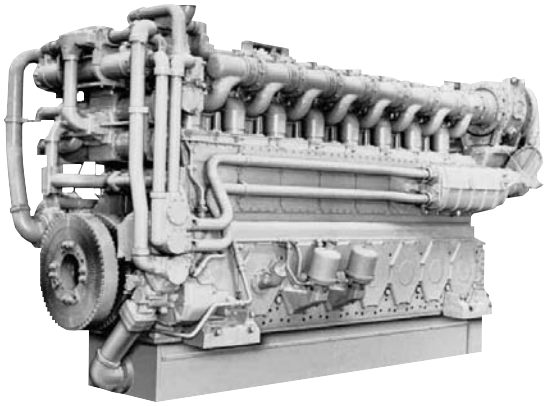
CATERPILLAR®

C280-8
MARINE PROPULSION

3084 bhp
(2300 bkW)
900 rpm



Shown with
Accessory Equipment

SPECIFICATIONS

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

Emissions	IMO/EPA Tier 2 Compliant
Bore — mm (in)	280 (11.0)
Stroke — mm (in)	300 (11.8)
Displacement — L (cu in)	148 (9,031)
Rotation (from flywheel end)	CCW or CW
Compression Ratio	13:1
Aspiration	Turbocharged-Aftercooled
Governor	Electronic
Low Idle Speed — rpm	350
Rated Speed — rpm	900
Oil Change Interval* — hours	925
Serial Number Prefix	PKA
Cooling System	Keel or Heat Exchanger
Refill Capacities — L (gal)	
Cooling System	1030-1205 (272-318)
Lube Oil System	760 (201)

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

STANDARD 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 [list 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), Caterpillar 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, Caterpillar 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

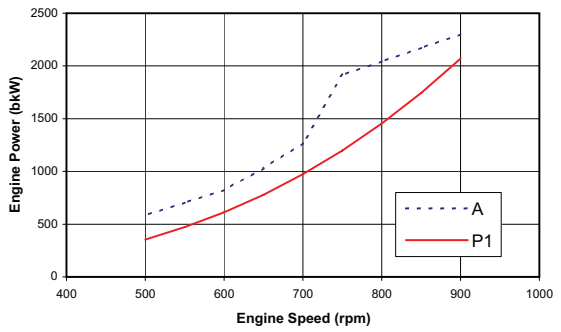
PERFORMANCE DATA

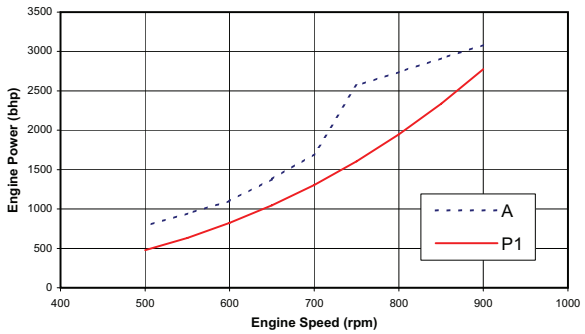
C280-8 DIESEL ENGINE TECHNICAL DATA

CATERPILLAR®

RATED SPEED (RPM):	900	ENGINE RATING:	**Marine CSR**
RATED POWER[1] (bkW):	2300	CERTIFICATION[5]:	IMO/EPA MARINE TIER II
BMEP @ 100% LOAD (kPa):	2076	TURBOCHARGER PART #:	284-8280
COMPRESSION RATIO:	13:1	COMBUSTION:	DI
AFTERCOOLER WATER (°C):	32	FUEL TYPE:	Distillate
JACKET WATER OUTLET (°C):	90	EXHAUST MANIFOLD:	DRY
IGNITION SYSTEM:	EUI	MEAN PISTON SPEED (m/s):	9
FIRING PRESSURE, MAXIMUM (kPa):	16200		

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
Curve A	900	2300	207	568.2	265	251.7	543	364	530.4
	850	2172	209	540.3	260	240.9	543	367	510.3
	800	2044	209	508.5	250	226.1	543	372	482.1
	750	1917	196	446.9	209	192.3	528	373	411.1
	700	1266	203	306.7	124	132.9	517	399	295.5
	650	1029	202	248.1	77	97.8	530	431	228.3
	600	822	209	204.5	50	76.3	540	450	183.5
	550	705	215	180.6	35	68.4	540	455	165.3
	500	587	218	152.7	24	51.6	538	458	125.8

PROPELLER DEMAND DATA

Optimum Load	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
(Curve P1)	900	2070	214	527.3	253	242.4	529	358	505.3
	850	1744	210	437.2	213	210.3	500	348	430.8
	800	1454	206	356.7	167	172.7	485	352	356.2
	750	1198	204	291.6	119	135.2	483	373	288.7
	700	974	206	239.6	81	104.8	493	398	232.7
	650	780	211	196.0	51	80.9	500	416	184.7
	600	613	214	156.8	31	63.9	484	411	145.1
	550	472	216	121.6	14	53.2	404	383	115.4
	500	355	216	91.3	9	42.1	388	344	85.7

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
Curve A	900	3084	0.341	150.0	78	8889	1009	687	18732
	850	2913	0.344	142.7	77	8508	1009	693	18020
	800	2742	0.344	134.3	74	7983	1010	701	17026
	750	2570	0.322	118.0	62	6790	982	703	14517
	700	1698	0.335	81.0	37	4693	962	750	10435
	650	1380	0.333	65.5	23	3453	985	807	8062
	600	1103	0.343	54.0	15	2696	1005	843	6480
	550	945	0.354	47.7	10	2414	1004	851	5838
	500	787	0.359	40.3	7	1823	1000	856	4443

PROPELLER DEMAND DATA

Optimum Load	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
(Curve P1)	900	2776	0.352	139.2	75	8559	984	676	17846
	850	2338	0.346	115.4	63	7428	932	658	15214
	800	1950	0.339	94.2	49	6100	904	666	12580
	750	1606	0.336	77.0	35	4776	902	704	10196
	700	1306	0.340	63.3	24	3700	920	749	8219
	650	1046	0.347	51.7	15	2857	931	781	6524
	600	822	0.353	41.4	9	2258	903	773	5123
	550	634	0.356	32.1	4	1878	759	721	4075
	500	476	0.355	24.1	3	1485	730	651	3026

Heat Rejection @ 100% Load and 25° C Air

Lube Oil Cooler	kW	(Btu/min)	242	(13770)
Jacket Water	kW	(Btu/min)	484	(27540)
AfterCooler	kW	(Btu/min)	468	(26629)
Total Heat Rejection to Raw Water	kW	(Btu/min)	1194	(67939)
Exhaust Gas[2]	kW	(Btu/min)	1804	(102648)
Radiation	kW	(Btu/min)	114	(6487)

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

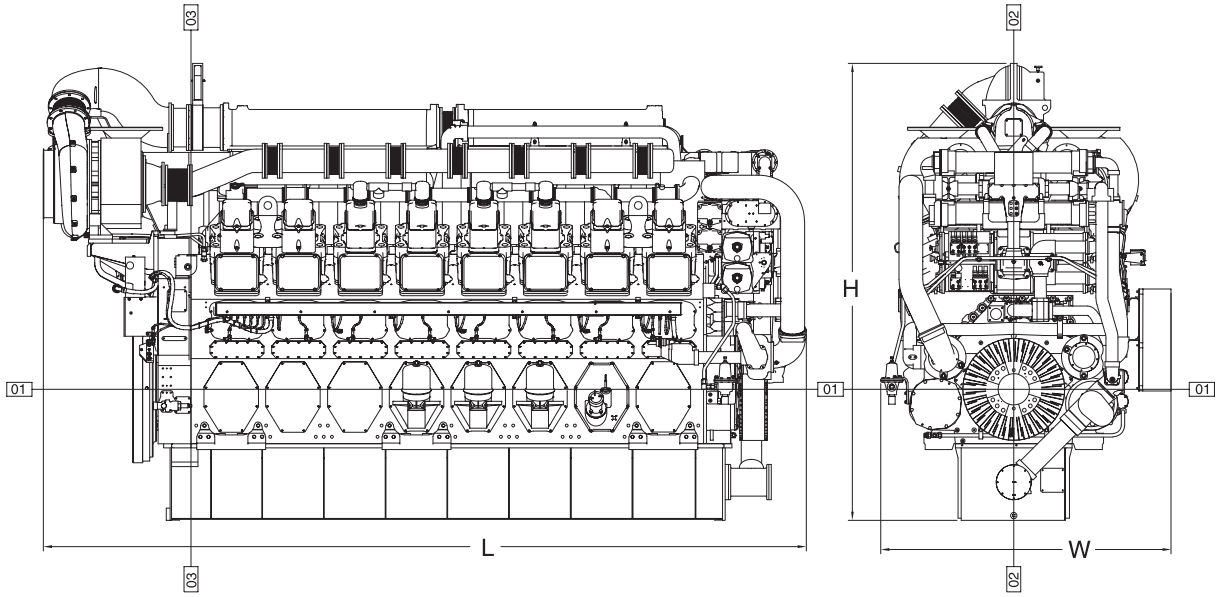
3 At 100% load with pumps +/- 3%. Performance and fuel consumption are based on 35 API, 16°C fuel having a lower heating value of 42,780 kJ/kg used at 29°C with a density of 838.9 g/liter.

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.

DM8397-00 **1/16/07**

ENGINE DIMENSIONS



Engine	Overall Length mm (in)	Overall Width mm (in)	Overall Height mm (in)
C280-8	4958 (195.2)	1804 (71)	2648 (104.2)

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

CATERPILLAR®

C280-8 MARINE PROPULSION

3084 bhp (2300 bkW)

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 Caterpillar 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.

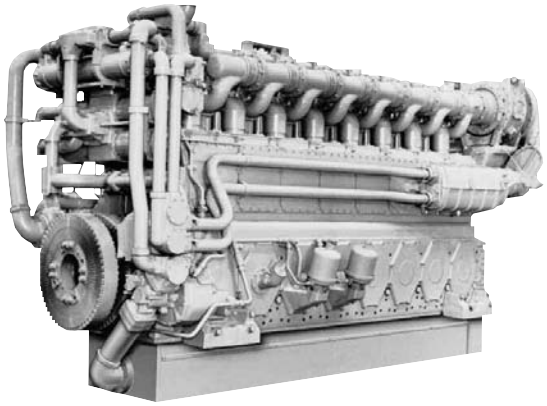
TMI Reference No.: DM8397-00

LEHM7095-00 (7-08)

CATERPILLAR®

C280-8
MARINE PROPULSION

3299 bhp
(2460 bkW)
1000 rpm



Shown with
Accessory Equipment

SPECIFICATIONS

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

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

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

STANDARD 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), Caterpillar 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, Caterpillar 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

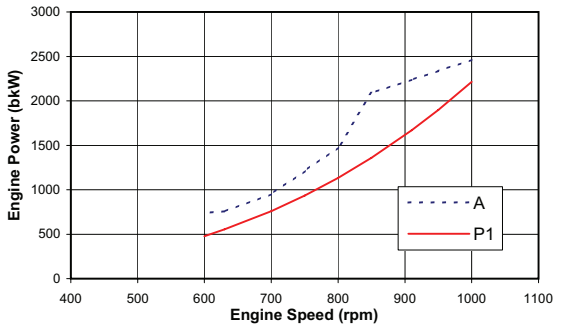
PERFORMANCE DATA

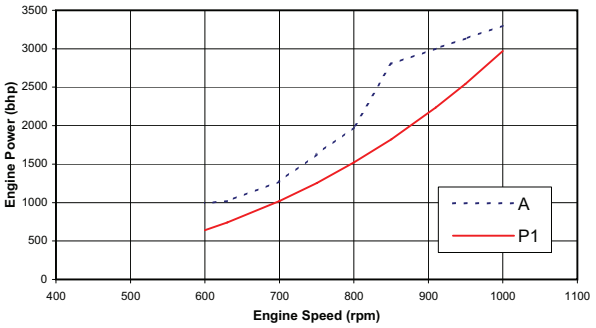
C280-8 DIESEL ENGINE TECHNICAL DATA

CATERPILLAR®

RATED SPEED (RPM):	1000	ENGINE RATING:	**Marine CSR**
RATED POWER[1] (bkW):	2460	CERTIFICATION[5]:	IMO/EPA MARINE TIER II
BMEP @ 100% LOAD (kPa):	1998	TURBOCHARGER PART #:	284-8276
COMPRESSION RATIO:	13:1	COMBUSTION:	DI
AFTERCOOLER WATER (°C):	60	FUEL TYPE:	Distillate
JACKET WATER OUTLET (°C):	90	EXHAUST MANIFOLD:	DRY
IGNITION SYSTEM:	EUI	MEAN PISTON SPEED (m/s):	10
FIRING PRESSURE, MAXIMUM (kPa):	16200		

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
	1000	2460	213	624.4	268	274.1	543	375	587.4
Curve A	950	2337	212	589.8	258	263.3	541	368	557.9
	910	2239	211	562.6	243	247.8	544	374	530.6
	850	2091	210	523.3	213	216.7	562	405	487.0
	800	1474	212	372.7	115	139.6	584	466	343.0
	750	1212	217	313.7	77	105.2	615	509	274.5
	700	950	223	252.1	47	78.5	628	536	212.2
	630	760	227	205.8	29	59.5	634	545	163.2
	600	741	229	202.1	26	55.4	654	561	155.3
	500	532	236	149.8	12	38.9	616	523	104.3

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
	1000	2214	215	567.6	247	268.3	523	361	562.0
Optimum Load	950	1898	216	489.1	204	230.7	524	378	495.6
(Curve P1)	910	1668	214	425.5	160	192.2	529	402	428.8
	850	1360	214	347.2	104	140.8	550	446	335.6
	800	1134	218	294.7	71	109.1	571	479	272.9
	750	934	222	247.0	48	85.5	585	501	220.5
	700	759	225	203.6	31	68.0	579	501	175.5
	630	554	229	150.8	16	50.6	528	458	123.4
	600	478	230	131.3	11	44.9	496	429	105.1
	500	277	237	78.2	3	31.7	370	320	62.3

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] cfm	Exh Temp to Turbo F	Exh Stack Temp F	Exh Flow cfm
	1000	3299	0.351	164.9	79	9680	1010	707	20743
Curve A	950	3134	0.349	155.7	76	9297	1006	694	19702
	910	3002	0.347	148.5	72	8751	1011	706	18739
	850	2804	0.346	138.2	63	7652	1043	762	17200
	800	1976	0.349	98.4	34	4929	1082	872	12112
	750	1625	0.357	82.8	23	3717	1138	948	9693
	700	1274	0.367	66.6	14	2772	1163	996	7494
	630	1019	0.374	54.3	9	2101	1172	1013	5762
	600	994	0.377	53.4	8	1956	1210	1042	5484
	500	714	0.389	39.6	4	1375	1141	973	3685

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
	1000	2969	0.354	149.9	73	9474	973	683	19847
Optimum Load	950	2546	0.356	129.1	60	8148	974	712	17502
(Curve P1)	910	2237	0.352	112.3	47	6787	983	756	15143
	850	1823	0.353	91.7	31	4974	1022	835	11853
	800	1520	0.359	77.8	21	3854	1060	895	9638
	750	1253	0.365	65.2	14	3019	1085	935	7789
	700	1018	0.370	53.8	9	2400	1074	934	6198
	630	742	0.376	39.8	5	1788	982	857	4360
	600	641	0.379	34.7	3	1586	924	805	3711
	500	371	0.390	20.6	1	1119	698	607	2199

Heat Rejection @ 100% Load and 25° C Air

Lube Oil Cooler	kW	(Btu/min)	271	(15420)
Jacket Water	kW	(Btu/min)	499	(28393)
AfterCooler	kW	(Btu/min)	626	(35619)
Total Heat Rejection to Raw Water	kW	(Btu/min)	1396	(79432)
Exhaust Gas[2]	kW	(Btu/min)	2056	(116986)
Radiation	kW	(Btu/min)	125	(7113)

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

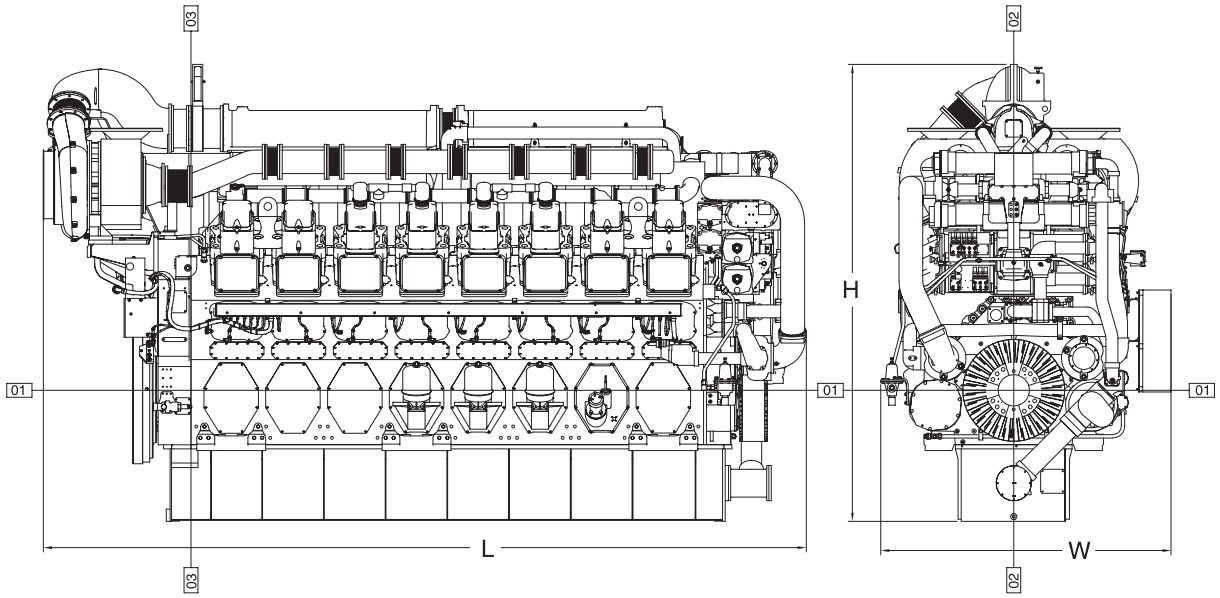
3 At 100% load with pumps +/- 3%. Performance and fuel consumption are based on 35 API, 16°C fuel having a lower heating value of 42,780 kJ/kg used at 29°C with a density of 838.9 g/liter.

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.

DM8398-00 **1/16/07**

ENGINE DIMENSIONS



Engine	Overall Length mm (in)	Overall Width mm (in)	Overall Height mm (in)
C280-8	4958 (195.2)	1804 (71)	2648 (104.2)

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

CATERPILLAR®

C280-8 MARINE PROPULSION

3299 bhp (2460 bkW)

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 Caterpillar 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.

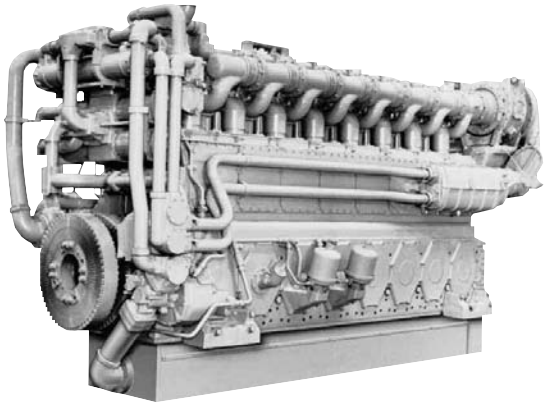
TMI Reference No.: DM8398-00

LEHM7096-00 (7-08)

CATERPILLAR®

C280-8
MARINE PROPULSION

3393 bhp
(2530 bkW)
900 rpm



Shown with
Accessory Equipment

SPECIFICATIONS

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

Emissions	IMO/EPA Tier 2 Compliant
Bore — mm (in)	280 (11.0)
Stroke — mm (in)	300 (11.8)
Displacement — L (cu in)	148 (9,031)
Rotation (from flywheel end)	CCW or CW
Compression Ratio	13:1
Aspiration	Turbocharged-Aftercooled
Low Idle Speed — rpm	350
Rated Speed — rpm	900
Oil Change Interval* — hours	925
Serial Number Prefix	PKA
Cooling System	Keel or Heat Exchanger
Refill Capacities — L (gal)	
Cooling System	1030-1205 (272-318)
Lube Oil System	760 (201)

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

STANDARD 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), Caterpillar 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, Caterpillar 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

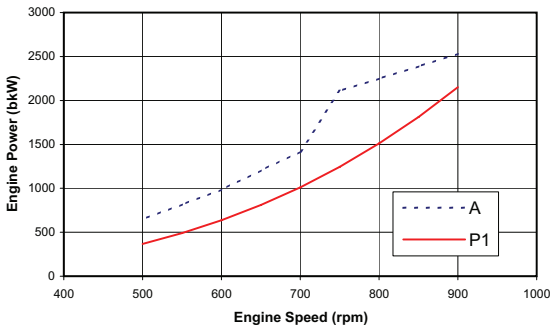
PERFORMANCE DATA

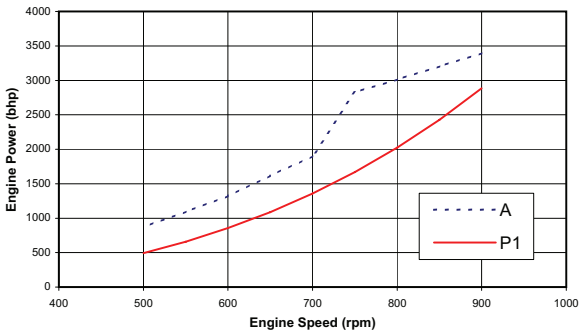
C280-8 DIESEL ENGINE TECHNICAL DATA

CATERPILLAR®

RATED SPEED (RPM):	900	ENGINE RATING:	**Marine MCR**
RATED POWER[1] (bkW):	2530	CERTIFICATION[5]:	IMO/EPA MARINE TIER II
BMEP @ 100% LOAD (kPa):	2283	TURBOCHARGER PART #:	284-8280
COMPRESSION RATIO:	13:1	COMBUSTION:	DI
AFTERCOOLER WATER (°C):	32	FUEL TYPE:	Distillate
JACKET WATER OUTLET (°C):	90	EXHAUST MANIFOLD:	DRY
IGNITION SYSTEM:	EUI	MEAN PISTON SPEED (m/s):	9
FIRING PRESSURE, MAXIMUM (kPa):	17300		

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
Curve A	900	2530	204	616.3	284	263.2	554	370	560.0
	850	2389	203	577.3	273	248.6	550	369	528.3
	800	2249	202	540.9	262	233.9	546	370	497.7
	750	2108	195	489.1	233	206.8	540	374	442.9
	700	1417	199	336.7	144	145.1	519	392	319.1
	650	1204	198	284.1	99	110.4	541	429	257.0
	600	986	203	238.7	66	85.2	564	462	208.4
	550	818	214	208.6	43	70.9	584	472	176.0
	500	650	218	168.9	29	53.9	572	484	136.2

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
Optimum Load	900	2151	211	541.7	258	246.3	531	357	512.7
(Curve P1)	850	1812	211	455.8	224	217.2	508	350	446.5
	800	1511	206	370.6	175	178.9	486	350	367.6
	750	1245	204	302.4	127	140.3	486	372	298.8
	700	1012	206	248.1	86	108.1	495	400	240.5
	650	810	210	202.5	54	82.9	504	419	190.0
	600	637	214	162.3	34	65.9	489	415	150.3
	550	491	222	129.9	11	48.9	458	388	107.5
	500	369	228	100.2	9	42.5	386	338	86.1

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
Curve A	900	3393	0.336	162.7	84	9296	1028	697	19778
	850	3204	0.334	152.4	81	8779	1022	696	18657
	800	3016	0.332	142.8	78	8261	1015	698	17576
	750	2827	0.320	129.1	69	7304	1004	705	15642
	700	1900	0.328	88.9	43	5124	967	737	11270
	650	1614	0.326	75.0	29	3898	1006	804	9077
	600	1322	0.334	63.0	20	3009	1047	864	7361
	550	1097	0.352	55.1	13	2503	1083	882	6217
	500	871	0.359	44.6	9	1903	1062	903	4812

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
Optimum Load	900	2884	0.348	143.0	76	8697	988	674	18106
(Curve P1)	850	2430	0.347	120.3	66	7670	946	662	15767
	800	2026	0.339	97.8	52	6317	907	661	12981
	750	1669	0.336	79.9	38	4955	908	701	10551
	700	1357	0.339	65.5	25	3817	924	751	8494
	650	1087	0.345	53.5	16	2926	939	786	6711
	600	855	0.352	42.9	10	2326	913	780	5309
	550	658	0.366	34.3	3	1728	856	730	3796
	500	495	0.375	26.5	3	1503	727	640	3039

Heat Rejection @ 100% Load and 25° C Air

Lube Oil Cooler	kW	(Btu/min)	255	(14483)
Jacket Water	kW	(Btu/min)	513	(29187)
AfterCooler	kW	(Btu/min)	716	(40747)
Total Heat Rejection to Raw Water	kW	(Btu/min)	1484	(84418)
Exhaust Gas[2]	kW	(Btu/min)	1947	(110784)
Radiation	kW	(Btu/min)	123	(6999)

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

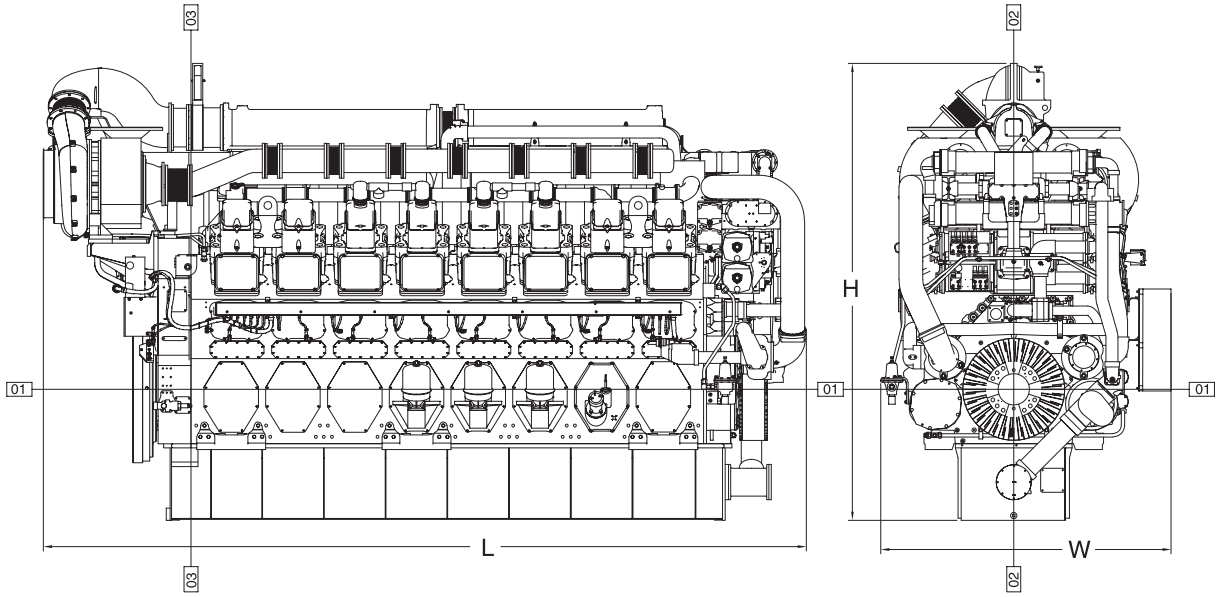
3 At 100% load with pumps +/- 3%. Performance and fuel consumption are based on 35 API, 16°C fuel having a lower heating value of 42,780 kJ/kg used at 29°C with a density of 838.9 g/liter.

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.

DM8399-00 **1/16/07**

ENGINE DIMENSIONS



Engine	Overall Length mm (in)	Overall Width mm (in)	Overall Height mm (in)
C280-8	4958 (195.2)	1804 (71)	2648 (104.2)

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

CATERPILLAR®

C280-8 MARINE PROPULSION

3393 bhp (2530 bkW)

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 Caterpillar 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.

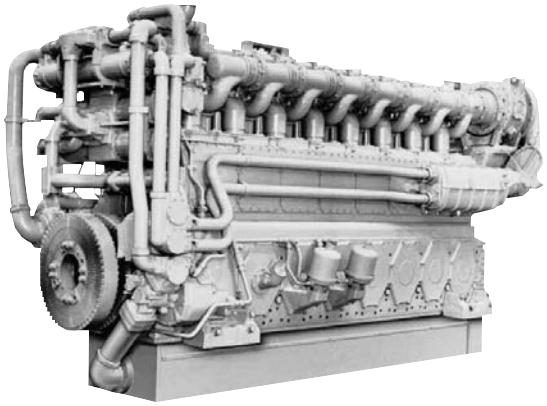
TMI Reference No.: DM8399-00

LEHM7097-00 (7-08)

CATERPILLAR®

C280-8
MARINE PROPULSION

3634 bhp
(2710 bkW)
1000 rpm



Shown with
Accessory Equipment

SPECIFICATIONS

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

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

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

STANDARD 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), Caterpillar 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, Caterpillar 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

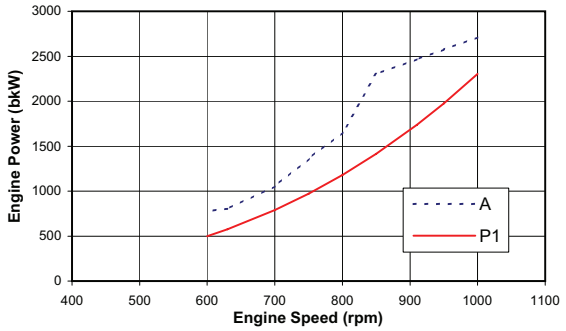
PERFORMANCE DATA

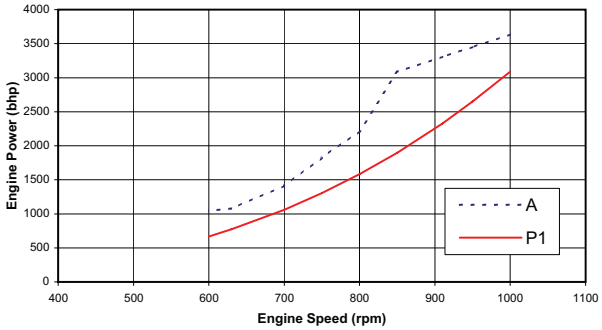
C280-8 DIESEL ENGINE TECHNICAL DATA

CATERPILLAR®

RATED SPEED (RPM):	1000	ENGINE RATING:	**Marine MCR**
RATED POWER[1] (bkW):	2710	CERTIFICATION[5]:	IMO/EPA MARINE TIER II
BMEP @ 100% LOAD (kPa):	2201	TURBOCHARGER PART #:	284-8276
COMPRESSION RATIO:	13:1	COMBUSTION:	DI
AFTERCOOLER WATER (°C):	60	FUEL TYPE:	Distillate
JACKET WATER OUTLET (°C):	90	EXHAUST MANIFOLD:	DRY
IGNITION SYSTEM:	EUI	MEAN PISTON SPEED (m/s):	10
FIRING PRESSURE, MAXIMUM (kPa):	17300		

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
	1000	2710	213	688.1	289	287.5	563	386	627.7
Curve A	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

PROPELLER DEMAND DATA

Optimum Load	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
	1000	2304	213	586.2	254	270.7	528	365	570.5
(Curve P1)	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

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
	1000	3634	0.351	181.7	86	10153	1045	727	22168
Curve A	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

Optimum Load	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
	1000	3090	0.351	154.8	75	9560	983	689	20146
(Curve P1)	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

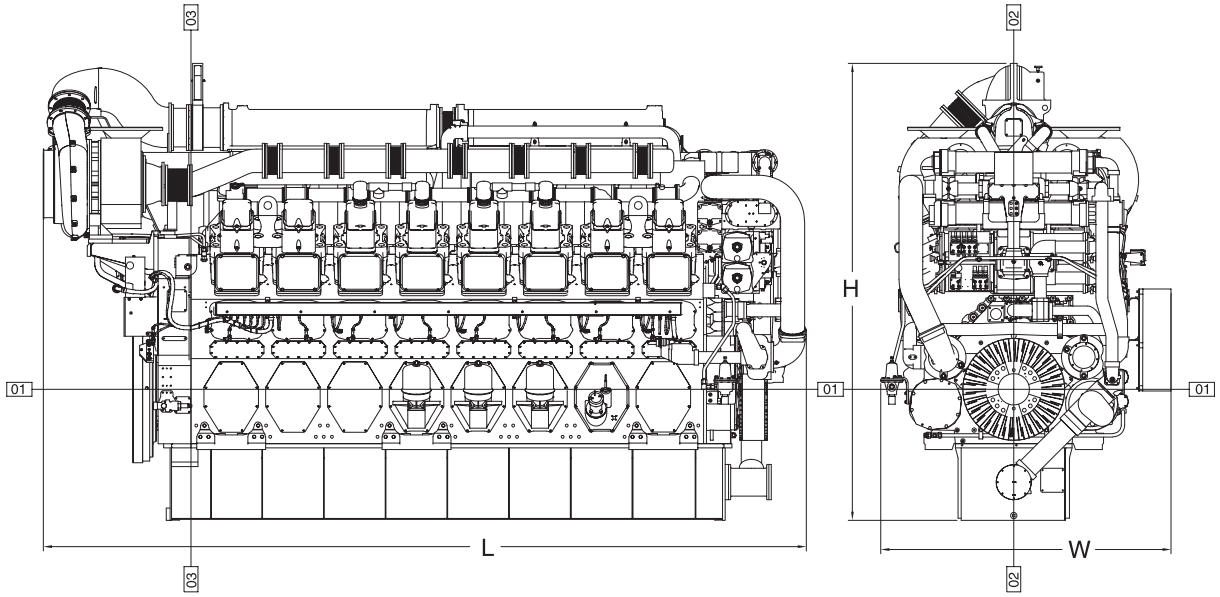
3 At 100% load with pumps +/- 3%. Performance and fuel consumption are based on 35 API, 16°C fuel having a lower heating value of 42,780 kJ/kg used at 29°C with a density of 838.9 g/liter.

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.

DM8400-00 **1/16/07**

ENGINE DIMENSIONS



Engine	Overall Length mm (in)	Overall Width mm (in)	Overall Height mm (in)
C280-8	4958 (195.2)	1804 (71)	2648 (104.2)

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

CATERPILLAR®

C280-8 MARINE PROPULSION

3634 bhp (2710 bkW)

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 Caterpillar 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.

TMI Reference No.: DM8400-00

LEHM7098-00 (7-08)