

Shown with
Accessory Equipment

SPECIFICATIONS

In-Line 8, 4-Stroke-Cycle-Diesel

Emissions	IMO II/EPA Tier 2 compliant
Displacement	148 L (9,031 cu. in.)
Low Idle Speed	350 rpm
Rated Speed	1000 rpm
Bore	280 mm (11.0 in.)
Stroke	300 mm (11.8 in.)
Compression Ratio	13:1
Aspiration	Turbocharged-Aftercooled Governor
Cooling System	Electronic Keel or Heat Exchanger
Weight, Dry	19,000 kg (41,800 lbs)
Refill Capacities	
Cooling System	1030-1205 L (272-318 gal)
Lube Oil System	760 L (201 gal)
Oil Change Interval*	925 hours
Rotation (from flywheel end)	CCW or CW
Serial Number Prefix	PKA

*A new S•O•SSM analysis must be done to determine actual oil change intervals.

STANDARD ENGINE EQUIPMENT

Air Intake and Exhaust System

Charge air cooler, air inlet shutoff, high flow turbocharger, dry manifold with soft or hard shielding

Basic Engine Arrangement

In-line engine with one-piece grey iron cylinder block, individual cylinder heads with four intake/exhaust valves, right- or left-hand service side available

Control System

Dual ADEM™ A3 electronic engine control unit (ECU) with electronic unit injector fuel system, rigid wiring harness (10 amp, 24 volt power required to drive ECU)

Cooling System

Single or combined system, engine mounted freshwater and seawater pumps, engine coolant water drains

Fuel System

Engine operates on MDO; fuel injection system consists of engine-driven fuel transfer pump and an electronic unit injector for each cylinder, engine-mounted duplex fuel filters, and flexible connections

Lube Oil System

Top-mounted crankcase breather, two centrifugal oil filters with single shutoff, gear-driven pump, duplex oil filter, crankcase explosion relief, oil filler and dipstick

Monitoring, Alarm, and Safety Control System

Alarms and shutdowns provided as required by marine society for unmanned machinery spaces. Marine Monitoring System II [listed as Programmable Logic Control (PLC) in the Price List] or Engine Control Panel are available; systems include temperature, pressure, and speed sensors; optional: oil mist detector or particle detector available

ECU Functions

Key-switch, desired engine speed, programmable low idle, SAE J1939 data link, Cat® data link, Messenger (displays engine data, diagnostics, etc.), diagnostics, general alarm, programmable parameters (system, application, and tattletales), Cat ET service tool interface, remote shutdown, shutdown notify, load feedback, overspeed shutdown, overspeed verify, engine power correction, droop, dual dynamics

General

Four lifting eyes mounted to cylinder heads, Cat yellow paint, parts books and maintenance manuals, shrink wrap

Optional Supplied Equipment

Torsional coupling, fresh water heat exchanger, fuel cooler, expansion tank, emergency pumps and connections, jacket water heater, flexible connections, and anti-vibration isolators

MARINE ENGINE PERFORMANCE

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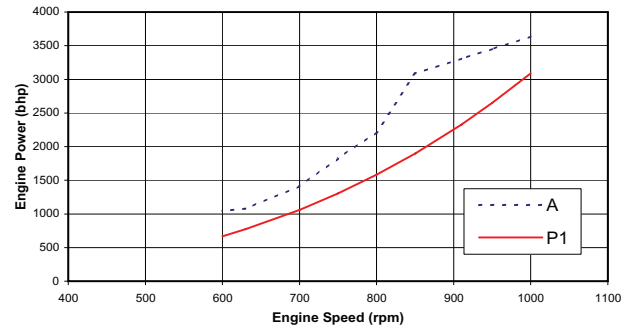
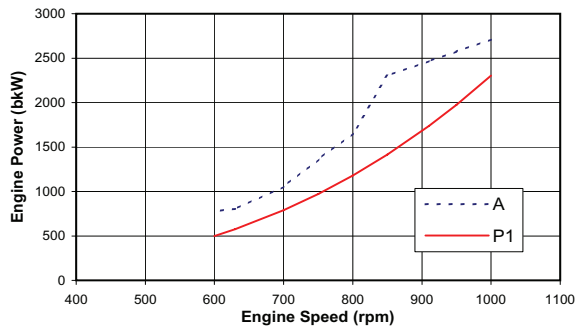
DIESEL ENGINE TECHNICAL DATA



RATED SPEED (RPM): 1000
 RATED POWER¹ (bkW): 2710
 BMEP @ 100% LOAD (kPa): 2201
 COMPRESSION RATIO: 13:1
 AFTERCOOLER WATER (°C): 32
 JACKET WATER INLET (°C): 90
 IGNITION SYSTEM: EUI
 FIRING PRESSURE, MAXIMUM (kPa): 17300

ENGINE RATING: **Marine MCR**
 CERTIFICATION⁵: IMO II/EPA MARINE TIER II
 TURBOCHARGER PART #: 284-8276
 COMBUSTION: DI
 FUEL TYPE: Distillate
 EXHAUST MANIFOLD: DRY
 MEAN PISTON SPEED (m/s): 10

Engine Performance



ZONE LIMIT DATA									
Engine Speed rpm	Power bkW	Fuel Cons ³ g/kW-hr	Fuel Rate L/hr	Boost Press kPa Gauge	Air Flow ⁴ cu m/Min	Exh Temp to Turbo C	Exh Stack Temp C	Exh Flow cu m/min	Exh Flow cfm
1000	2710	213	688.1	289	287.5	563	386	627.7	
950	2574	210	643.6	286	274.1	553	370	583.9	
910	2466	208	611.3	272	257.4	554	375	552.3	
850	2303	206	566.8	240	225.4	575	409	509.9	
800	1651	211	414.5	140	157.0	586	457	380.8	
750	1361	214	347.1	94	116.5	623	506	302.8	
700	1053	221	277.6	57	84.7	646	545	231.8	
630	806	227	218.0	32	61.6	653	560	172.1	
600	779	229	212.4	29	57.0	674	577	162.8	
500	579	236	163.0	14	40.3	661	560	113.3	

ZONE LIMIT DATA									
Engine Speed rpm	Power bhp	Fuel Cons ³ lb/hp-hr	Fuel Rate gal/hr	Boost Press in Hg-Gauge	Air Flow ⁴ cu ft/min	Exh Temp to Turbo F	Exh Stack Temp F	Exh Flow cu m/min	Exh Flow cfm
1000	3634	0.351	181.7	86	10153	1045	727	22168	
950	3452	0.345	169.9	85	9680	1027	699	20620	
910	3307	0.342	161.4	81	9091	1029	707	19505	
850	3089	0.340	149.7	71	7959	1066	768	18009	
800	2214	0.347	109.4	41	5545	1086	855	13448	
750	1824	0.352	91.7	28	4114	1153	944	10692	
700	1412	0.364	73.3	17	2992	1195	1012	8187	
630	1081	0.373	57.6	9	2174	1207	1040	6077	
600	1045	0.376	56.1	8	2011	1245	1071	5750	
500	777	0.389	43.0	4	1423	1221	1040	4002	

PROPELLER DEMAND DATA									
Engine Speed rpm	Power bkW	Fuel Cons ³ g/kW-hr	Fuel Rate L/hr	Boost Press kPa Gauge	Air Flow ⁴ cu m/Min	Exh Temp to Turbo C	Exh Stack Temp C	Exh Flow cu m/min	Exh Flow cfm
1000	2304	213	586.2	254	270.7	528	365	570.5	
950	1975	215	507.3	215	238.8	527	376	511.3	
910	1736	214	442.5	171	200.3	531	398	444.6	
850	1415	214	360.1	112	146.7	551	443	348.1	
800	1180	217	305.5	77	113.0	574	479	282.4	
750	972	221	256.4	51	88.0	591	505	228.0	
700	790	225	211.5	33	69.6	589	509	181.5	
630	576	228	156.8	17	51.6	541	469	127.8	
600	498	230	136.4	12	45.7	509	440	108.7	
500	288	237	81.3	3	31.9	381	329	63.8	

PROPELLER DEMAND DATA									
Engine Speed rpm	Power bhp	Fuel Cons ³ lb/hp-hr	Fuel Rate gal/hr	Boost Press in Hg-Gauge	Air Flow ⁴ cu ft/min	Exh Temp to Turbo F	Exh Stack Temp F	Exh Flow cu m/min	Exh Flow cfm
1000	3090	0.351	154.8	75	9560	983	689	20146	
950	2649	0.355	133.9	64	8431	980	708	18058	
910	2328	0.352	116.8	51	7075	987	749	15700	
850	1897	0.352	95.1	33	5179	1024	830	12295	
800	1582	0.358	80.6	23	3991	1066	894	9973	
750	1303	0.364	67.7	15	3108	1096	940	8052	
700	1060	0.370	55.9	10	2458	1092	947	6410	
630	773	0.376	41.4	5	1822	1006	877	4512	
600	667	0.379	36.0	4	1614	947	825	3840	
500	386	0.390	21.5	1	1128	718	624	2252	

Heat Rejection @ 100% Load and 25° C Air

Lube Oil Cooler	kW (Btu/min)	284 (16145)
Jacket Water	kW (Btu/min)	537 (30531)
AfterCooler	kW (Btu/min)	883 (50229)
Total Heat Rejection to Raw Water	kW (Btu/min)	1703 (96905)
Exhaust Gas ²	kW (Btu/min)	2272 (129277)
Radiation	kW (Btu/min)	137 (7795)

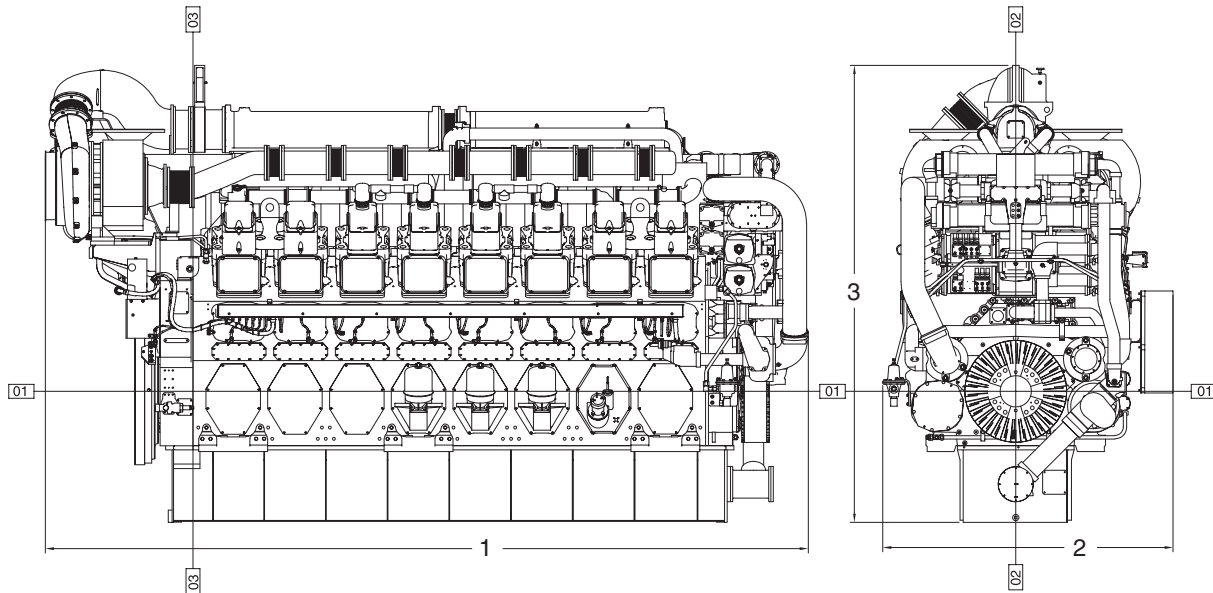
Notes

- 1 Ratings are based on ISO 3046/1 and SAEJ1995 Jan 90 standard reference conditions of 100 kPa, 25° C, and 30% relative humidity at the stated aftercooler water temperature.
- 2 Exhaust Heat rejection is based on fuel LHV and is not normally recoverable in total
- 3 At 100% load with JW and Oil pumps, without seawater pump, +/- 3%. Performance and fuel consumption are based on 35 API, 16°C fuel having a lower heating value of 42,780 kJ/kg used at 29°C with a density of 838.9 g/liter.
- 4 Air flows are shown for 25°C air inlet to the turbocharger and 32°C cooling water to the charge air cooler.
- 5 This engine's exhaust emissions are in compliance with the INTERNATIONAL MARINE ORGANIZATION'S (IMO) standard as described in REGULATION 13 of ANNEX VI of MARPOL 73/78 and ISO 8178 for measuring HC, CO, PM, and NOx.

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ENGINE DIMENSIONS



Engine Dimensions		
(1) Overall Length	4958 mm	195.2 in.
(2) Overall Width	1804 mm	71.0 in.
(3) Overall Height	2648 mm	104.2 in.

Note: Do not use for installation design. See general dimension drawings for detail.

Engine Weights		
Engine Dry Weight	19,000 kg	41,800 lb
Shipped Loose Items		
Torsional Coupling	319 kg	702 lb
Plate-Type Heat Exchanger	420 kg	924 lb
Instrument/Alarm Panel	200 kg	440 lb
Fluids		
Lube Oil	691 kg	1,520 lb
Jacket Water	530 kg	1,166 lb
Heat Exchanger (FW, SW, LO)	70 kg	154 lb

RATING DEFINITIONS AND CONDITIONS

Maximum Continuous Rating — 8% of the engine operating hours at 100% of rated power, 92% of the engine operating hours at 90% of rated power.

Ratings are based on SAE J1995/ISO3046 standard conditions of 100 kPa (29.61 in. Hg), 25°C (77°F), and 30% relative humidity at the stated charge air cooler water temperature. Ratings also meet classification society maximum temperature requirements of 45°C (113°F) air temperature to the turbocharger and 32°C (90°F) seawater temperature without derate.

Additional ratings may be available for specific customer requirements. Consult your Cat representative for additional information.

Fuel rates are based on 35° API, 16°C (60°F) fuel used at 29°C (85°F) with a density of 838.9 g/liter (7.001 lbs/U.S. gal). Lower Heat Value (LHV) of 42 780 kJ/kg (18,390 Btu/lb). Tolerance is +5%. Includes all engine mounted pumps. BSFC without pumps is 3% less.

Marine Certification — Ratings are marine classification society approved by ABS, BV, CCS, DnV, GL, KR, LRS, NKK, RINA, and RS. These societies have also granted C280 factory line production approval which eliminates requirement for society surveyor witness test.

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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