

C7.1

MARINE GENERATOR SET (U.S. EPA Tier 3 / IMO II)

100, 118, 150 kW - 50 Hz
118, 150, 175, 200 kW - 60 Hz



C7.1 Marine Generator Set
U.S. EPA Tier 3 / IMO II
Image may not reflect actual product.

ENGINE SPECIFICATIONS

Configuration

In-line 6, 4-stroke-cycle diesel

Emissions

U.S. EPA Tier 3 / IMO II
compliant, CCNR Stage II

Rated Engine Speed

50 Hz 1500 rpm
60 Hz 1800 rpm

Bore x Stroke

105 mm x 135 mm / 4.13 in x 5.31 in

Displacement

7.01 Liter
428 cu in

Aspiration

Turbocharged-aftercooled
aspiration

Governor

Electronically

Refill Capacity

Lube Oil System w/Oil filter change:
21 L (5.6 gal)
Cooling System:
40 L (10.5 U.S. gal) - hex

Oil Change Interval

500 hrs

Cooling

Heat exchanger or keel cooled

Flywheel Housing

SAE No. 02 flywheel housing
with SAE No. 02 in flywheel
134 teeth)

Rotation

Counterclockwise from flywheel end

STANDARD ENGINE EQUIPMENT

- Crankcase ventilation system
- Common Rail fuel system
- 12V and 24V starter motor and battery charging alternator
- Mounted air cleaner
- Integral plate-type oil cooler
- 3-phase AREP generators which provide the functionality of a permanent magnet excitation system
- EMCP4.2 control panel with remote monitoring capability
- Isolated sump
- Anti-vibration engine mounts
- Glowplugs aid starting in cold weather
- Gear-driven sea-water and jacket-water pumps
- Safety shutdowns for low oil pressure, high water temperature, and overspeed
- Worldwide Extended Service Coverage (ESC) available
- Watercooled exhaust manifold and turbocharger

OPTIONAL ATTACHMENTS

- **Marine Classification Society (MCS) Approval**
ABS, BV, CCS, CRS, DNV GL, LR, ClassNK, PRS, RINA
- **Control System**
Governor droop kit (selecting this kit enables paralleling with appropriate customer-supplied switchgear)
- **Generators & Generator Attachments**
Space heater kit, installed - 120V AC, 240V AC
- **Fuel System**
Double wall fuel lines with enclosed common rail and mounted alarm reservoir, duplex fuel filters
- **Lube System**
Duplex oil filters
- **Starting System**
Additional 12V or 24V electric starter, air starter, jacket water heater options

RATING DEFINITION AND CONDITIONS - PRIME POWER

Typical applications: For vessels operating with generator sets that provide power to the propulsion systems. All ratings are Prime Ratings according to ISO 8528-1 for unlimited usage per year at a load factor of $\leq 70\%$. 10% overload capability is required for a maximum of 1 hour out of every 12 and a maximum of 25 hours total per year.

Ratings are based on SAE J3046 and J1349 standard conditions of 100 kPa (29.61 in Hg) and 25°C (77°F). These ratings also apply at ISO8665, ISO3046-1:2002E, DIN6271-3, and BS5514 standard conditions of 100 kPa (29.61 in Hg), 27°C (81°F), and 60% relative humidity.

Fuel rates are based on fuel oil of 35° API [16°C (60°F)] gravity having an LHV of 42 780 kJ/kg (18,390 Btu/lb) when used at 29°C (85°F) and weighing 838.9 g/liter (7.001 lbs/U.S. gal.).

Marine Auxiliary Engines are mainly used as generator set engines; however, they can be used for electrically driven pumps, winches, conveyors, thrusters, when it is specified. Engines can be radiator cooled or heat exchanger/keel cooled.

LET'S DO THE WORK.™



TECHNICAL DATA

C7.1 Marine Generator Set

PERFORMANCE DATA

(EM5050 - 50 Hz)

| % Power | Brake Specific Fuel Consumption | | | | |
|---------|---------------------------------|-------|-----------|------|----------|
| | eKW | bhp | lb/bhp-hr | bkW | g/bkW-hr |
| 100 | 100 | 146,1 | 0,679 | 109 | 230,4 |
| 75 | 75 | 108,2 | 0,732 | 80,7 | 248,3 |
| 50 | 50 | 72,0 | 0,755 | 53,7 | 255,9 |
| 25 | 25 | 36,7 | 0,845 | 27,4 | 286,6 |

(EM5051) - 50 Hz

| % Power | Brake Specific Fuel Consumption | | | | |
|---------|---------------------------------|-------|-----------|------|----------|
| | eKW | bhp | lb/bhp-hr | bkW | g/bkW-hr |
| 100 | 118 | 172,9 | 0,674 | 129 | 228,6 |
| 75 | 88,5 | 128,2 | 0,727 | 95,6 | 246,5 |
| 50 | 59 | 85,0 | 0,743 | 63,4 | 251,8 |
| 25 | 29,5 | 43,2 | 0,832 | 32,2 | 282 |

(EM5052) - 50 Hz

| % Power | Brake Specific Fuel Consumption | | | | |
|---------|---------------------------------|-------|-----------|------|----------|
| | eKW | bhp | lb/bhp-hr | bkW | g/bkW-hr |
| 100 | 150 | 218,5 | 0,644 | 163 | 218,5 |
| 75 | 112,5 | 162,2 | 0,699 | 121 | 237,1 |
| 50 | 75 | 107,5 | 0,706 | 80,2 | 239,3 |
| 25 | 37,5 | 54,7 | 0,769 | 40,8 | 260,6 |

Note:

Consult your local Cat dealer to create a customized engine TCO (Total Cost of Ownership) analysis specific to your vessel.

Dealers (only): Please reference TMI Web for most current information.

(EM5053) - 60 Hz

| % Power | Brake Specific Fuel Consumption | | | | |
|---------|---------------------------------|-------|-----------|------|----------|
| | eKW | bhp | lb/bhp-hr | bkW | g/bkW-hr |
| 100 | 118 | 171,6 | 0,693 | 128 | 234,9 |
| 75 | 88,5 | 127,9 | 0,736 | 95,4 | 249,6 |
| 50 | 59 | 85,1 | 0,774 | 63,5 | 262,6 |
| 25 | 29,5 | 43,7 | 0,897 | 32,6 | 304 |

(EM5054) - 60 Hz

| % Power | Brake Specific Fuel Consumption | | | | |
|---------|---------------------------------|-------|-----------|------|----------|
| | eKW | bhp | lb/bhp-hr | bkW | g/bkW-hr |
| 100 | 150 | 218,5 | 0,649 | 163 | 220,1 |
| 75 | 112,5 | 162,2 | 0,683 | 121 | 231,6 |
| 50 | 75 | 108,2 | 0,728 | 80,7 | 246,9 |
| 25 | 37,5 | 55,5 | 0,816 | 41,4 | 276,6 |

(EM5055) - 60 Hz

| % Power | Brake Specific Fuel Consumption | | | | |
|---------|---------------------------------|-------|-----------|------|----------|
| | eKW | bhp | lb/bhp-hr | bkW | g/bkW-hr |
| 100 | 175 | 253,4 | 0,648 | 189 | 219,7 |
| 75 | 131,2 | 189,0 | 0,681 | 141 | 231 |
| 50 | 87,5 | 125,6 | 0,725 | 93,7 | 245,7 |
| 25 | 43,8 | 64,3 | 0,804 | 48 | 272,5 |

(EM5056 - 60 Hz)

| % Power | Brake Specific Fuel Consumption | | | | |
|---------|---------------------------------|-------|-----------|------|----------|
| | eKW | bhp | lb/bhp-hr | bkW | g/bkW-hr |
| 100 | 200 | 289,5 | 0,641 | 216 | 217,2 |
| 75 | 150 | 215,8 | 0,671 | 161 | 227,5 |
| 50 | 100 | 143,4 | 0,728 | 107 | 247 |
| 25 | 50 | 73,5 | 0,820 | 54,8 | 278 |

DIMENSIONS & WEIGHT

| | Length (1) | Height (2) | Width (3) | Engine dry weight |
|------|-----------------|-----------------|----------------|-------------------|
| min. | 2142 mm/84.3 in | 1263 mm/49.7 in | 965 mm/38.0 in | 1652 kg/3634 lb |
| max. | 2185mm/86.0 in | 1263 mm/49.7 in | 965 mm/38.0 in | 1840 kg/4026 lb |

Note:

Do not use these dimensions for installation design. See general dimension drawings for detail.

CAT, CATERPILLAR, LET'S DO THE WORK, their respective logos, „Caterpillar Yellow“, the „Power Edge“ and Cat „Modern Hex“ trade dress as well as corporate and product identity used herein, are trademarks of Caterpillar and may not be used without permission.

LEHM0092-04

To find your nearest dealer, please visit: www.cat.com/marine

©2019 Caterpillar
All rights reserved.

Materials and specifications are subject to change without notice.
The International System of Units (SI) is used in this publication.