

C7.1

MARINE GENERATOR SET PACKAGE



100,118,150 kW (125,148,188 kVA) 50 Hz
Heat Exchanger / Keel

GENERAL ENGINE SPECIFICATIONS

Basic Engine Specifications

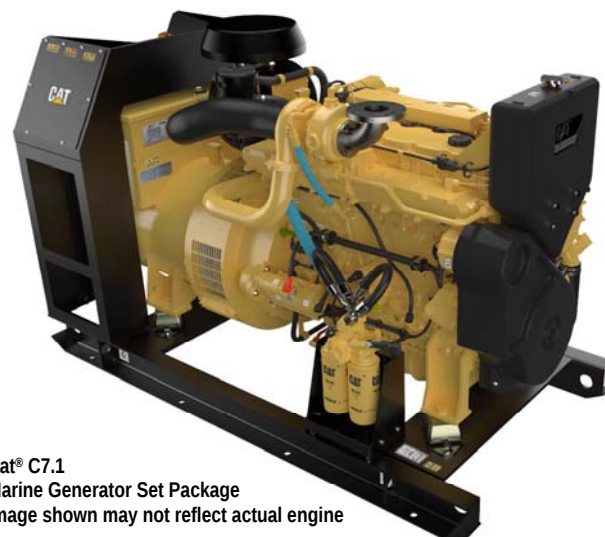
In-line 6 cylinder, 4-Stroke-Cycle-Diesel	
Displacement	7.01 L (422.4 in ³)
Rated engine speed	1500 rpm
Low idle speed (programmable)	1100 rpm
Bore	105 mm (4.13 in)
Stroke	135 mm (5.32 in)
Aspiration	Turbocharged-Aftercooled
Governor	ECU
Fuel system type	Common Rail
Length (overall)	2142-2185 mm (84.3-86.0 in)
Width	965 mm (38.0 in)
Height	1263 mm (49.7 in)
Weight, net dry (approx.)	1652-1840 kg (3634-4026 lb)
Rotation (from flywheel end)	Counterclockwise

Tolerances

Power	+/- 3%
Exhaust Stack Temperature	+/- 8%
Inlet Air Flow	+/- 5%
Intake Manifold Pressure	+/- 10%
Exhaust Flow	+/- 6%
Specific Fuel Consumption	+/- 3%
Heat Rejection	+/- 5%
Fuel Rate	+/- 5%

Generator

Power Factor	0.8
Frame	44.2/46.2
Insulation	Class H
Temperature Rise	
@ 40°C Ambient (110%)	Class H (150°K)
@ 50°C Ambient (110%)	Class H (140°K)
Winding Pitch Code	2/3
Terminals	12-lead reconnectable



Cat® C7.1
Marine Generator Set Package
Image shown may not reflect actual engine

Emission Compliance

IMO Tier II
EPA Marine Tier 3
CCNR Stage 2

Marine Classification Society – Certifications Pending

ABS – BV – DNV – GL – LR – RINA – CCS

Drip Proof	IP 23
Air Flow (44.2 frame)	0.37 m ³ /s (784 cfm)
Air Flow (46.2 frame)	0.43 m ³ /s (911 cfm)
Excitation System	AREP
Voltage Regulation (steady state)	±0.5%
Total Harmonic Content LL/LN	<4%
Wave Form: NEMA=TIF	<50
Wave Form: I.E.C.=THF	<2%

General Remarks

- For installation instructions please refer to drawing number 448-1321 for Keel cooled arrangements and drawings number 448-1322 for HEX arrangements.
- For detailed information about fuel, oil, and cooling water treatment, please refer to "Caterpillar Commercial Diesel Engine Fluids Recommendations" (SEBU6251).

AIR SYSTEM

Combustion Air Inlet System

Intake combustion air flow.....	11.9 m³/min (150 ekW), 10.6 m³/min (118 ekW), 9.6 m³/min (100 ekW)
Intake combustion air flow.....	417.9 cfm (150 ekW), 372.3 cfm (118 ekW) 337.2 cfm (100 ekW)
Intake combustion air temperature up to.....	50°C (122°F)

Engine Room Ventilation Air

Heat rejection to atmosphere (all ratings)	4.0 kW (228 BTU/min)
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COOLING SYSTEM

HTC Cooling Water System (Engine Jacket Water)

Heat rejection to HTC cooling water system.....	117.9 kW (150 ekW), 101.3 kW (118 ekW), 88.9 kW (100 ekW)
Heat rejection to HTC cooling water system.....	6711 BTU/min (150 ekW), 5766 BTU/min (118 ekW), 5060 BTU/min (100 ekW)
Flow HTC cooling water pump – max.	284 L/min (75.0 gal/min)
min.	248 L/min (65.6 gal/min)
HTC cooling water temperature engine out (nominal)	95°C (203°F)
HTC cooling water refill capacity (Hex/Keel).....	38 L (10 gal)
Coolant medium	Cat® Extended Life Coolant (ELC) or equal
Expansion tank pressure cap.....	50 kPa (7.25 psi)
HTC cooling water connection engine inlet.....	50.8 mm (2.0 in.) OD
HTC cooling water connection engine outlet	50.8 mm (2.0 in.) OD

LTC Cooling Water System (Aftercooler)*

Heat rejection to LTC cooling water system	26.2kW (150 ekW), 19.9 kW (118 ekW), 15.5 kW (100 ekW)
Heat rejection to LTC cooling water system	1491 BTU/min (150 ekW), 1133 BTU/min (118 ekW), 882 BTU/min (100 ekW)
Flow LTC cooling water pump (248-4130) – max.	138 L/min (36.5 gal/min)
min.	110 L/min (29.1 gal/min)
LTC water temperature engine in (max.)	40°C (104°F)
LTC cooling water refill capacity	5 L (1.3 gal) <i>Engine only</i>
Coolant medium	Cat Extended Life Coolant (ELC) or equal
Expansion tank pressure cap.....	50 kPa (7.25 psi)
LTC cooling water connection engine inlet (138).....	50.8 mm (2.0 in.) OD
LTC cooling water connection engine outlet (139).....	50.8 mm (2.0 in.) OD

* Heat rejections quoted for heat exchanged models. For keel cooled models, refer to TMI.

EXHAUST SYSTEM

Exhaust Gas Data

Exhaust gas flow (wet volume at turbo outlet)	25.3 m³/min (150 ekW), 22.3 m³/min (118 ekW), 19.8 m³/min (100 ekW)
Exhaust gas flow (wet volume at turbo outlet).....	888.5 cfm (150 ekW), 783.2 cfm (118 ekW), 695.4 cfm (100 ekW)
Exhaust stack temperature (within 300mm of turbo outlet).....	443 °C (150 ekW), 434 °C (118 ekW), 418 °C (100 ekW)
Exhaust stack temperature (within 300mm of turbo outlet).....	829 °F (150 ekW), 813 °F (118 ekW), 784 °F (100 ekW)
Engine exhaust connection	63 mm (2.5 in) ID, 6 x 9 mm (0.35 in) holes on 145 mm (5.7 in) PCD
Max. allowable system backpressure	15 kPa (60 in H ₂ O)

Specified system backpressure shall not be exceeded in any circumstances. Caterpillar advises to limit value of maximum allowable backpressure to 50% for new (clean) installations. Minimum diameter of customer piping should be according to "Customer piping diameter overview for Caterpillar engines."

FUEL SYSTEM

Fuel rate	218.5 g/bkW-hr (150 ekW), 228.6 g/bkW-hr (118 ekW), 230.4 g/bkW-hr (100 ekW)
Fuel rate	35.8 kg/ hr (150 ekW), 29.5 kg/ hr (118 ekW), 25.2 kg/ hr (100 ekW)
Fuel flow transfer pump	4.1 L/min (1.1 gal/min)
Fuel pressure static head	+/- 2.8 m (9.2 ft)
Fuel supply line restriction (max.)	10 kPa (2.9 in Hg) (1.5 psi)
Fuel temperature transfer pump in (max.)	60°C (140°F)
Fuel return line restriction (max.)	10 kPa (2.9 in Hg) (1.5 psi)
Fuel supply / return connections	11 / 16 in O ring face seal (ORFS)
Diesel fuel grade	ISO-F-DMX/ISO-F-DMA/ISO 8217:1986 (E) Class F

LUBE SYSTEM

Sump type	Isolated
Sump capacity (max.)	21 L (5.55 gal)
Sump capacity (min.)	17.5 L (4.62 gal)
Sump refill capacity (with filter change)	21 L (5.55 gal)
Oil change interval	500 Hr (can be extended by S•O•S SM testing)
Max. installation angle (any direction)	30 degrees
Max continuous operation angle (any direction)	25 degrees
Max. intermittent operation angle (any direction)	30 degrees
Quality diesel engine oil (min.)	CI-4 10W30 or 15W40 (compliant with Caterpillar specification ECF-2)

STARTING SYSTEM

Electrical Starting System

Electrical starting motor	24 or 12 VDC
Cold starting	800 CCA [at 0°C (32°F) ambient temperature]

SOUND DATA (ISO 8528-10)

Mechanical Sound Pressure	Mechanical Sound Power
150 ekW at distance 1 m (3.28 ft)	150 ekW
118 ekW at distance 1 m (3.28 ft)	118 ekW
100 ekW at distance 1 m (3.28 ft)	100 ekW
86.6 dB(A)	105.0 dB(A)
86.6 dB(A)	102.4 dB(A)
86.4 dB(A)	102.2 dB(A)

Mechanical Sound Power levels measured according to ISO 8528-10 with engine at 70% load.

Performance data is calculated in accordance with tolerances and conditions stated in this specification sheet and is only intended for purposes of comparison with other manufacturers' engines. Actual engine performance may vary according to the particular application of the engine and operating conditions beyond Caterpillar's control.

Power produced at the flywheel will be within standard tolerances up to 49°C (120°F) combustion air temperature measured at the air cleaner inlet, and fuel temperature up to 52°C (125°F) measured at the fuel filter base. Power rated in accordance with NMMA procedure as crankshaft power. Reduce crankshaft power by 3% for propeller shaft power.

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