CATERPILLAR®

3512C HD MARINE PROPULSION

1521, 1622, 1723 mhp
(1500, 1600, 1700 bhp)
1118, 1194, 1268 bkW

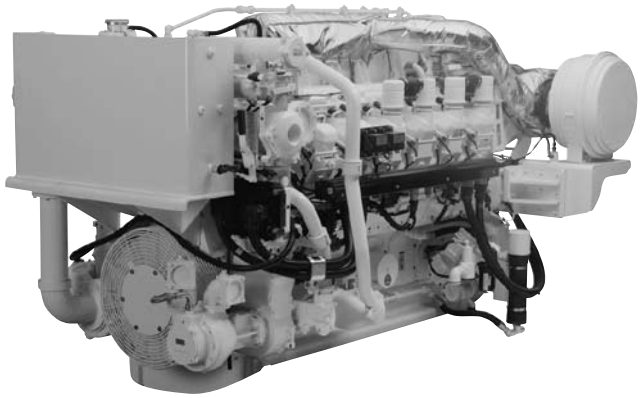


Image shown may not reflect actual engine

SPECIFICATIONS

V-12, 4-Stroke-Cycle-Diesel

Emissions . . . . . EPA Tier 2 compliant*, IMO compliant
EU Stage 3A Inland Waterway
accepted as equivalent CCNR Stage II
Displacement . . . . . 58.56 L (3574 cu. in.)
Rated Engine Speed 1200
Bore . . . . . 170.0 mm (6.7 in.)
Stroke . . . . . 215 mm (8.46 in.)
Aspiration . . . . . Twin Turbocharged-Aftercooled
Governor . . . . . ADEM™ A3
Cooling System . . . . . Heat Exchanger
Weight, Net Dry
(approx) . . . . . 6532-7411 kg (14,400-16,340 lb)
Refill Capacity
Cooling System (approx) . . . . . 156.8 L (41.4 gal)
Lube Oil System . . . . . 625 L (165 gal)
Oil Change Interval. . . . . 1000 hr
Caterpillar Diesel Engine Oil 10W30 or 15W40
Deep Sump Oil Pan
Rotation (from flywheel end) . . . . . Counterclockwise
Flywheel and Flywheel Housing . . . . . SAE No. 00
Flywheel Teeth 183
3512C HD Propulsion . . . . . 512DM54 (standard)
512DM54 (reverse)

A rating
1521 mhp (1500 bhp) 1118 bkW @ 1200 rpm (DM8730)
B rating
1622 mhp (1600 bhp) 1194 bkW @ 1200 rpm (DM8731)
C rating
1723 mhp (1700 bhp) 1268 bkW @ 1200 rpm (DM8732)

*EPA Tier 2 certification in process at time of print

STANDARD ENGINE EQUIPMENT

Air Inlet System
Corrosion resistant separate circuit freshwater aftercooled, powercore air cleaner

Control System
Dual Caterpillar® A3 Electronic Control Unit (ECU) LH with electronic unit injector fuel system rigid wiring harness (10 amp DC power required to drive ECU)

Cooling System
Gear-driven centrifugal auxiliary sea water pump, gear-driven centrifugal jacket water pump, expansion tank for commercial engines, coolant shunt tank on lightweight engines, engine oil cooler, thermostats and housing.

ECU Functions
Programmable low idle, SAEJ1939 data link, Cat® data link, engine diagnostics, general alarm relay, programmable parameters (system application and tattletales), Caterpillar ET service tool interface, remote shutdown, shutdown notify, load feedback, overspeed shutdown, overspeed verify

Exhaust System
Dry gas-tight exhaust manifolds with heat shields, dual turbochargers with watercooled bearings and heat shield. Wastegate on select ratings.

Fuel System
Electronically controlled unit injectors, simplex fuel filter with service indicators, fuel transfer pump

Instrumentation
Marine Power Display of: Engine oil pressure, engine water temperature, fuel pressure, engine speed, fuel consumption, overspeed shutdown notification light, prelube and shutdown override

Lube System
Gear-driven pump, top-mounted dual crankcase breather groups, simplex oil filter, oil filler and dipstick.

Power Take-Offs
Accessory drive, two-sided front housing

Protection System
Emergency stop pushbutton, safety shutoff, oil pressure, and water temperature

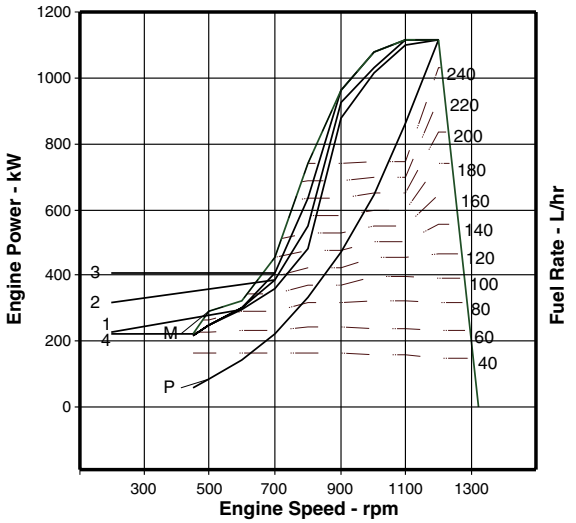
General
Two lifting eyes mounted to cylinder heads, Caterpillar yellow paint, parts books and maintenance manuals, shrink-wrap.

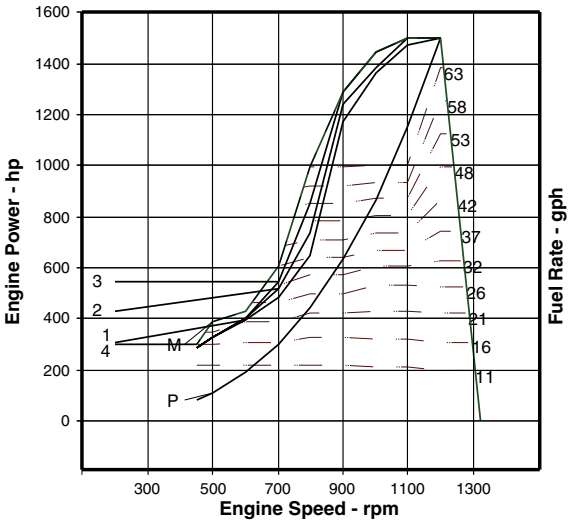
ISO Certification
Factory-designed systems built at Caterpillar ISO 9001:2000 certified facilities.

MARINE ENGINE PERFORMANCE

3512C HD
1521 mhp (1500 bhp) 1118 bkW @ 1200 rpm
A Rating — DM8730-00

Aftercooler Temperature 43°C (109°F)





Performance Data

	Engine Speed rpm	Engine Power kW	BSFC g / kW-hr	Fuel Rate L/hr	Boost Press kPa Gauge	Intake Air Flow m³/min	Exh Manif Temp °C	Exh Gas Flow m³/min
Zone Limit Curve: 1	1200	1119	203	270.6	259.4	104.7	554	230.6
	1000	1015	197	238.0	232.0	81.6	578	193.4
	800	481	215	123.5	72.0	33.7	625	92.4
	700	360	209	89.6	42.6	24.6	625	68.2
	500	247	222	65.4	21.3	15.0	614	40.9
	450	215	220	56.1	17.3	13.2	567	33.9
Zone Limit Curve: 2	1200	1119	203	270.6	0.0	104.7	554	230.6
	1000	1032	196	241.4	0.0	82.6	580	195.9
	800	549	213	139.1	0.0	36.3	650	102.1
	700	388	212	98.1	0.0	25.4	650	72.2
	500	247	222	65.4	0.0	15.0	614	40.9
	450	215	220	56.1	0.0	13.2	567	33.9
Zone Limit Curve: 3	1200	1119	203	270.6	259.4	104.7	554	230.6
	1000	1080	196	251.9	248.5	85.5	586	203.8
	800	635	209	157.9	106.1	40.3	675	115.2
	700	409	215	104.7	51.5	26.1	667	75.1
	500	247	222	65.4	21.3	15.0	614	40.9
	450	215	220	56.1	17.3	13.2	567	33.9
Zone Limit Curve: 4	1200	1119	203	270.6	259.4	104.7	554	230.6
	1000	1080	196	251.9	248.5	85.5	586	203.8
	800	741	204	179.9	134.9	46.1	698	132.7
	700	454	223	120.7	60.5	27.7	697	81.5
	500	291	232	80.6	29.8	16.0	727	48.4
	450	222	224	59.2	18.2	13.3	579	34.5
Max Power Curve: M	1200	1119	203	270.6	259.4	104.7	554	230.6
	1000	1080	196	251.9	248.5	85.5	586	203.8
	800	741	204	179.9	134.9	46.1	698	132.7
	700	454	223	120.7	60.5	27.7	697	81.5
	500	291	232	80.6	29.8	16.0	727	48.4
	450	222	224	59.2	18.2	13.3	579	34.5
Prop Demand Curve: P	1200	1119	203	270.6	259.4	104.7	554	230.6
	1000	647	206	159.2	139.8	59.3	533	137.2
	800	331	212	83.7	46.8	28.9	545	72.2
	700	222	213	56.3	22.3	21.2	459	48.7
	500	81	213	20.5	6.3	13.5	261	23.2
	450	59	232	16.3	4.7	12.1	215	19.0

Brake Mean Effective Pressure	1910 kPa
Heat Rejection to Coolant (total)	426 kW
Heat Rejection to Aftercooler	312 kW
Heat Rejection to Exhaust (total)	914 kW
Heat Rejection to Atmosphere from Engine	104 kW

Performance Data

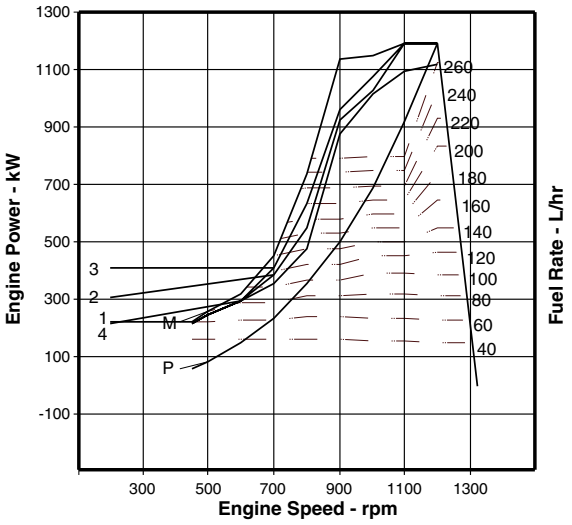
	Engine Speed rpm	Engine Power hp	BSFC lb/ hp-hr	Fuel Rate gph	Boost Press in-hg Gauge	Intake Air Flow cfm	Exh Manif Temp °F	Exh Gas Flow cfm
Zone Limit Curve: 1	1200	1501	.334	71.5	76.8	3697	1029	8144
	1000	1361	.324	62.9	68.7	2882	1072	6830
	800	645	.353	32.6	21.3	1190	1157	3263
	700	483	.344	23.7	12.6	869	1157	2408
	500	331	.365	17.3	6.3	530	1137	1444
	450	288	.362	14.8	5.1	466	1053	1197
Zone Limit Curve: 2	1200	1501	.334	71.5	0.0	3697	1029	8144
	1000	1384	.322	63.8	0.0	2917	1076	6918
	800	736	.350	36.7	0.0	1282	1202	3606
	700	520	.349	25.9	0.0	897	1202	2550
	500	331	.365	17.3	0.0	530	1137	1444
	450	288	.362	14.8	0.0	466	1053	1197
Zone Limit Curve: 3	1200	1501	.334	71.5	76.8	3697	1029	8144
	1000	1448	.322	66.5	73.6	3019	1087	7197
	800	852	.344	41.7	31.4	1423	1247	4068
	700	548	.353	27.7	15.3	922	1233	2652
	500	331	.365	17.3	6.3	530	1137	1444
	450	288	.362	14.8	5.1	466	1053	1197
Zone Limit Curve: 4	1200	1501	.334	71.5	76.8	3697	1029	8144
	1000	1448	.322	66.5	73.6	3019	1087	7197
	800	994	.335	47.5	39.9	1628	1288	4686
	700	609	.367	31.9	17.9	978	1287	2878
	500	390	.381	21.3	8.8	565	1341	1709
	450	298	.368	15.6	5.4	470	1074	1218
Max Power Curve: M	1200	1501	.334	71.5	76.8	3697	1029	8144
	1000	1448	.322	66.5	73.6	3019	1087	7197
	800	994	.335	47.5	39.9	1628	1288	4686
	700	609	.367	31.9	17.9	978	1287	2878
	500	390	.381	21.3	8.8	565	1341	1709
	450	298	.368	15.6	5.4	470	1074	1218
Prop Demand Curve: P	1200	1501	.334	71.5	76.8	3697	1029	8144
	1000	868	.339	42.1	41.4	2094	991	4845
	800	444	.349	22.1	13.9	1021	1013	2550
	700	298	.350	14.9	6.6	749	858	1720
	500	109	.350	5.4	1.9	477	502	819
	450	79	.381	4.3	1.4	427	419	671

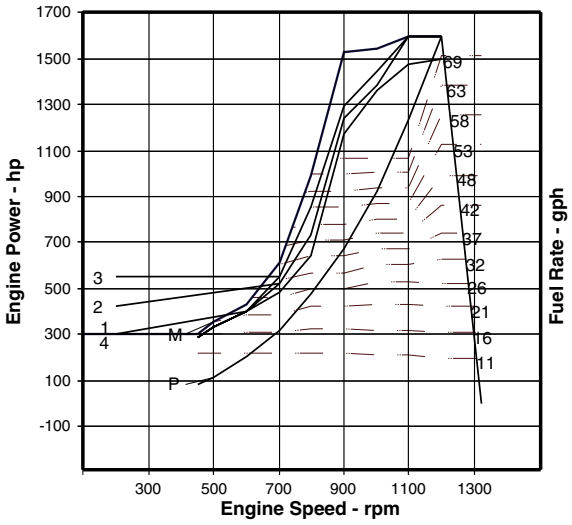
Brake Mean Effective Pressure	277 psi
Heat Rejection to Coolant (total)	24227 btu/min
Heat Rejection to Aftercooler	17743 btu/min
Heat Rejection to Exhaust (total)	51979 btu/min
Heat Rejection to Atmosphere from Engine	5914 btu/min

MARINE ENGINE PERFORMANCE

3512C HD
1622 mhp (1600 bhp) 1194 bkW @ 1200 rpm
B Rating — DM8731-00

Aftercooler Temperature 43°C (109°F)





Performance Data

	Engine Speed rpm	Engine Power kW	BSFC g / kW-hr	Fuel Rate L/hr	Boost Press kPa Gauge	Intake Air Flow m³/min	Exh Manif Temp °C	Exh Gas Flow m³/min
Zone	1200	1119	203	270.6	259.4	104.7	554	230.6
Limit	1000	1015	197	238.0	232.0	81.6	578	193.4
Curve: 1	800	481	215	123.5	72.0	33.7	625	92.4
	700	360	209	89.6	42.6	24.6	625	68.2
	500	247	222	65.4	21.3	15.0	614	40.9
	450	215	220	56.1	17.3	13.2	567	33.9
Zone	1200	1193	203	288.3	0.0	106.5	572	242.2
Limit	1000	1032	196	241.4	0.0	82.6	580	195.9
Curve: 2	800	549	213	139.1	0.0	36.3	650	102.1
	700	388	212	98.1	0.0	25.4	650	72.2
	500	247	222	65.4	0.0	15.0	614	40.9
	450	215	220	56.1	0.0	13.2	567	33.9
Zone	1200	1193	203	288.3	270.8	106.5	572	242.2
Limit	1000	1080	196	251.9	248.5	85.5	586	203.8
Curve: 3	800	635	209	157.9	106.1	40.3	675	115.2
	700	409	215	104.7	51.5	26.1	667	75.1
	500	247	222	65.4	21.3	15.0	614	40.9
	450	215	220	56.1	17.3	13.2	567	33.9
Zone	1200	1193	203	288.3	270.8	106.5	572	242.2
Limit	1000	1150	196	268.2	268.2	90.3	594	216.3
Curve: 4	800	741	204	179.9	134.9	46.1	698	132.7
	700	454	223	120.7	60.5	27.7	697	81.5
	500	263	226	70.6	24.0	15.3	652	43.4
	450	222	224	59.2	18.2	13.3	579	34.5
Max	1200	1193	203	288.3	270.8	106.5	572	242.2
Power	1000	1150	196	268.2	268.2	90.3	594	216.3
Curve: M	800	741	204	179.9	134.9	46.1	698	132.7
	700	454	223	120.7	60.5	27.7	697	81.5
	500	263	226	70.6	24.0	15.3	652	43.4
	450	222	224	59.2	18.2	13.3	579	34.5
Prop	1200	1193	203	288.3	270.8	106.5	572	242.2
Demand	1000	690	206	169.3	152.2	62.4	539	144.6
Curve: P	800	354	213	89.7	50.5	29.6	561	75.3
	700	237	212	59.8	24.1	21.5	480	50.8
	500	86	213	21.9	6.6	13.5	273	23.7
	450	63	231	17.3	4.9	12.1	224	19.4

Brake Mean Effective Pressure	2037 kPa
Heat Rejection to Coolant (total)	446 kW
Heat Rejection to Aftercooler	339 kW
Heat Rejection to Exhaust (total)	980 kW
Heat Rejection to Atmosphere from Engine	106 kW

Performance Data

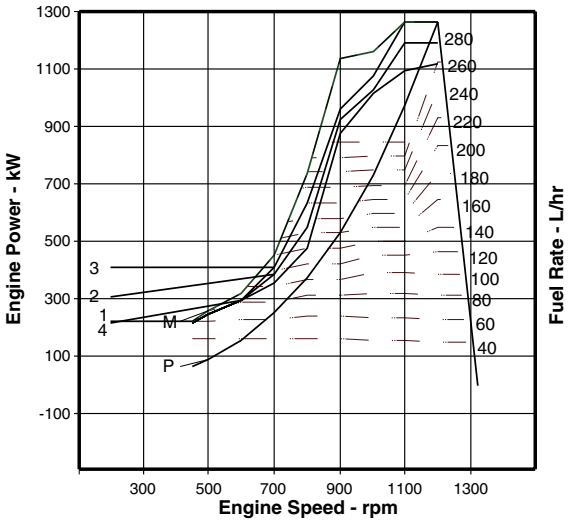
	Engine Speed rpm	Engine Power hp	BSFC lb/ hp-hr	Fuel Rate gph	Boost Press in-hg Gauge	Intake Air Flow cfm	Exh Manif Temp °F	Exh Gas Flow cfm
Zone	1200	1501	.334	71.5	76.8	3697	1029	8144
Limit	1000	1361	.324	62.9	68.7	2882	1072	6830
Curve: 1	800	645	.353	32.6	21.3	1190	1157	3263
	700	483	.344	23.7	12.6	869	1157	2408
	500	331	.365	17.3	6.3	530	1137	1444
	450	288	.362	14.8	5.1	466	1053	1197
Zone	1200	1600	.334	76.2	0.0	3761	1062	8553
Limit	1000	1384	.322	63.8	0.0	2917	1076	6918
Curve: 2	800	736	.350	36.7	0.0	1282	1202	3606
	700	520	.349	25.9	0.0	897	1202	2550
	500	331	.365	17.3	0.0	530	1137	1444
	450	288	.362	14.8	0.0	466	1053	1197
Zone	1200	1600	.334	76.2	80.2	3761	1062	8553
Limit	1000	1448	.322	66.5	73.6	3019	1087	7197
Curve: 3	800	852	.344	41.7	31.4	1423	1247	4068
	700	548	.353	27.7	15.3	922	1233	2652
	500	331	.365	17.3	6.3	530	1137	1444
	450	288	.362	14.8	5.1	466	1053	1197
Zone	1200	1600	.334	76.2	80.2	3761	1062	8553
Limit	1000	1542	.322	70.9	79.4	3189	1101	7639
Curve: 4	800	994	.335	47.5	39.9	1628	1288	4686
	700	609	.367	31.9	17.9	978	1287	2878
	500	353	.372	18.7	7.1	540	1206	1533
	450	298	.368	15.6	5.4	470	1074	1218
Max	1200	1600	.334	76.2	80.2	3761	1062	8553
Power	1000	1542	.322	70.9	79.4	3189	1101	7639
Curve: M	800	994	.335	47.5	39.9	1628	1288	4686
	700	609	.367	31.9	17.9	978	1287	2878
	500	353	.372	18.7	7.1	540	1206	1533
	450	298	.368	15.6	5.4	470	1074	1218
Prop	1200	1600	.334	76.2	80.2	3761	1062	8553
Demand	1000	925	.339	44.7	45.1	2204	1002	5107
Curve: P	800	475	.350	23.7	15.0	1045	1042	2659
	700	318	.349	15.8	7.1	759	896	1794
	500	115	.350	5.8	2.0	477	523	837
	450	84	.380	4.6	1.5	427	435	685

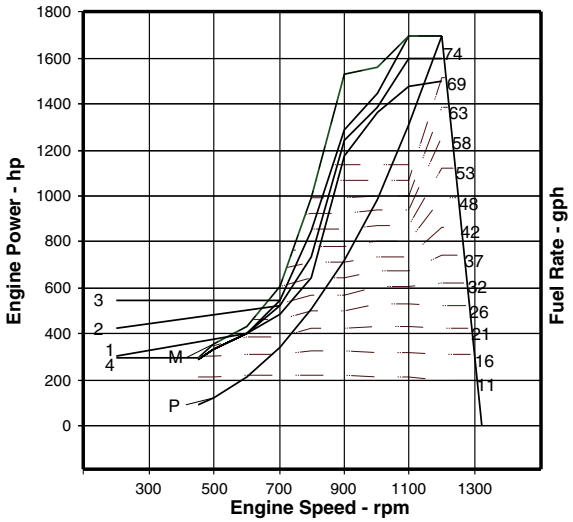
Brake Mean Effective Pressure	295 psi
Heat Rejection to Coolant (total)	25364 btu/min
Heat Rejection to Aftercooler	19279 btu/min
Heat Rejection to Exhaust (total)	55732 btu/min
Heat Rejection to Atmosphere from Engine	6028 btu/min

MARINE ENGINE PERFORMANCE

3512C HD
1723 mhp (1700 bhp) 1268 bkW @ 1200 rpm
C Rating — DM8732-00

Aftercooler Temperature 43°C (109°F)





Performance Data

	Engine Speed rpm	Engine Power kW	BSFC g / kW-hr	Fuel Rate L/hr	Boost Press kPa Gauge	Intake Air Flow m³/min	Exh Manif Temp °C	Exh Gas Flow m³/min
Zone Limit Curve: 1	1200	1119	203	270.6	259.4	104.7	554	230.6
	1000	1015	197	238.0	232.0	81.6	578	193.4
	800	481	215	123.5	72.0	33.7	625	92.4
	700	360	209	89.6	42.6	24.6	625	68.2
	500	247	222	65.4	21.3	15.0	614	40.9
	450	215	220	56.1	17.3	13.2	567	33.9
Zone Limit Curve: 2	1200	1193	203	288.3	0.0	106.5	572	242.2
	1000	1032	196	241.4	0.0	82.6	580	195.9
	800	549	213	139.1	0.0	36.3	650	102.1
	700	388	212	98.1	0.0	25.4	650	72.2
	500	247	222	65.4	0.0	15.0	614	40.9
	450	215	220	56.1	0.0	13.2	567	33.9
Zone Limit Curve: 3	1200	1268	204	308.3	281.7	108.2	596	256.2
	1000	1080	196	251.9	248.5	85.5	586	203.8
	800	635	209	157.9	106.1	40.3	675	115.2
	700	409	215	104.7	51.5	26.1	667	75.1
	500	247	222	65.4	21.3	15.0	614	40.9
	450	215	220	56.1	17.3	13.2	567	33.9
Zone Limit Curve: 4	1200	1268	204	308.3	281.7	108.2	596	256.2
	1000	1163	196	271.4	272.0	91.3	596	218.7
	800	741	204	179.9	134.9	46.1	698	132.7
	700	454	223	120.7	60.5	27.7	697	81.5
	500	263	226	70.6	24.0	15.3	652	43.4
	450	222	224	59.2	18.2	13.3	579	34.5
Max Power Curve: M	1200	1268	204	308.3	281.7	108.2	596	256.2
	1000	1163	196	271.4	272.0	91.3	596	218.7
	800	741	204	179.9	134.9	46.1	698	132.7
	700	454	223	120.7	60.5	27.7	697	81.5
	500	263	226	70.6	24.0	15.3	652	43.4
	450	222	224	59.2	18.2	13.3	579	34.5
Prop Demand Curve: P	1200	1268	204	308.3	281.7	108.2	596	256.2
	1000	734	205	179.4	164.2	65.4	545	151.7
	800	376	214	96.0	54.0	30.3	575	78.3
	700	252	211	63.4	26.0	21.8	502	52.8
	500	92	214	23.4	7.0	13.5	285	24.3
	450	67	230	18.3	5.2	12.2	234	19.7

Brake Mean Effective Pressure	2037 kPa
Heat Rejection to Coolant (total)	468 kW
Heat Rejection to Aftercooler	366 kW
Heat Rejection to Exhaust (total)	1066 kW
Heat Rejection to Atmosphere from Engine	107 kW

Performance Data

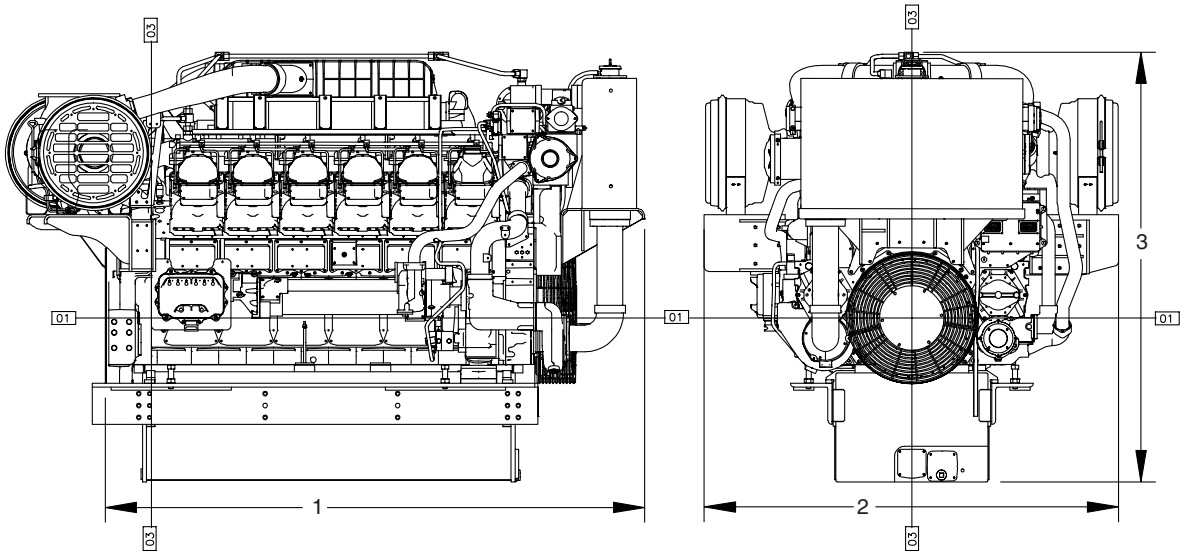
	Engine Speed rpm	Engine Power hp	BSFC lb/ hp-hr	Fuel Rate gph	Boost Press in-hg Gauge	Intake Air Flow cfm	Exh Manif Temp °F	Exh Gas Flow cfm
Zone Limit Curve: 1	1200	1501	.334	71.5	76.8	3697	1029	8144
	1000	1361	.324	62.9	68.7	2882	1072	6830
	800	645	.353	32.6	21.3	1190	1157	3263
	700	483	.344	23.7	12.6	869	1157	2408
	500	331	.365	17.3	6.3	530	1137	1444
	450	288	.362	14.8	5.1	466	1053	1197
Zone Limit Curve: 2	1200	1600	.334	76.2	0.0	3761	1062	8553
	1000	1384	.322	63.8	0.0	2917	1076	6918
	800	736	.350	36.7	0.0	1282	1202	3606
	700	520	.349	25.9	0.0	897	1202	2550
	500	331	.365	17.3	0.0	530	1137	1444
	450	288	.362	14.8	0.0	466	1053	1197
Zone Limit Curve: 3	1200	1700	.335	81.4	83.4	3821	1105	9048
	1000	1448	.322	66.5	73.6	3019	1087	7197
	800	852	.344	41.7	31.4	1423	1247	4068
	700	548	.353	27.7	15.3	922	1233	2652
	500	331	.365	17.3	6.3	530	1137	1444
	450	288	.362	14.8	5.1	466	1053	1197
Zone Limit Curve: 4	1200	1700	.335	81.4	83.4	3821	1105	9048
	1000	1560	.322	71.7	80.5	3224	1105	7723
	800	994	.335	47.5	39.9	1628	1288	4686
	700	609	.367	31.9	17.9	978	1287	2878
	500	353	.372	18.7	7.1	540	1206	1533
	450	298	.368	15.6	5.4	470	1074	1218
Max Power Curve: M	1200	1700	.335	81.4	83.4	3821	1105	9048
	1000	1560	.322	71.7	80.5	3224	1105	7723
	800	994	.335	47.5	39.9	1628	1288	4686
	700	609	.367	31.9	17.9	978	1287	2878
	500	353	.372	18.7	7.1	540	1206	1533
	450	298	.368	15.6	5.4	470	1074	1218
Prop Demand Curve: P	1200	1700	.335	81.4	83.4	3821	1105	9048
	1000	984	.337	47.4	48.6	2310	1013	5357
	800	504	.352	25.4	16.0	1070	1067	2765
	700	338	.347	16.7	7.7	770	936	1865
	500	123	.352	6.2	2.1	477	545	858
	450	90	.378	4.8	1.5	431	453	696

Brake Mean Effective Pressure	295 psi
Heat Rejection to Coolant (total)	26615 btu/min
Heat Rejection to Aftercooler	20814 btu/min
Heat Rejection to Exhaust (total)	60623 btu/min
Heat Rejection to Atmosphere from Engine	6085 btu/min

3512C HD MARINE PROPULSION

1521, 1622, 1723 mhp (1500, 1600, 1700 bhp)
1118, 1194, 1268 bkW

DIMENSIONS



Engine Dimensions		
(1) Length to Flywheel Housing	2644.1 mm	104.1 in.
(2) Width	2036.9 mm	80.19 in.
(3) Height	2113.3 mm	83.2 in.
Weight, Net Dry (approx)	6532-7411 kg	14,400-16,340 lb

Note: Do not use for installation design. See general dimension drawings for detail (#313-1383, #310-3268).

For most current installation drawings, please visit http://tmi.cat.com

RATING DEFINITIONS AND CONDITIONS

A Rating (Unrestricted Continuous)
Typical applications: For vessels operating at rated load and rated speed up to 100% of the time without interruption or load cycling (80% to 100% load factor). Typical applications could include but are not limited to vessels such as freighters, tugboats, bottom trawlers, or deep river tugboats. Typical operation ranges from 5000 to 8000 hours per year.

B Rating (Heavy Duty)
Typical applications: For vessels operating at rated load and rated speed up to 80% of the time, or 10 hours out of 12, with some load cycling (40% to 80% load factor). Typical applications could include but are not limited to vessels such as mid-water trawlers, purse seiner, crew and supply boats, ferries, or towboats. Typical operation ranges from 3000 to 5000 hours per year.

C Rating (Maximum Continuous)
Typical applications: For vessels operating at rated load and rated speed up to 50% of the time, or 6 hours out of 12, with cyclical load and speed (20% to 80% load factor). Typical applications could include but are not limited to vessels such as ferries, harbor tugs, fishing boats, offshore service boats, displacement hull yachts, or short trip coastal freighters. Typical operation ranges from 2000 to 4000 hours per year.

Power at declared engine speed is in accordance with ISO3046-1:2002E. Caterpillar maintains ISO9001:1994/QS-9000 approved engine test facilities to assure accurate calibration of test equipment. Electronically controlled engines are set at the factory at the advertised power corrected to standard ambient conditions. The published fuel consumption rates are in accordance with ISO3046-1.

Fuel rates are based on fuel oil of 35° API [16°C (60°F)] gravity having an LHV of 42 780 kJ/kg (18,390 Btu/lb) when used at 29°C (85°F) and weighing 838.9 g/L (7.001 lb/U.S. gal). Additional ratings may be available for specific customer requirements. Consult your Caterpillar representative for additional information.

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 50°C (122°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.

U.S. Sourced
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