

C7.1

MARINE GENERATOR SET PACKAGE



118,150,175,200 kW (148,188,219,250 kVA) 60 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	1800 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)	0.44 m3/s (932 cfm)
Air Flow (46.2 frame)	0.51 m3/s (1081 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.....	16.6 m ³ /min (200 ekW), 16.1 m ³ /min (175 ekW), 15.0 m ³ /min (150 ekW), 13.8 m ³ /min (118 ekW)
Intake combustion air flow.....	587.9 cfm (200 ekW), 570.3 cfm (175 ekW), 531.3 cfm (150 ekW), 488.8 cfm (118 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.....	151.6 kW (200 ekW), 133.7 kW (175 ekW), 117.9 kW (150 ekW), 100.8 kW (118 ekW)
Heat rejection to HTC cooling water system...8629 BTU/min (200 ekW), 7610 BTU/min (175 ekW), 6711 BTU/min (150 ekW), 5738 BTU/min (118 ekW)	
Flow HTC cooling water pump – max.	340 L/min (89.9 gal/min)
min.	310 L/min (81.9 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	48.6 kW (200 ekW), 43.9 kW (175 ekW), 37.1 kW (150 ekW), 29.3 kW (118 ekW)
Heat rejection to LTC cooling water system ...2766 BTU/min (200 ekW), 2499 BTU/min (175 ekW), 2112 BTU/min (150 ekW), 1668 BTU/min (118 ekW)	
Flow LTC cooling water pump 2484130 – max.	165 L/min (43.5 gal/min)
min.	139 L/min (36.7 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 eat exchanged models. For keel cooled models, refer to TMI.

EXHAUST SYSTEM

Exhaust Gas Data

Exhaust gas flow (wet volume at turbo outlet)	34.8 m ³ /min (200 ekW), 32.3 m ³ /min (175 ekW), 29.1 m ³ /min (150 ekW) 25.6 m ³ /min (118 ekW)
Exhaust gas flow (wet volume at turbo outlet)	1222 cfm (200 ekW), 1134 cfm (175 ekW), 1022 cfm (150 ekW) 899 cfm (118 ekW)
Exhaust stack temperature	401.7 °C (200 ekW), 379.0 °C (175 ekW), 364.9 °C (150 ekW), 349.6 °C (118 ekW)
Exhaust stack temperature	755.1 °F (200 ekW), 714.2 °F (175 ekW), 688.8 °F (150 ekW), 661.3 °F (118 ekW)
Engine exhaust connection	63 mm (2.5 in) ID, 6 x 9 mm (0.35 in) holes on145 mm (50.7 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	217.2 g/bkW-hr (200 ekW), 219.7 g/bkW-hr (175 ekW), 220.1 g/bkW-hr (150 ekW), 234.9 g/bkW-hr (118 ekW)
Fuel rate	47.5 kg/ hr (200 ekW), 42.0 kg/ hr (175 ekW), 36.1 kg/ hr (150 ekW), 30.3 kg/hr (118 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 <i>(can be extended by S-O-SSM testing)</i>
Max. operation angle (any direction).....	30 degrees
Quality diesel engine oil (min.)	CI-4 10W30 or 15W40 <i>(compliant with Caterpillar specification ECF-2)</i>

STARTING SYSTEM

Electrical Starting System

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

SOUND DATA (ISO 8528-10)

Mechanical Sound Pressure.....	Mechanical Sound Power		
200 ekW at distance 1 m (3.28 ft)	89.2 dB(A)	200 ekW.....	105.0 dB(A)
175 ekW at distance 1 m (3.28 ft)	88.9 dB(A)	175 ekW.....	104.7 dB(A)
150 ekW at distance 1 m (3.28 ft)	88.8 dB(A)	150 ekW.....	104.6 dB(A)
118 ekW at distance 1 m (3.28 ft)	88.6 dB(A)	118 ekW.....	104.4 dB(A)

Sound 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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