 302 K

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

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

2. Rating Definitions

Propulsion at constant speed

A - Rating (unrestricted continuous duty)

Rated power intended for continuous use in applications requiring uninterrupted service with high load factors; this is an ISO standard (continuous) fuel stop power (ICFN)

Typical load factors: 80-100% of rated power
Full load operation time: 100% of time or 24/24h
Operation time: 5.000 - 8.000 h/year
Operation type: Displacement hull vessels for unrestricted use at full speed and load
Typical applications: Fishing trawlers, bottom trawlers, freighters, ankers, tow & push boats, long distance ferries, dredgers, cabin cruiser, research vessels

3. Fuel Consumption

The fuel consumption values published in this document have been calculated according to ISO8178 standard E2test cycles for propulsión engines applications at constant speed. 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 a constant speed

Mode Number	1	2	3	4	5
% Speed	100	100	100	100	-
% Power	100	75	50	25	-
Weight Factor	0.20	0.50	0.15	0.15	-

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 29ºC (85ºF) 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.

The Tier III, in force since January 1, 2016, apply only to the specified ships while operating in Emission Control Areas (ECA) established to limit NOx emissions, outside such areas the Tier II controls apply.

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

IMO Tier III includes proprietary SCR Design

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.

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

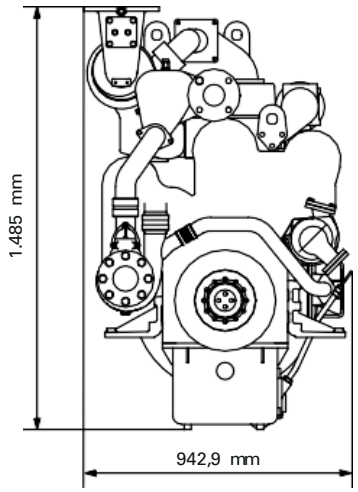
- IMO II IMO Tier II compliant; EIAPP certificates available
- IMO III IMO Tier III compliant; EIAPP certificates available
- CCNR2 CCNR Stage II compliant
- kWb Mechanical kilowatt
- mHP Horse Power

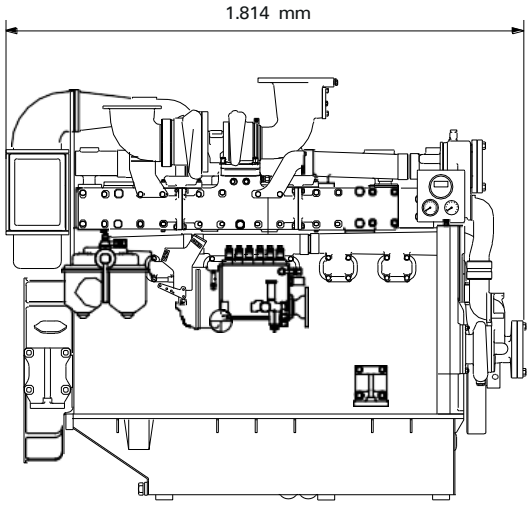
Extensions of this information should be compared with the specifications indicated in the mentioned standards.

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

F/SF180 Series

Marine Power Generation Engines





Main data

Cycle (ISO 8178)	E2 (propulsion constant speed)
Disposition / Displacement	6 L / 17,96 liter
Bore and stroke	152 x 165 mm
Cycle	4-stroke diesel direct injection
Aspiration	Turbocharged – aftercooled
Rotation (from flywheel)	Counterclockwise

Propulsion rating at constant speed

Engine Model	kWb	mHP	RPM	Fuel consumption (ISO 8178)	Emissions
				L/h	
F180TA	294	400	1.500	50,6	IMO II / IMO III
SF180TA	383	520		64,1	
	396	540		66,0	
	421	573		70,0	
F180TA	346	470	1.800	62,4	IMO II / IMO III
SF180TA	434	590		76,6	
	441	600		77,7	

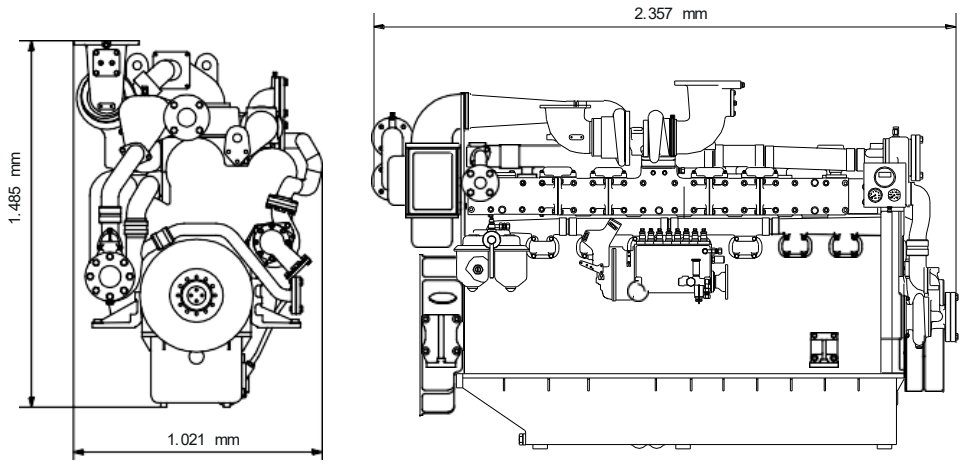
Weight

Dry weight (kg)	2.620

Dimensions and weight may vary depending upon engine configuration.
Data subject to further modifications without prior notice.

F/SF240 Series

Marine Power Generation Engines



Main data

Cycle (ISO 8178)	E2 (propulsion constant speed)
Disposition / Displacement	8 L / 23,96 liter
Bore and stroke	152 x 165 mm
Cycle	4-stroke diesel direct injection
Aspiration	Turbocharged – aftercooled
Rotation (from flywheel)	Counterclockwise

Propulsion rating at constant speed

Engine Model	kWb	mHP	RPM	Fuel consumption (ISO 8178)	Emissions
				L/h	
F240TA	426	579	1.500	70,8	IMO II / IMO III
SF240TA	510	694		83,9	
	540	734		88,7	
F240TA	478	650	1.800	85,8	IMO II / IMO III
SF240TA	577	785		102,7	CCNR
	588	800		104,7	IMO II / IMO III

Weight

Dry weight (kg)	3.400

Dimensions and weight may vary depending upon engine configuration.
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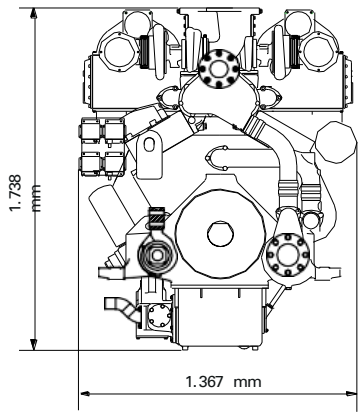
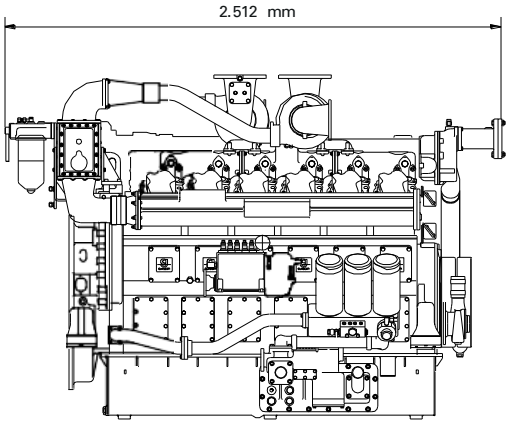
F/SF360 Series

Marine Power Generation Engines





Main data

Cycle (ISO 8178)	E2 (propulsion constant speed)
Disposition / Displacement	12 V / 35,93 liter
Bore and stroke	152 x 165 mm
Cycle	4-stroke diesel direct injection
Aspiration	Turbocharged - aftercooled
Rotation (from flywheel)	Counterclockwise

Propulsion rating at constant speed

Engine Model	kWb	mHP	RPM	Fuel consumption (ISO 8178) L/h	Emissions
F360TA	588	800	1.500	99,4	IMO II / IMO III / CCNR2
SF360TA	765	1.040		128,5	IMO II / IMO III / CCNR2
	800	1.088		133,7	IMO II / IMO III
	840	1.142		140,9	
F360TA	699	950	1.800	123,2	IMO II / IMO III
SF360TA	866	1.178		149,8	IMO II / IMO III /CCNR2
	883	1.200		152,3	IMO II /IMO III

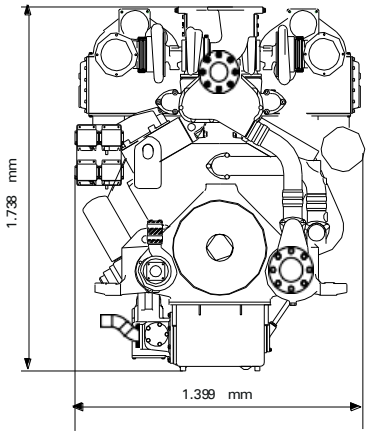
Weight

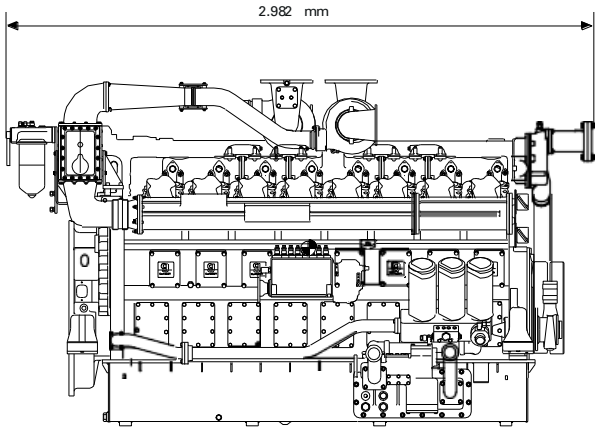
Dry weight (kg)	4.630

Dimensions and weight may vary depending upon engine configuration.
Data subject to further modifications without prior notice.

F/SF480 Series

Marine Power Generation Engines





Main data

Cycle (ISO 8178)	E2 (propulsion constant speed)
Disposition / Displacement	16 V / 47,90 liter
Bore and stroke	152 x 165 mm
Cycle	4-stroke diesel direct injection
Aspiration	Turbocharged - aftercooled
Rotation (from flywheel)	Counterclockwise

Propulsion rating at constant speed

Engine Model	kWb	mHP	RPM	Fuel consumption (ISO 8178) L/h	Emissions
F480TA	846	1.150	1.500	140,9	IMO II / IMO III / CCNR2
SF480TA	1.020	1.388		169,2	IMO II / IMO III / CCNR2
	1.050	1.428		174,0	IMO II / IMO III
F480TA	934	1.270	1.800	166,6	IMO II / IMO III / CCNR2
SF480TA	1.155	1.571		202,7	IMO II / IMO III / CCNR2
	1.177	1.600		206,9	IMO II / IMO III

Weight

Dry weight (kg)	5.450

Dimensions and weight may vary depending upon engine configuration.
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