



3512C – SS MARINE PROPULSION

1318, 1420, 1521 mhp
(1300, 1400, 1500 bhp)
969, 1044, 1118 bkW

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 51.8 L (3161 cu. in.)
Rated Engine Speed 1200
Bore 170.0 mm (6.7 in.)
Stroke 190.0 mm (7.48 in.)
Aspiration 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 Propulsion 512DM62 (standard)
512DM63 (reverse)

A rating

1318 mhp (1300 bhp) 969 bkW @ 1200 rpm (DM8714)

B rating

1420 mhp (1400 bhp) 1044 bkW @ 1200 rpm (DM8713)

C rating

1521 mhp (1500 bhp) 1118 bkW @ 1200 rpm (DM8712)

*EPA Tier 2 certification in process at time of print

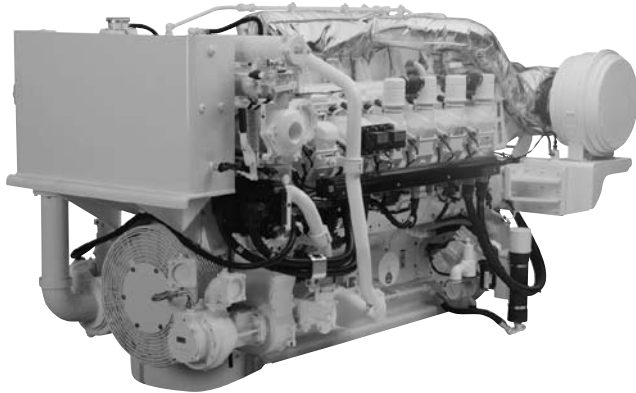


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STANDARD ENGINE EQUIPMENT

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 (RH) 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.

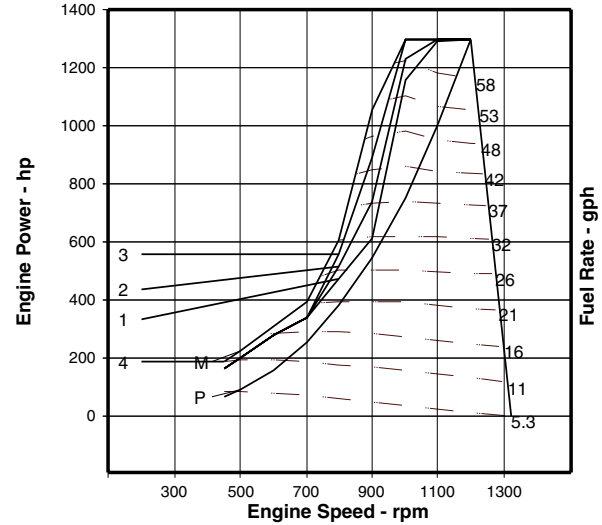
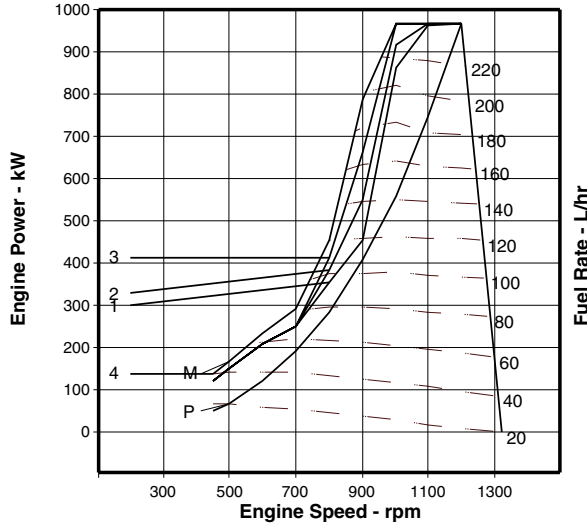
ISO Certification

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

MARINE ENGINE PERFORMANCE

3512C DITA
1318 mhp (1300 bhp) 969 kW @ 1200 rpm
A Rating — DM8714-00

Aftercooler Temperature 48°C (118°F)



Performance Data

Performance Data

	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	1200	970	211	243.4	245.6	88.3	586	208.5
Curve: 1	1000	865	203	209.0	199.9	66.6	621	166.5
	800	355	223	94.5	43.6	25.2	625	68.6
	700	253	228	68.8	22.1	18.7	573	48.8
	500	150	232	41.4	8.6	13.1	486	30.7
	450	124	236	34.8	6.6	11.1	452	24.7
Zone Limit	1200	970	211	243.4	0.0	88.3	586	208.5
Curve: 2	1000	920	202	221.2	0.0	70.0	627	175.0
	800	384	222	101.8	0.0	26.2	650	73.2
	700	253	228	68.8	0.0	18.7	573	48.8
	500	150	232	41.4	0.0	13.1	486	30.7
	450	124	236	34.8	0.0	11.1	452	24.7
Zone Limit	1200	970	211	243.4	245.6	88.3	586	208.5
Curve: 3	1000	969	201	232.2	230.7	72.9	632	182.9
	800	416	222	109.8	56.4	27.4	675	78.1
	700	253	228	68.8	22.1	18.7	573	48.8
	500	150	232	41.4	8.6	13.1	486	30.7
	450	124	236	34.8	6.6	11.1	452	24.7
Zone Limit	1200	970	211	243.4	245.6	88.3	586	208.5
Curve: 4	1000	970	201	232.3	230.9	72.9	632	182.9
	800	454	221	119.6	65.3	29.0	699	83.9
	700	294	231	81.0	29.4	19.7	645	55.7
	500	167	234	46.6	10.4	13.4	533	32.6
	450	140	238	39.7	8.0	11.2	501	26.1
Max Power	1200	970	211	243.4	245.6	88.3	586	208.5
Curve: M	1000	970	201	232.3	230.9	72.9	632	182.9
	800	454	221	119.6	65.3	29.0	699	83.9
	700	294	231	81.0	29.4	19.7	645	55.7
	500	167	234	46.6	10.4	13.4	533	32.6
	450	140	238	39.7	8.0	11.2	501	26.1
Prop Demand	1200	970	211	243.4	245.6	88.3	586	208.5
Curve: P	1000	561	212	141.9	109.8	46.8	586	116.7
	800	287	226	77.4	31.2	23.2	555	58.5
	700	192	229	52.5	14.4	17.6	464	40.4
	500	70	249	20.8	3.1	12.5	280	21.4
	450	51	264	16.1	1.9	10.6	238	16.8

	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	1200	1301	.347	64.3	72.7	3118	1087	7363
Curve: 1	1000	1160	.334	55.2	59.2	2352	1150	5880
	800	476	.367	25.0	12.9	890	1157	2423
	700	339	.375	18.2	6.5	660	1063	1723
	500	201	.381	10.9	2.5	463	907	1084
	450	166	.388	9.2	2.0	392	846	872
Zone Limit	1200	1301	.347	64.3	0.0	3118	1087	7363
Curve: 2	1000	1234	.332	58.4	0.0	2472	1161	6180
	800	515	.365	26.9	0.0	925	1202	2585
	700	339	.375	18.2	0.0	660	1063	1723
	500	201	.381	10.9	0.0	463	907	1084
	450	166	.388	9.2	0.0	392	846	872
Zone Limit	1200	1301	.347	64.3	72.7	3118	1087	7363
Curve: 3	1000	1299	.330	61.3	68.3	2574	1170	6459
	800	558	.365	29.0	16.7	968	1247	2758
	700	339	.375	18.2	6.5	660	1063	1723
	500	201	.381	10.9	2.5	463	907	1084
	450	166	.388	9.2	2.0	392	846	872
Zone Limit	1200	1301	.347	64.3	72.7	3118	1087	7363
Curve: 4	1000	1301	.330	61.4	68.4	2574	1170	6459
	800	609	.363	31.6	19.3	1024	1290	2963
	700	394	.380	21.4	8.7	696	1193	1967
	500	224	.385	12.3	3.1	473	991	1151
	450	188	.391	10.5	2.4	396	934	922
Max Power	1200	1301	.347	64.3	72.7	3118	1087	7363
Curve: M	1000	1301	.330	61.4	68.4	2574	1170	6459
	800	609	.363	31.6	19.3	1024	1290	2963
	700	394	.380	21.4	8.7	696	1193	1967
	500	224	.385	12.3	3.1	473	991	1151
	450	188	.391	10.5	2.4	396	934	922
Prop Demand	1200	1301	.347	64.3	72.7	3118	1087	7363
Curve: P	1000	752	.349	37.5	32.5	1653	1087	4121
	800	385	.372	20.4	9.2	819	1031	2066
	700	257	.376	13.9	4.3	622	867	1427
	500	94	.409	5.5	0.9	441	536	756
	450	68	.434	4.3	0.6	374	460	593

Brake Mean Effective Pressure 1873 kPa
Heat Rejection to Coolant (total) 380 kW
Heat Rejection to Aftercooler 260 kW
Heat Rejection to Exhaust (total) 861 kW
Heat Rejection to Atmosphere from Engine 114 kW

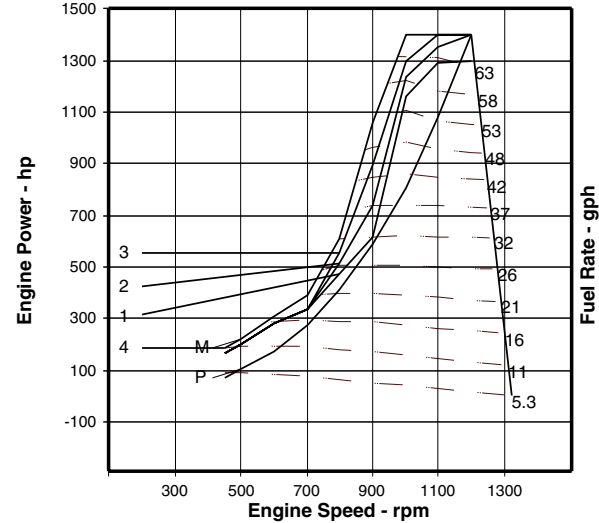
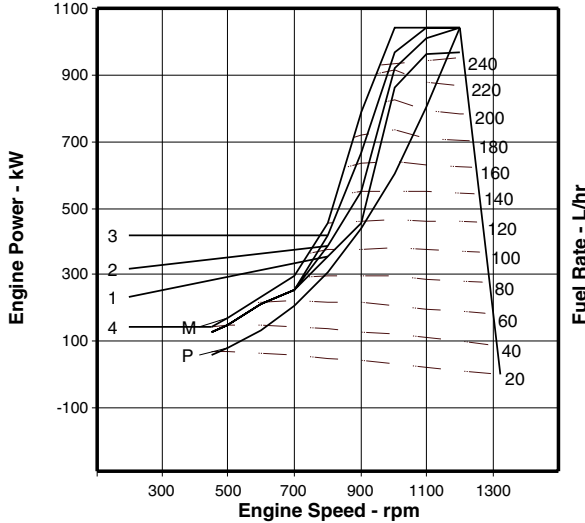
Brake Mean Effective Pressure 272 psi
Heat Rejection to Coolant (total) 21611 btu/min
Heat Rejection to Aftercooler 14786 btu/min
Heat Rejection to Exhaust (total) 48965 btu/min
Heat Rejection to Atmosphere from Engine 6483 btu/min

MARINE ENGINE PERFORMANCE

3512C DITA

1420 mhp (1400 bhp) 1044 kW @ 1200 rpm
B Rating — DM8713-00

Aftercooler Temperature 48°C (118°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	1200	970	211	243.4	245.6	88.3	586	208.5
Curve: 1	1000	865	203	209.0	199.9	66.6	621	166.5
	800	355	223	94.5	43.6	25.2	625	68.6
	700	253	228	68.8	22.1	18.7	573	48.8
	500	150	232	41.4	8.6	13.1	486	30.7
	450	124	236	34.8	6.6	11.1	452	24.7
Zone Limit	1200	1044	210	261.5	0.0	91.9	603	220.6
Curve: 2	1000	920	202	221.2	0.0	70.0	627	175.0
	800	384	222	101.8	0.0	26.2	650	73.2
	700	253	228	68.8	0.0	18.7	573	48.8
	500	150	232	41.4	0.0	13.1	486	30.7
	450	124	236	34.8	0.0	11.1	452	24.7
Zone Limit	1200	1044	210	261.5	261.6	91.9	603	220.6
Curve: 3	1000	969	201	232.2	230.7	72.9	632	182.9
	800	416	222	109.8	56.4	27.4	675	78.1
	700	253	228	68.8	22.1	18.7	573	48.8
	500	150	232	41.4	8.6	13.1	486	30.7
	450	124	236	34.8	6.6	11.1	452	24.7
Zone Limit	1200	1044	210	261.5	261.6	91.9	603	220.6
Curve: 4	1000	1044	200	248.9	253.6	77.3	639	195.0
	800	454	221	119.6	65.3	29.0	699	83.9
	700	294	231	81.0	29.4	19.7	645	55.7
	500	167	234	46.6	10.4	13.4	533	32.6
	450	140	238	39.7	8.0	11.2	501	26.1
Max Power	1200	1044	210	261.5	261.6	91.9	603	220.6
Curve: M	1000	1044	200	248.9	253.6	77.3	639	195.0
	800	454	221	119.6	65.3	29.0	699	83.9
	700	294	231	81.0	29.4	19.7	645	55.7
	500	167	234	46.6	10.4	13.4	533	32.6
	450	140	238	39.7	8.0	11.2	501	26.1
Prop Demand	1200	1044	210	261.5	261.6	91.9	603	220.6
Curve: P	1000	604	210	151.4	122.7	49.7	592	124.2
	800	309	225	83.0	34.9	23.8	578	61.6
	700	207	228	56.4	16.0	17.9	491	42.3
	500	76	246	22.1	3.4	12.5	293	22.2
	450	55	259	17.0	2.1	10.6	249	17.3

Performance Data

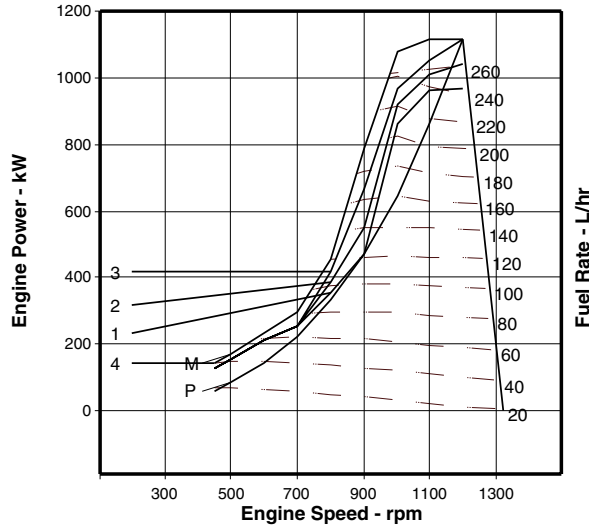
	Engine Speed rpm	Engine Power hp	BSFC lb/hp-hr	Fuel Rate gph	Boost Press in-hg Gauge	Intake Air Flow cfm	Exh Manif Temp °F	Exh Gas Flow cfm
Zone Limit	1200	1301	.347	64.3	72.7	3118	1087	7363
Curve: 1	1000	1160	.334	55.2	59.2	2352	1150	5880
	800	476	.367	25.0	12.9	890	1157	2423
	700	339	.375	18.2	6.5	660	1063	1723
	500	201	.381	10.9	2.5	463	907	1084
	450	166	.388	9.2	2.0	392	846	872
Zone Limit	1200	1400	.345	69.1	0.0	3245	1117	7790
Curve: 2	1000	1234	.332	58.4	0.0	2472	1161	6180
	800	515	.365	26.9	0.0	925	1202	2585
	700	339	.375	18.2	0.0	660	1063	1723
	500	201	.381	10.9	0.0	463	907	1084
	450	166	.388	9.2	0.0	392	846	872
Zone Limit	1200	1400	.345	69.1	77.5	3245	1117	7790
Curve: 3	1000	1299	.330	61.3	68.3	2574	1170	6459
	800	558	.365	29.0	16.7	968	1247	2758
	700	339	.375	18.2	6.5	660	1063	1723
	500	201	.381	10.9	2.5	463	907	1084
	450	166	.388	9.2	2.0	392	846	872
Zone Limit	1200	1400	.345	69.1	77.5	3245	1117	7790
Curve: 4	1000	1400	.329	65.8	75.1	2730	1182	6886
	800	609	.363	31.6	19.3	1024	1290	2963
	700	394	.380	21.4	8.7	696	1193	1967
	500	224	.385	12.3	3.1	473	991	1151
	450	188	.391	10.5	2.4	396	934	922
Max Power	1200	1400	.345	69.1	77.5	3245	1117	7790
Curve: M	1000	1400	.329	65.8	75.1	2730	1182	6886
	800	609	.363	31.6	19.3	1024	1290	2963
	700	394	.380	21.4	8.7	696	1193	1967
	500	224	.385	12.3	3.1	473	991	1151
	450	188	.391	10.5	2.4	396	934	922
Prop Demand	1200	1400	.345	69.1	77.5	3245	1117	7790
Curve: P	1000	810	.345	40.0	36.3	1755	1098	4386
	800	414	.370	21.9	10.3	840	1072	2175
	700	278	.375	14.9	4.7	632	916	1494
	500	102	.404	5.8	1.0	441	559	784
	450	74	.426	4.5	0.6	374	480	611

Brake Mean Effective Pressure 2017 kPa
Heat Rejection to Coolant (total) 400 kW
Heat Rejection to Aftercooler 292 kW
Heat Rejection to Exhaust (total) 922 kW
Heat Rejection to Atmosphere from Engine 119 kW

Brake Mean Effective Pressure 293 psi
Heat Rejection to Coolant (total) 22748 btu/min
Heat Rejection to Aftercooler 16606 btu/min
Heat Rejection to Exhaust (total) 52434 btu/min
Heat Rejection to Atmosphere from Engine 6768 btu/min

MARINE ENGINE PERFORMANCE

3512C DITA
1521 mhp (1500 bhp) 1118 kW @ 1200 rpm
C Rating — DM8712-00

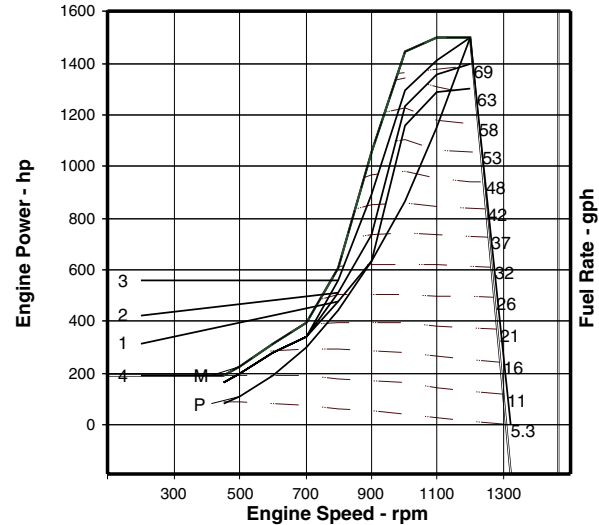


Performance Data

	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	1200	970	211	243.4	245.6	88.3	586	208.5
Curve: 1	1000	865	203	209.0	199.9	66.6	621	166.5
	800	355	223	94.5	43.6	25.2	625	68.6
	700	253	228	68.8	22.1	18.7	573	48.8
	500	150	232	41.4	8.6	13.1	486	30.7
	450	124	236	34.8	6.6	11.1	452	24.7
Zone Limit	1200	1044	210	261.5	0.0	91.9	603	220.6
Curve: 2	1000	920	202	221.2	0.0	70.0	627	175.0
	800	384	222	101.8	0.0	26.2	650	73.2
	700	253	228	68.8	0.0	18.7	573	48.8
	500	150	232	41.4	0.0	13.1	486	30.7
	450	124	236	34.8	0.0	11.1	452	24.7
Zone Limit	1200	1119	210	280.4	276.6	95.3	622	233.1
Curve: 3	1000	969	201	232.2	230.7	72.9	632	182.9
	800	416	222	109.8	56.4	27.4	675	78.1
	700	253	228	68.8	22.1	18.7	573	48.8
	500	150	232	41.4	8.6	13.1	486	30.7
	450	124	236	34.8	6.6	11.1	452	24.7
Zone Limit	1200	1119	210	280.4	276.6	95.3	622	233.1
Curve: 4	1000	1079	200	256.7	264.5	79.3	642	200.8
	800	454	221	119.6	65.3	29.0	699	83.9
	700	294	231	81.0	29.4	19.7	645	55.7
	500	167	234	46.6	10.4	13.4	533	32.6
	450	140	238	39.7	8.0	11.2	501	26.1
Max Power Curve: M	1200	1119	210	280.4	276.6	95.3	622	233.1
	1000	1079	200	256.7	264.5	79.3	642	200.8
	800	454	221	119.6	65.3	29.0	699	83.9
	700	294	231	81.0	29.4	19.7	645	55.7
	500	167	234	46.6	10.4	13.4	533	32.6
	450	140	238	39.7	8.0	11.2	501	26.1
Prop Demand Curve: P	1200	1119	210	280.4	276.6	95.3	622	233.1
	1000	647	209	160.9	135.8	52.6	597	131.6
	800	331	224	88.5	39.0	24.5	602	64.9
	700	222	228	60.3	17.8	18.1	518	44.3
	500	81	243	23.4	3.7	12.6	307	22.9
	450	59	256	18.0	2.3	10.6	260	17.9

Brake Mean Effective Pressure	2017 kPa
Heat Rejection to Coolant (total)	421 kW
Heat Rejection to Aftercooler	325 kW
Heat Rejection to Exhaust (total)	988 kW
Heat Rejection to Atmosphere from Engine	125 kW

Aftercooler Temperature 48°C (118°F)

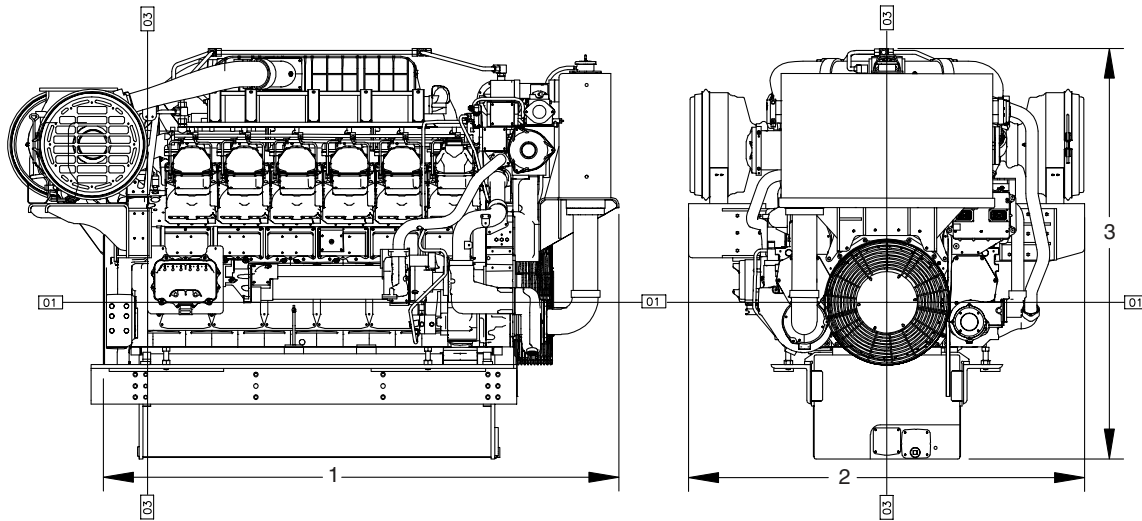


Performance Data

	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	1200	1301	.347	64.3	72.7	3118	1087	7363
Curve: 1	1000	1160	.334	55.2	59.2	2352	1150	5880
	800	476	.367	25.0	12.9	890	1157	2423
	700	339	.375	18.2	6.5	660	1063	1723
	500	201	.381	10.9	2.5	463	907	1084
	450	166	.388	9.2	2.0	392	846	872
Zone Limit	1200	1400	.345	69.1	0.0	3245	1117	7790
Curve: 2	1000	1234	.332	58.4	0.0	2472	1161	6180
	800	515	.365	26.9	0.0	925	1202	2585
	700	339	.375	18.2	0.0	660	1063	1723
	500	201	.381	10.9	0.0	463	907	1084
	450	166	.388	9.2	0.0	392	846	872
Zone Limit	1200	1501	.345	74.1	81.9	3365	1152	8232
Curve: 3	1000	1299	.330	61.3	68.3	2574	1170	6459
	800	558	.365	29.0	16.7	968	1247	2758
	700	339	.375	18.2	6.5	660	1063	1723
	500	201	.381	10.9	2.5	463	907	1084
	450	166	.388	9.2	2.0	392	846	872
Zone Limit	1200	1501	.345	74.1	81.9	3365	1152	8232
Curve: 4	1000	1447	.329	67.8	78.3	2800	1188	7091
	800	609	.363	31.6	19.3	1024	1290	2963
	700	394	.380	21.4	8.7	696	1193	1967
	500	224	.385	12.3	3.1	473	991	1151
	450	188	.391	10.5	2.4	396	934	922
Max Power Curve: M	1200	1501	.345	74.1	81.9	3365	1152	8232
	1000	1447	.329	67.8	78.3	2800	1188	7091
	800	609	.363	31.6	19.3	1024	1290	2963
	700	394	.380	21.4	8.7	696	1193	1967
	500	224	.385	12.3	3.1	473	991	1151
	450	188	.391	10.5	2.4	396	934	922
Prop Demand Curve: P	1200	1501	.345	74.1	81.9	3365	1152	8232
	1000	868	.344	42.5	40.2	1858	1107	4647
	800	444	.368	23.4	11.5	865	1116	2292
	700	298	.375	15.9	5.3	639	964	1564
	500	109	.399	6.2	1.1	445	585	809
	450	79	.421	4.8	0.7	374	500	632

Brake Mean Effective Pressure	293 psi
Heat Rejection to Coolant (total)	23942 btu/min
Heat Rejection to Aftercooler	18483 btu/min
Heat Rejection to Exhaust (total)	56187 btu/min
Heat Rejection to Atmosphere from Engine	7109 btu/min

DIMENSIONS



Engine Dimensions		
(1) Length to Flywheel Housing	2625.4 mm	103.4 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 (#340-3586, #340-3585).

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.

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