

Shown with
Accessory Equipment

SPECIFICATIONS

In-Line 6, 4-Stroke-Cycle-Diesel

Emissions	IMO II/EPA Tier 2 compliant
Displacement	111 L (6,773 cu. in.)
Low Idle Speed	350 rpm
Rated Speed	900 rpm
Bore	280 mm (11.0 in.)
Stroke	300 mm (11.8 in.)
Compression Ratio	13:1
Aspiration	Turbocharged-Aftercooled Governor
Cooling System	Keel or Heat Exchanger
Weight, Dry	15,682 kg (34,574 lbs)
Refill Capacities	
Cooling System	900-1075 L (238-284 gal)
Lube Oil System	697 L (184 gal)
Oil Change Interval*	1025 hours
Rotation (from flywheel end)	CCW or CW
Serial Number Prefix	SCB

*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

C280-6

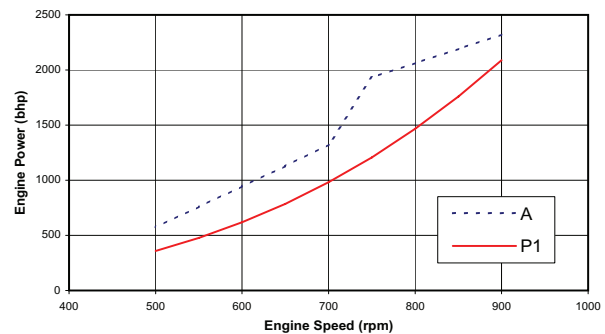
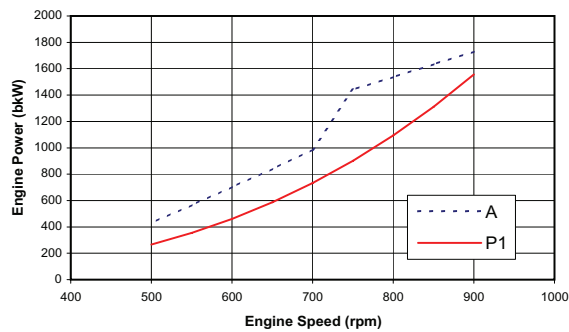
DIESEL ENGINE TECHNICAL DATA



RATED SPEED (RPM): 900
 RATED POWER¹ (bkW): 1730
 BMEP @ 100% LOAD (kPa): 2082
 COMPRESSION RATIO: 13:1
 AFTERCOOLER WATER (°C): 32
 JACKET WATER OUTLET (°C): 90
 IGNITION SYSTEM: EUI
 FIRING PRESSURE, MAXIMUM (kPa): 16200

ENGINE RATING: **Marine CSR**
 CERTIFICATION⁵: IMO II/EPA MARINE TIER II
 TURBOCHARGER PART #: 157-5514
 COMBUSTION: DI
 FUEL TYPE: Distillate
 EXHAUST MANIFOLD: DRY
 MEAN PISTON SPEED (m/s): 9

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
900	1730	210	432.3	255	171.3	555	379	370.5
850	1634	209	407.1	264	164.7	559	389	361.6
800	1538	208	380.5	245	148.6	576	413	338.1
750	1442	206	354.3	209	127.3	605	447	305.1
700	987	209	245.9	111	79.7	609	464	196.3
650	841	212	212.9	82	64.3	631	480	162.0
600	704	217	181.9	60	52.6	633	482	133.0
550	567	221	149.4	42	42.7	608	462	105.2
500	430	223	114.4	25	33.9	553	411	77.6

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
900	1557	215	399.0	253	166.8	545	378	359.8
850	1312	215	335.4	207	137.5	543	393	303.7
800	1094	211	275.3	148	105.2	547	413	239.8
750	901	212	227.5	103	81.0	560	428	189.0
700	733	215	187.8	71	63.9	563	433	150.4
650	587	219	152.9	48	51.3	547	423	119.2
600	461	221	121.6	31	41.7	512	395	92.7
550	355	222	94.0	18	34.1	462	348	70.4
500	267	223	71.1	10	28.2	402	294	53.1

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 cfm	Exh Temp to Turbo F	Exh Stack Temp F	Exh Flow cfm
900	2320	0.345	114.1	75	6049	1031	714	13084
850	2191	0.344	107.5	78	5815	1039	733	12771
800	2062	0.342	100.5	73	5248	1069	775	11942
750	1934	0.339	93.5	62	4495	1122	837	10775
700	1324	0.344	64.9	33	2815	1128	868	6932
650	1128	0.350	56.2	24	2270	1168	896	5721
600	944	0.357	48.0	18	1857	1172	899	4698
550	760	0.364	39.4	12	1508	1127	863	3716
500	577	0.367	30.2	7	1196	1028	772	2741

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 cfm	Exh Temp to Turbo F	Exh Stack Temp F	Exh Flow cfm
900	2088	0.354	105.4	75	5891	1012	713	12705
850	1759	0.353	88.6	61	4857	1010	740	10724
800	1466	0.348	72.7	44	3717	1017	776	8468
750	1208	0.349	60.1	31	2860	1040	802	6674
700	982	0.354	49.6	21	2258	1046	811	5311
650	787	0.360	40.4	14	1813	1017	794	4210
600	619	0.364	32.1	9	1471	954	742	3274
550	477	0.365	24.8	5	1204	864	658	2487
500	358	0.368	18.8	3	997	756	561	1874

Heat Rejection @ 100% Load and 25° C Air

Lube Oil Cooler	kW (Btu/min)	182 (10356)
Jacket Water	kW (Btu/min)	387 (22020)
AfterCooler	kW (Btu/min)	518 (29474)
Total Heat Rejection to Raw Water	kW (Btu/min)	1087 (61850)
Exhaust Gas ²	kW (Btu/min)	1321 (75165)
Radiation	kW (Btu/min)	86 (4893)

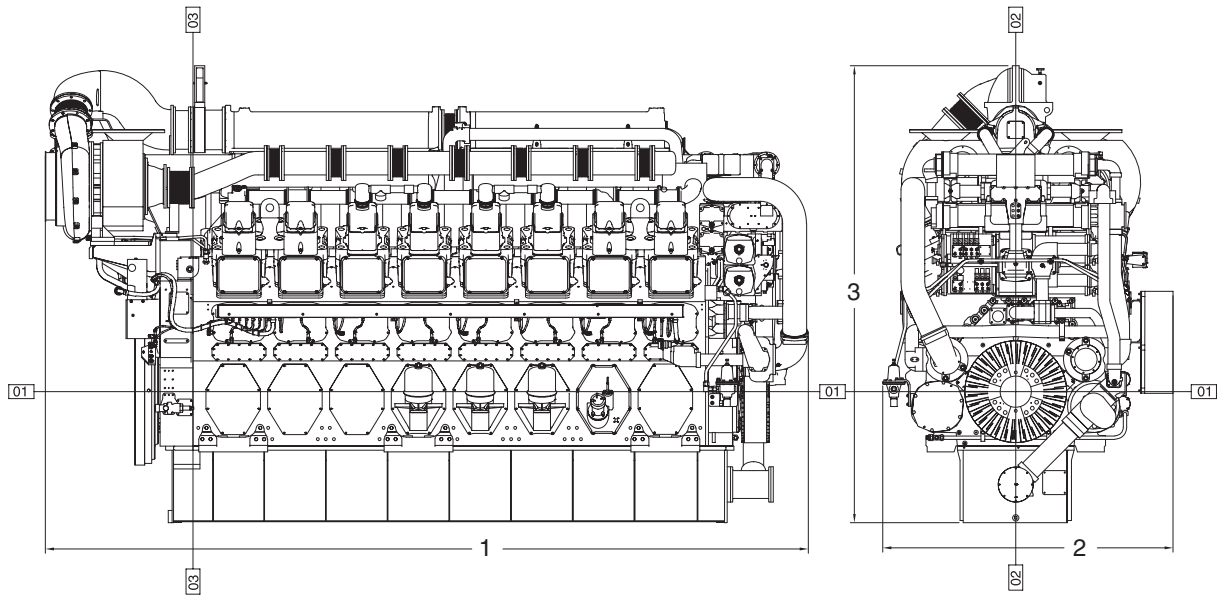
Notes

- 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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DIMENSIONS



Engine Dimensions		
(1) Overall Length	4011 mm	157.9 in.
(2) Overall Width	1796 mm	70.7 in.
(3) Overall Height	2734 mm	107.6 in.

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

Engine Weights		
Engine Dry Weight	15,682 kg	34,574 lb
Shipped Loose Items		
Torsional Coupling	319 kg	702 lb
Plate-Type Heat Exchanger	400 kg	880 lb
Instrument/Alarm Panel	200 kg	440 lb
Fluids		
Lube Oil	634 kg	1,395 lb
Jacket Water	400 kg	880 lb
Heat Exchanger (FW, SW, LO)	70 kg	154 lb

RATING DEFINITIONS AND CONDITIONS

Continuous Service Rating — 100% of the engine operating hours at 100% 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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