

# Marine Engine Program

Caterpillar Marine Power Systems



Cruise

Ferry

Cargo

Government Military

Pleasure Craft

Inland Waterway

Offshore

Tug and Salvage

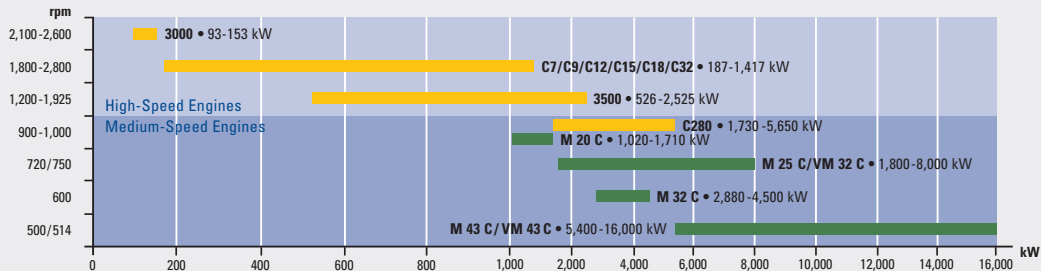
Fishing

Dredge

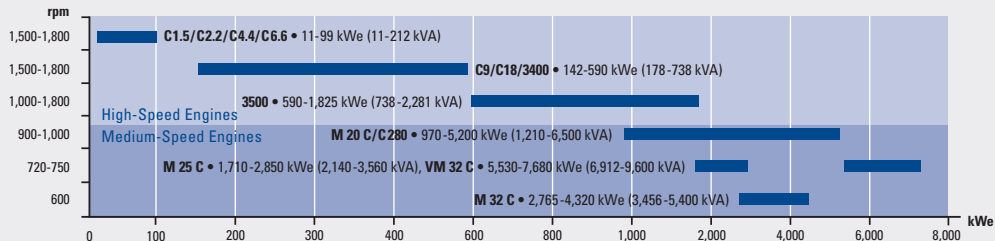
**MAK**

**CAT**<sup>®</sup>

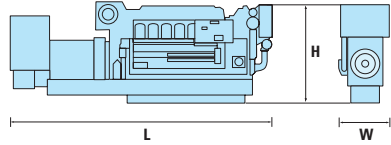
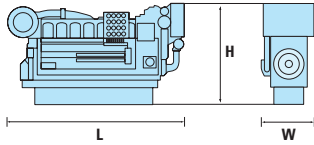
## Propulsion Engines



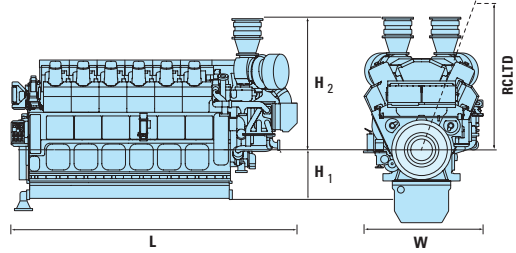
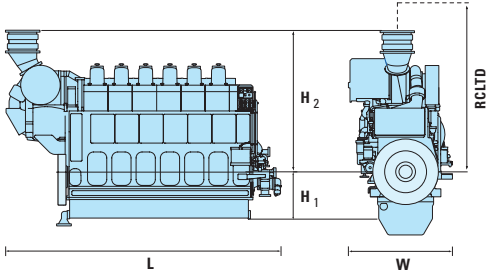
## Generator Sets



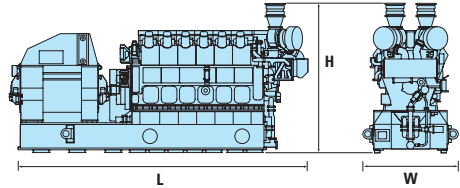
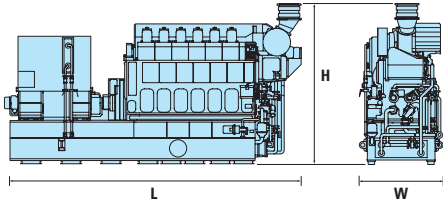
**Cat Propulsion  
and Generator Sets**




**MaK Propulsion**



**MaK Generator Sets**



## Cat Propulsion

	Output range		Speed	Mean eff. pressure	Mean piston speed	Bore	Stroke	Dimensions			Weight
								Length	Width	Height	
	kW	mhp	rpm	bar	m/s	mm	mm	mm	mm	mm	kg
<b>3056</b> ●	93 - 153	127 - 208	2100 - 2600	7.2 - 13.2	8.89-11.01	100	127	1068	645 - 779	801	595
<b>C7</b> ●	187 - 276	255 - 375	2400 - 2600	12.9 - 20.0	10.16-11.85	110	127	1222	920	917	798
<b>C7 ACERT</b> ●	339	461	2800	20.0	11.85	110	127	1222	920	917	798
<b>C9 ACERT</b> ●	375 - 423	510 - 575	2500	18.3 - 20.4	8.90-12.40	112	149	1198	974	983	946
<b>C12</b> ●	254 - 448	345 - 609	1800 - 2300	14.2 - 23.0	9.00-11.50	130	150	1574	969	1005	1174
<b>C12 ACERT</b> ●	492 - 526	669 - 715	2300	23.0	11.50	130	150	1574	969	1005	1174
<b>C18</b> ●	339 - 747	460 - 1015	1800 - 2300	12.5 - 21.5	13.42-14.03	145	183	1558	1056	1178	1678 - 1905
<b>C18 ACERT</b> ●	339 - 847	460 - 1150	1800 - 2300	12.5 - 24.4	11.0 - 14.0	145	183	1505 - 1591	1068 - 1118	1144 - 1182	1678 - 1905
<b>C32</b> ●	1156 - 1232	1572 - 1676	2300	14.6 - 20.0	11.34-12.42	145	162	2004	1413	1378	2631 - 2790
<b>C32 ACERT</b> ●	492 - 1193	669 - 1622	1800 - 2300	21.8	12.42	145	162	1976 - 2072	1408 - 1444	1381 - 1521	3221 - 3311
<b>3508</b> ●	526 - 857	715 - 1166	1200 - 1800	15.3 - 16.6	7.60-11.40	170	190	2077	1703	1803	5216
<b>3508B</b> ●	578 - 1118	786 - 1521	1200 - 1925	16.8 - 20.2	7.60-12.19	170	190	2310	1703	1803	4618 - 5261
<b>3508C</b> ●	578 - 820	786 - 1115	1200 - 1600	16.8 - 17.8	7.60-10.13	170	190	2117	1703	1829	4960
<b>3512</b> ●	900 - 1305	1224 - 1775	1200 - 1800	12.9 - 16.8	7.60-11.40	170	190	2715	1703	2053	6531 - 6537
<b>3512B</b> ●	820 - 1678	1115 - 2282	1200 - 1925	15.8 - 20.2	7.60-12.19	170	190/215	2819 - 3067	1703 - 1988	1806 - 2091	6531 - 6537
<b>3512C</b> ●	969 - 1902	1318 - 2587	1200 - 1800	20.1 - 21.5	12.10	170	190/215	2590 - 2669	2037 - 2232	1904 - 2242	6532 - 7411
<b>3516</b> ●	1195 - 1640	1622 - 2231	1200 - 1800	12.9 - 16.8	7.60-11.40	170	190	3690	1703	2053	8028
<b>3516B</b> ●	1230 - 2237	1673 - 3042	1200 - 1925	17.8 - 20.2	7.60-12.19	170	190/215	3187 - 3221	1703 - 2144	1753 - 2091	7795 - 8028
<b>3516C</b> ●	1230 - 2525	1673 - 3434	1200 - 1800	20.0 - 21.5	12.10	170	190/215	3084 - 3186	2037 - 2142	1967 - 2150	7961 - 8629
<b>C280-6</b> ●	1730 - 2030	2352 - 2760	900 - 1000	22.0 - 22.9	9.00-10.00	280	300	4013	1803	2743	15680
<b>C280-8</b> ●	2300 - 2710	3127 - 3684	900 - 1000	20.0 - 22.9	9.00-10.00	280	300	4953	1803	2642	19000
<b>C280-12</b> ●	3460 - 4060	4704 - 5520	900 - 1000	20.0 - 22.9	9.00-10.00	280	300	4623	2032	3404	25980
<b>C280-16</b> ●	4600 - 5650	6255 - 7682	900 - 1000	20.0 - 23.9	9.00-10.30	280	300	5690	2032	3403	28500

Length is measured from front of engine to rear face of flywheel housing. Engines listed are propulsion engines. Auxiliary and genset engines are also available. All Cat engines over 130 kW with the exception of the Cat 3508, 3512, 3516 Mechanical Control System engines meet the IMO regulation on NO<sub>x</sub> emissions (Regulation 13 of Annex VI of MARPOL 73/78). Caterpillar met this goal while optimizing engine performance and fuel efficiency.

Consult your Caterpillar representative for the further details.

● High-Speed Engines    ● Medium-Speed Engines




## Cat Generator Sets

CAT®	Output range	Output range	Output range	Frequency	Speed	Bore	Stroke	Dimensions			Weight
								Length	Width	Height	
	ekW@.8pf	ekW@1.0pf	kVA					mm	mm	mm	
<b>C1.5</b>	11 - 14.5	10 - 13.5	10 - 18.1	50/60	1500/1800	84	90	962 - 1170	504 - 608	699 - 783	319 - 412
<b>C2.2</b>	16 - 30	16 - 29.5	16 - 37.5	50/60	1500/1800	84	100	1147 - 1170	521 - 608	775 - 825	389 - 466
<b>C4.4</b>	36 - 99	-	45 - 123	50/60	1500/1800	105	127	1409 - 1750	724 - 1215	1000 - 1405	805 - 1015
<b>C6.6</b>	93 - 170	-	116 - 212	50/60	1500/1800	105	127	1905 - 2660	1315 - 1416	961	1348 - 1667
<b>C9</b>	142 - 250	-	178 - 313	50/60	1500/1800	112	149	2106 - 2216	997	1169	1753 - 1903
<b>3406C</b>	200 - 320	-	250 - 400	50/60	1500/1800	137	165	2902 - 2979	996	1400 - 1474	2409 - 2591
<b>C18</b>	275 - 550	-	344 - 688	50/60	1500/1800	145	183	3040	1151	1558	3799 - 4565
<b>C18 ACERT</b>	275 - 550	-	344 - 688	50/60	1500/1800	145	183	3040 - 3076	1151 - 1301	1558	4209 - 4661
<b>3412C</b>	350 - 590	-	438 - 738	50/60	1500/1800	137	152	3324 - 3477	1267	1556	4327
<b>3508B</b>	590 - 910	-	738 - 1138	50/60	1000-1800	170	190	3704 - 4256	1703	1806 - 1826	7684 - 8909
<b>3512B</b>	880 - 1360	-	1000 - 1700	50/60	1000-1800	170	190	4536 - 4804	1703 - 2144	2053 - 2072	10034 - 11186
<b>3512C</b>	1550 - 1700	-	1937 - 2125	60	1800	170	215	5085	2142	2131	12762
<b>3516B</b>	1180 - 1825	-	1475 - 2281	50/60	1000-1800	170	190	5076 - 5611	1703 - 2144	2053 - 2100	11354 - 13538
<b>C280-6</b>	1650 - 1940	-	2063 - 2425	50/60	900/1000	280	300	7120	1961	3934	23845
<b>C280-8</b>	2200 - 2600	-	2750 - 3250	50/60	900/1000	280	300	8040	1961	3937	30340
<b>C280-12</b>	3300 - 3880	-	4125 - 4850	50/60	900/1000	280	300	8040	2000	4085	40950
<b>C280-16</b>	4400 - 5200	-	5500 - 6500	50/60	900/1000	280	300	9314	1990	4167	46645



## Cat Auxiliary

	Output range	Output range	Speed	Bore	Stroke	Dimensions			Weight	Cooling System
	kW	bhp				Length to fly-wheel housing	Width	Height		
			rpm	mm	mm	mm	mm	mm	kg	
<b>C9</b>	189 - 215	253 - 288	1500/1800	112	149	1117	974	1114	947	HEC/KC
<b>C18</b>	301 - 492	404 - 660	1500/1800	145	183	1540 - 2058	1047 - 1175	1140 - 1273	1769 - 1905	HEC/KC
<b>C18 ACERT</b>	301 - 601	404 - 806	1500 - 1800	145	183	1506 - 2058	1047 - 1090	1145 - 1273	1769 - 1905	HEC/KC
<b>C32 ACERT</b>	590 - 994	791 - 1333	1500/1800	145	162	2072.6	1442.7 - 1496.1	1521.5	3221 - 3311	HEC/KC
<b>3400 Series</b>	228 - 534	306 - 716	1500/1800	137	152 - 165	1590 - 1822	950 - 1527	1261 - 1527	1368 - 2418	HEC/KC
<b>3400 Series</b>	267 - 513	358 - 688	1500/1800	137	152 - 165	1930 - 2488	1002 - 1706	1515 - 2154	1479 - 2841	RC
<b>3500 Series</b>	446 - 1355	598 - 1817	1000 - 1800	170	190	2350 - 3730	1703	1826 - 2078	5148 - 7961	HEC
<b>3500B Series</b>	649 - 1717	870 - 2303	1000 - 1800	170	190	2310 - 3181	1703 - 2144	1806 - 2100	5115 - 8029	HEC/RC
<b>3500C Series</b>	1432 - 2350	1920 - 3151	1800	170	215	2644 - 3272	2036 - 2160	2113 - 2154	7839 - 8029	HEC/RC
<b>C280 Series</b>	1730 - 5420	2320 - 7268	900 - 1000	280	300	3691 - 5007	1704 - 1741	2641 - 3550	15680 - 28500	HEC/KC

HEC = Heat exchanger cooled

RC = Radiator cooled

KC = Keel cooled

# MaK Propulsion

MaK	Output range		Speed	Mean eff. pressure	Mean piston speed	Bore	Stroke	Swept volume	Dimensions					Weight
									Length	Width	Height 1 dry/wet sump	Height 2	RC1D*	
	kW	hp	rpm	bar	m/s	mm	mm	l	mm	mm	mm	mm	mm	t
6 M 20 C ●	1020	1390	900	24.1	9.0	200	300	57	4050	1600	630 / 941	2100	1910	11.5
	1140	1550	1000	24.2	10.0	200	300	57	4050	1600	630 / 941	2100	1910	11.5
8 M 20 C ●	1360	1850	900	24.1	9.0	200	300	75	4850	1700	630 / 941	2240	1910	14.5
	1520	2070	1000	24.2	10.0	200	300	75	4850	1700	630 / 941	2240	1910	14.5
9 M 20 C ●	1530	2080	900	24.1	9.0	200	300	85	5180	1700	630 / 941	2240	1910	16.0
	1710	2325	1000	24.2	10.0	200	300	85	5180	1700	630 / 941	2240	1910	16.0
6 M 25 C ●	1800	2450	720	24.5	9.6	255	400	123	5345	2260	861 / 1190	2905	2510	23.5
	1900	2580	720	25.8	9.6	255	400	123	5345	2260	861 / 1190	2905	2510	23.5
	1850	2520	750	24.2	10.0	255	400	123	5345	2260	861 / 1190	2905	2510	23.5
8 M 25 C ●	2000	2715	750	25.8	10.0	255	400	123	5345	2260	861 / 1190	2905	2510	23.5
	2320	3150	720	23.7	9.6	255	400	163	6290	2315	861 / 1190	3052	2510	30.0
	2540	3450	720	25.8	9.6	255	400	163	6290	2315	861 / 1190	3052	2510	30.0
	2400	3215	750	23.5	10.0	255	400	163	6290	2315	861 / 1190	3052	2510	30.0
9 M 25 C ●	2660	3620	750	25.8	10.0	255	400	163	6290	2315	861 / 1190	3052	2510	30.0
	2610	3550	720	23.7	9.6	255	400	184	6720	2315	861 / 1190	3052	2510	32.0
	2850	3875	720	25.8	9.6	255	400	184	6720	2315	861 / 1190	3052	2510	32.0
6 M 32 C ●	2700	3670	750	23.5	10.0	255	400	184	6720	2315	861 / 1190	3052	2510	32.0
	3000	4080	750	26.1	10.0	255	400	184	6720	2315	861 / 1190	3052	2510	32.0
8 M 32 C ●	2880	3915	600	24.9	9.6	320	480	232	5945	2370	1052 / 1387	3260	3040	39.5
	3000	4080	600	25.9	9.6	320	480	232	5945	2370	1052 / 1387	3260	3040	39.5
9 M 32 C ●	3840	5220	600	24.9	9.6	320	480	309	7310	2180	1052 / 1387	3320	3040	49.0
	4000	5440	600	25.9	9.6	320	480	309	7310	2180	1052 / 1387	3320	3040	49.0
12 M 32 C ●	4320	5875	600	24.9	9.6	320	480	347	7840	2180	1052 / 1387	3515	3040	52.0
	4500	6120	600	25.9	9.6	320	480	347	7840	2180	1052 / 1387	3515	3040	52.0
16 M 32 C ●	5760	7830	720	23.7	10.1	320	420	444	6965	3010	1205 / -	3193	2836	65.0
	6000	8160	750	23.7	10.5	320	420	444	6965	3010	1205 / -	3193	2836	65.0
	6000	8160	720	22.5	10.1	320	460	405	6965	3010	1205 / -	3193	2836	65.0
6 M 43 C ●	6000	8160	750	21.6	10.5	320	460	405	6965	3010	1205 / -	3193	2836	65.0
	7680	10445	720	23.7	10.1	320	420	541	8330	3010	1205 / -	3351	2836	82.0
	8000	10880	750	23.7	10.5	320	420	541	8330	3010	1205 / -	3351	2836	82.0
7 M 43 C ●	8000	10880	720	22.5	10.1	320	460	592	8330	3010	1205 / -	3351	2836	82.0
	8000	10880	750	21.6	10.5	320	460	592	8330	3010	1205 / -	3351	2836	82.0
	5400	7340	500	24.4	10.2	430	610	531	8270	2905	1396 / -	4260	4165	94.0
8 M 43 C ●	5400	7340	514	23.7	10.5	430	610	531	8270	2905	1396 / -	4260	4165	94.0
	6000	8160	500	27.1	10.2	430	610	531	8270	2905	1396 / -	4260	4165	94.0
	6000	8160	514	26.4	10.5	430	610	531	8270	2905	1396 / -	4260	4165	94.0
9 M 43 C ●	6300	8570	500	24.4	10.2	430	610	620	8985	2905	1396 / -	4195	4165	107.0
	6300	8570	514	23.7	10.5	430	610	620	8985	2905	1396 / -	4195	4165	107.0
	7000	9520	500	27.1	10.2	430	610	620	8985	2905	1396 / -	4195	4165	107.0
12 M 43 C ●	7000	9520	514	26.4	10.5	430	610	620	8985	2905	1396 / -	4195	4165	107.0
	7200	9790	500	24.4	10.2	430	610	709	9800	2905	1396 / -	4750	4165	114.0
	7200	9790	514	23.7	10.5	430	610	709	9800	2905	1396 / -	4750	4165	114.0
16 M 43 C ●	8000	10880	500	27.1	10.2	430	610	709	9800	2905	1396 / -	4750	4165	114.0
	8100	11020	500	24.4	10.2	430	610	797	10525	2905	1396 / -	4750	4165	127.0
	8100	11020	514	23.7	10.5	430	610	797	10525	2905	1396 / -	4750	4165	127.0
9 M 43 C ●	9000	12240	500	27.1	10.2	430	610	797	10525	2905	1396 / -	4750	4165	127.0
	9000	12240	514	26.4	10.5	430	610	797	10525	2905	1396 / -	4750	4165	127.0
	10800	14690	500	24.4	10.2	430	610	1063	9860	3850	1625 / -	4525	3700	160.0
12 M 43 C ●	10800	14690	514	23.7	10.5	430	610	1063	9860	3850	1625 / -	4525	3700	160.0
	12000	16320	500	27.1	10.2	430	610	1063	9860	3850	1625 / -	4525	3700	160.0
	12000	16320	514	26.4	10.5	430	610	1063	9860	3850	1625 / -	4525	3700	160.0
16 M 43 C ●	14400	19580	500	24.4	10.2	430	610	1417	11945	4030	1625 / -	4525	3700	220.0
	14400	19580	514	23.7	10.5	430	610	1417	11945	4030	1625 / -	4525	3700	220.0
	16000	21760	500	27.1	10.2	430	610	1417	11945	4030	1625 / -	4525	3700	220.0
	16000	21760	514	26.4	10.5	430	610	1417	11945	4030	1625 / -	4525	3700	220.0

General definition of engine ratings: ISO 3046/1 – (IACS)

Meets NO<sub>x</sub> limits acc. to IMO code MARPOL 73/78, Annex VI

Reference conditions: ■ Air temperature: 25 °C

■ Air pressure: 1 bar

■ Cooling water temperature at charge air cooler inlet: mean 30 °C, max. 38 °C

\* Removal of Cylinder Liner in Transverse Direction

Dimensions of engine length for turbocharger at driving end, dimensions for turbocharger at free end on request.



### MaK Generating Sets 970 – 7680 kWe

MaK	Output range	Output range	Output range	Frequency	Speed	Bore	Stroke	Dimensions			Weight**
								Length	Width	Height	
								mm	mm	mm	
<b>6 M 20 C</b>	1020/1140	970/1080	1210/1355	60/50	900/1000	200	300	6330	1680	3220	18.8
<b>8 M 20 C</b>	1360/1520	1290/1445	1615/1805	60/50	900/1000	200	300	6870	1815	3390	23.1
<b>9 M 20 C</b>	1530/1710	1450/1625	1820/2030	60/50	900/1000	200	300	7560	1815	3390	25.0
<b>6 M 25 C</b>	1800/1900	1710/1800	2140/2250	60	720	255	400	8130	2480	4290	43.0
	1850/2000	1760/1900	2200/2380	50	750	255	400	8130	2480	4290	43.0
<b>8 M 25 C</b>	2320/2534	2200/2400	2750/3000	60	720	255	400	9130	2535	4440	49.5
	2400/2666	2280/2500	2850/3130	50	750	255	400	9130	2535	4440	49.5
<b>9 M 25 C</b>	2610/2850	2480/2700	3100/3370	60	720	255	400	9520	2560	4440	55.5
	2700/3000	2570/2820	3210/3520	50	750	255	400	9520	2560	4440	55.5
<b>6 M 32 C</b>	2880/3000	2765/2880	3456/3600 *	60/50	600	320	480	9290	2700	4995	68.6
<b>8 M 32 C</b>	3840/4000	3686/3840	4608/4800 *	60/50	600	320	480	11040	2660	5315	93.0
<b>9 M 32 C</b>	4320/4500	4147/4320	5184/5400 *	60/50	600	320	480	11220	2800	5315	98.0
<b>12 M 32 C</b>	5760/6000	5530/5760	6912/7200 *	60/50	720/750	320	420	10980	3142	5515	126.8
	6000	5760	7200 *	60/50	720/750	320	460	10980	3142	5515	127.1
<b>16 M 32 C</b>	7680/8000	7373/7680	9216/9600 *	60/50	720/750	320	420	12420	3750	5670	149.6
	8000	7680	9600 *	60/50	720/750	320	460	12420	3750	5670	149.9

Generator efficiency: 0.95,  $\cos \varphi$  0.8

Specific lubricating oil consumption 0.6 g/kWh,  $\pm$  0.3 g/kWh

LCV = 42700 kJ/kg, without engine-driven pumps, tolerance 5 %

\* Generator efficiency: 0.96,  $\cos \varphi$  0.8

\*\* Total dry weight without generator and flywheel

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