

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	1000 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

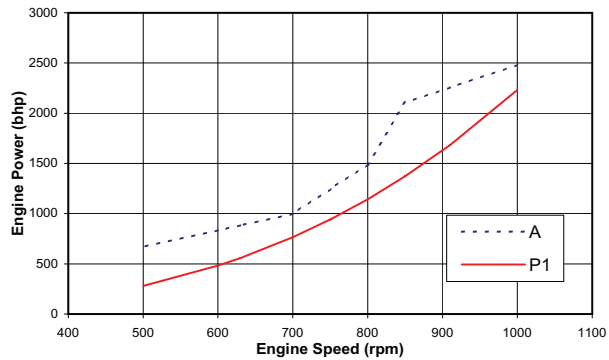
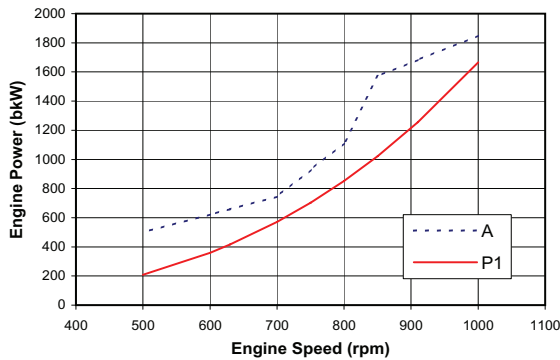
DIESEL ENGINE TECHNICAL DATA



RATED SPEED (RPM): 1000
 RATED POWER¹ (bkW): 1850
 BMEP @ 100% LOAD (kPa): 2003
 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**
 CERTIFICATION²: IMO II/EPA MARINE TIER II
 TURBOCHARGER PART #: 189-4427
 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	1850	208	458.7	238	186.5	527	373	399.4	14104
910	1683	214	429.4	234	160.3	543	388	352.2	12438
850	1572	205	384.2	195	135.0	547	408	306.2	10812
800	1110	207	273.9	110	92.0	537	441	219.0	7734
750	928	209	231.2	79	77.6	523	452	187.7	6629
700	745	211	187.4	56	60.8	505	447	146.1	5158
630	659	212	166.5	49	53.2	510	459	130.0	4591
600	623	217	161.2	47	48.1	506	463	118.6	4187
500	500	224	133.5	37	41.4	499	465	102.1	3604

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	Exh Flow cfm
1000	2481	0.342	121.1	71	6586	981	703	14104	14104
910	2257	0.352	113.4	69	5662	1009	730	12438	12438
850	2108	0.338	101.4	58	4768	1017	766	10812	10812
800	1489	0.341	72.3	33	3248	999	826	7734	7734
750	1244	0.344	61.0	23	2742	973	846	6629	6629
700	999	0.347	49.5	17	2146	941	837	5158	5158
630	884	0.349	44.0	15	1878	950	858	4591	4591
600	835	0.357	42.5	14	1699	943	865	4187	4187
500	671	0.369	35.2	11	1460	930	869	3604	3604

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	1665	214	424.7	220	166.2	514	370	354.7	12528
910	1255	217	324.6	157	123.2	512	395	273.4	9654
850	1023	214	260.8	105	94.5	510	422	218.5	7716
800	852	210	213.4	74	78.5	496	430	183.4	6478
750	702	213	178.3	53	64.1	473	421	148.1	5230
700	571	216	147.0	41	55.7	455	411	126.5	4469
630	416	219	108.7	27	40.5	422	383	88.2	3119
600	360	227	97.3	21	37.1	387	361	78.2	2761
500	208	229	56.8	14	32.1	323	294	59.8	2112

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	Exh Flow cfm
1000	2233	0.352	112.1	65	5871	957	698	12528	12528
910	1683	0.357	85.7	47	4351	954	743	9654	9654
850	1371	0.352	68.9	31	3338	950	792	7716	7716
800	1143	0.346	56.3	22	2772	925	806	6478	6478
750	942	0.351	47.1	16	2265	883	790	5230	5230
700	766	0.356	38.8	12	1967	851	772	4469	4469
630	558	0.361	28.7	8	1430	792	721	3119	3119
600	482	0.374	25.7	6	1311	729	682	2761	2761
500	279	0.377	15.0	4	1132	613	561	2112	2112

Heat Rejection @ 100% Load and 25° C Air

Lube Oil Cooler	kW (Btu/min)	204 (11608)
Jacket Water	kW (Btu/min)	376 (21394)
AfterCooler	kW (Btu/min)	572 (32547)
Total Heat Rejection to Raw Water	kW (Btu/min)	1152 (65549)
Exhaust Gas ²	kW (Btu/min)	1480 (84212)
Radiation	kW (Btu/min)	91 (5178)

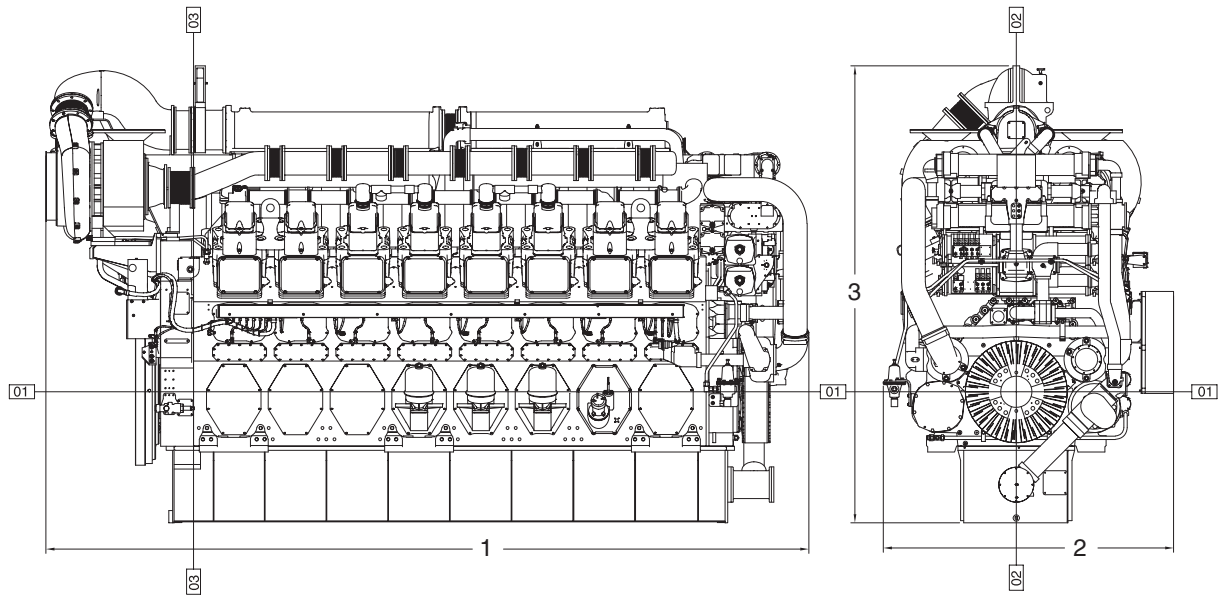
Notes

- 1 Ratings are based on ISO 3046/1 and SAE J1995 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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