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JOHN DEERE

*Marine
Applications*










Diesel Engine Ratings

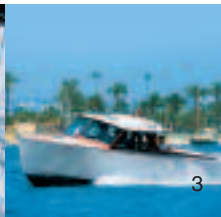
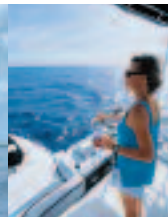
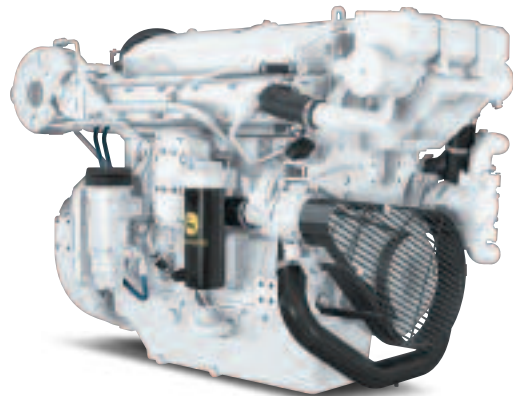


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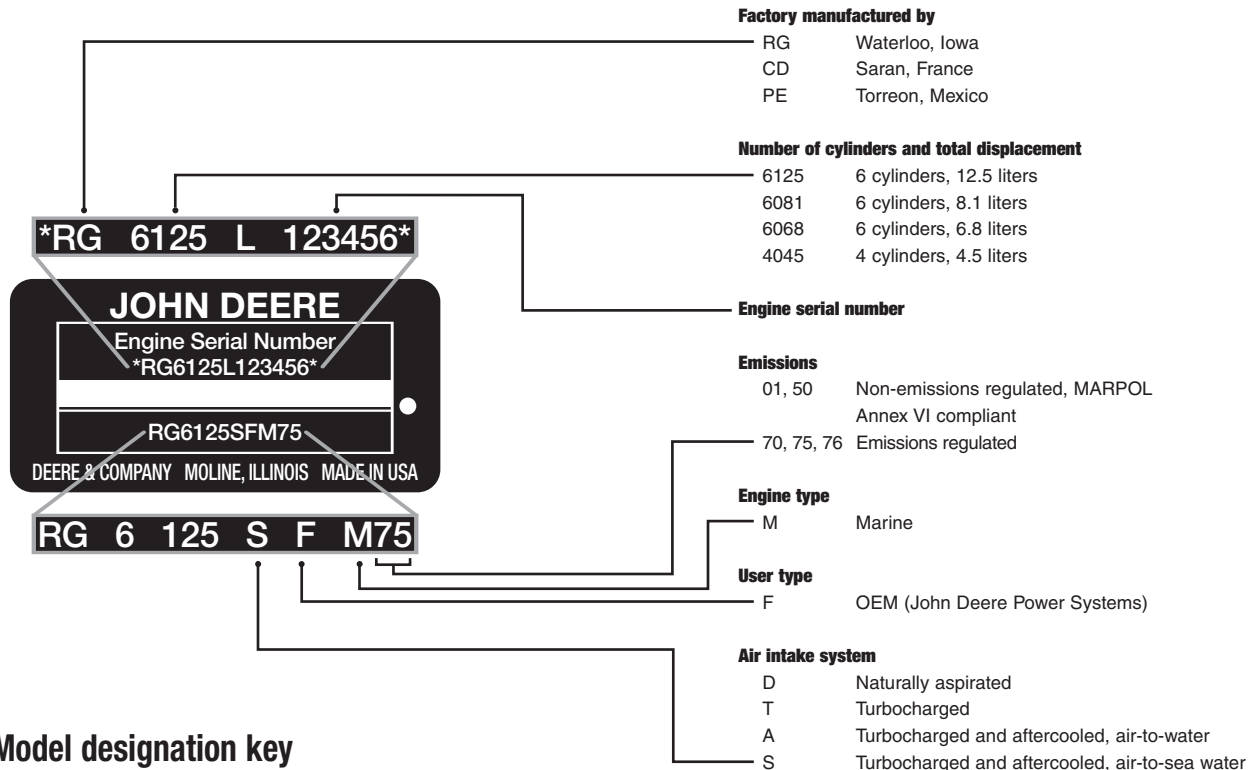
BEYOND THE BOUNDARIES

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Identification plate



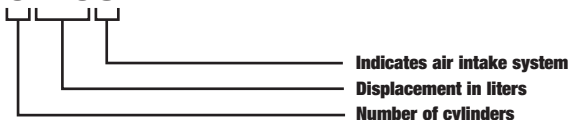
Model designation key

Below is a key for the engine models shown in this guide.

A model designated as 6125S is a 6-cylinder, 12.5-liter turbocharged and aftercooled, air-to-sea water engine.

A model designated as a 4045T is a 4-cylinder, 4.5-liter turbocharged engine.

6125S



M ratings

M1: The M1 rating is for marine propulsion applications that may operate up to 24 hours per day at uninterrupted full power. These applications typically operate over 3,000 hours per year and have load factors* over 65%. The M1 rating is the ISO 8665 standard power rating and the SAE J1228 crankshaft power rating. Both are defined as the power level at which an engine can run continuously between recommended service intervals.

Possible applications: Line haul tugs and towboats, fish and shrimp trawlers/draggers, and displacement hull fishing boats over 18 m (60 ft).

M2: The M2 rating is for marine propulsion applications that operate up to 3,000 hours per year and have load factors up to 65%. This rating is for applications that are in continuous use, and use full power for no more than 16 hours out of each 24 hours of operation. The remaining time of operation must be at cruising speeds.

Possible applications: Short-range tugs and towboats (pool boats), long-range ferryboats, large passenger vessels, and offshore displacement hull fishing boats under 18 m (60 ft).

Marine auxiliary power engines for dedicated hydraulic pump drives, dredge pumps, or other constant-load marine applications should use the M2 rating.

M3: The M3 rating is for marine propulsion applications that operate up to 2,000 hours per year and have load factors up to 50%. This rating is for applications that use full power for no more than 4 hours out of each 12 hours of operation. The remaining time of operation must be at cruising speeds.

Possible applications: Coastal fishing boats, offshore crew boats, research boats, short-range ferryboats, and dinner cruise boats.

M4: The M4 rating is for marine propulsion applications that operate up to 800 hours per year and have load factors below 40%. This rating is for applications that use full power for no more than 1 hour out of each 12 hours of operation. The remaining time of operation must be at cruising speeds.

Possible applications: Inshore crew boats, charter fishing boats, pilot boats, dive boats, and planing hull commercial fishing boats.

M5: The M5 rating is for marine recreational propulsion applications that operate 300 hours or less per year and have load factors below 35%. This rating is for applications that use full power for no more than 30 minutes out of each 8 hours and cruising speed the remainder of the 8 hours, and do not operate for the remaining 16 hours of the day.

Possible applications: Recreational boats in the U.S., tactical military vessels, and rescue boats outside the U.S.

Marine generator: The marine generator engine rating is the power available under normal varying electrical load factors for an unlimited number of hours per year in commercial applications. This rating incorporates a 10% overload capability, and conforms to ISO 8528 prime power. Average load over a 24-hour period shall not exceed 67% of the prime rating, of which no more than 2 hours are between 100% and 110% of the prime rating.

The marine generator rating is restricted to generator applications only. The criteria used to establish marine generator application ratings are the same used to establish industrial prime power generator application ratings.

*Load factor is the actual fuel burned over a period of time divided by the full-power fuel consumption for the same period of time. For example, if an engine burns 160 liters of fuel during an 8-hour run, and the full-power fuel consumption is 60 liters per hour, the load factor is 160 liters / (60 liters per hour x 8 hours) = 33.3%.

Load factor

M rating	Typical load factor ⁽¹⁾	Typical annual usage	Typical full power operation
M5	≤ 35%	≤ 300 hr	0.5 of each 8 hr ⁽³⁾
M4	≤ 40%	≤ 800 hr	1 of each 12 hr ⁽³⁾
M3	≤ 50%	≤ 2,000 hr	4 of each 12 hr ⁽³⁾
M2	≤ 65%	≤ 3,000 hr	16 of each 24 hr ⁽³⁾
M1	> 65%	> 3,000 hr	Uninterrupted ⁽²⁾

⁽¹⁾ Example: an engine burns 160 liters of fuel during an 8-hour run – full-power fuel consumption is 60 liters per hour. The load factor is 160 liters / (60 liters per hour x 8 hours) = 33.3%.

⁽²⁾ Corresponds with ISO 8665 standard power and SAE J1228 crankshaft power.

⁽³⁾ Cruising speed the rest of the time. Cruising is any operating time where the engine speed is more than 200 rpm less than the maximum attainable engine speed.

Emissions

	Commercial	Recreational	Auxiliary
EU Directive on Inland Waterway Vessels (2004/26/EC) CCNR for sailing on the Rhine	X		X
EPA Tier 2 regulations in North America	X	X	X
Engines > 130 kW (174 hp) MARPOL Annex VI	X	X	X
EU Recreational Craft Directive (2003/44/EC) Vessels 2.4 to 24 meters in length		X	



PowerTech 4.5L marine engines

- Keel-cooled or heat exchanger configurations
- Naturally aspirated or turbocharged, non-aftercooled
- Feature constant power to 400 rpm below rated speed
- Excellent choice for launches, work boats, trawler yachts, and patrol craft



4045TFM75

Engine model	Emissions rating	Displacement		Rated power		Rated speed
		L	cu in	kW	hp	rpm
4045TFM75						
M3	1, 2, 3, 4	4.5	276	101	135	2600
M2	1, 2, 3, 4	4.5	276	90	121	2500
M1	1, 2, 3, 4	4.5	276	80	107	2400
4045TFM50						
M4	1	4.5	276	112	150	2600
M3	1	4.5	276	101	135	2500
M2	1	4.5	276	90	120	2400
M1	1	4.5	276	78	105	2300
4045DFM70						
M2	1, 2, 3, 4	4.5	276	60	80	2500
4045DFM50						
M2	1	4.5	276	63	85	2500
M1	1	4.5	276	56	75	2400

Emissions rating:

1. MARPOL Annex VI compliant
2. EPA Tier 2
3. IWT (2004/26/EC)
4. RCD (2003/44/EC)

Ratings are subject to change.

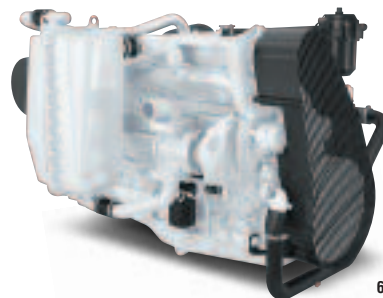
Rated fuel consumption		Length		Width		Height		Weight, dry		Maximum installed angle	
L/hr	gal/hr	mm	in	mm	in	mm	in	kg	lb	Front up	Front down
29.4	7.8	885	34.8	712	28.0	912	35.9	462	1019	15	0
25.4	6.2	885	34.8	712	28.0	912	35.9	462	1019	15	0
22.1	5.8	885	34.8	712	28.0	912	35.9	462	1019	15	0
29.7	7.8	885	34.8	712	28.0	912	35.9	462	1017	15	0
26.3	6.9	885	34.8	712	28.0	912	35.9	462	1017	15	0
22.7	6.0	885	34.8	712	28.0	912	35.9	462	1017	15	0
19.5	5.2	885	34.8	712	28.0	912	35.9	462	1017	15	0
17.5	4.6	885	34.8	713	28.1	912	35.9	437	963	15	0
17.3	4.6	885	34.8	712	28.0	903	35.5	437	961	15	0
15.0	4.0	885	34.8	712	28.0	903	35.5	437	961	15	0

PowerTech 4.5L marine engines



PowerTech 6.8L marine engines

- Keel-cooled or heat exchanger configurations
- Turbocharged, non-aftercooled or turbocharged with sea water aftercooling
- Feature constant power to 400 rpm below rated speed
- Excellent choice for recreational boats, launches, work boats, trawler yachts, and patrol craft



6068SFM75

PowerTech 6.8L marine engines

Engine model	Emissions rating	Displacement		Rated power		Rated speed
		L	cu in	kW	hp	rpm
6068SFM75						
M5	1, 2, 3, 4	6.8	414	298	400	2800
M4	1, 2, 3, 4	6.8	414	265	355	2700
M3	1, 2, 3, 4	6.8	414	239	321	2600
M2	1, 2, 3, 4	6.8	414	209	280	2500
M1	1, 2, 3, 4	6.8	414	186	249	2400
6068SFM50						
M5	1, 2, 3, 4	6.8	414	224	300	2600
M4	1, 2, 3, 4	6.8	414	199	267	2500
M3	1, 2, 3, 4	6.8	414	176	236	2400
6068TFM75						
M3	1, 2, 3, 4	6.8	414	150	201	2600
M2	1, 2, 3, 4	6.8	414	133	178	2500
M1	1, 2, 3, 4	6.8	414	118	158	2400
6068TFM50						
M4	1	6.8	414	168	225	2600
M3	1	6.8	414	149	200	2500
M2	1	6.8	414	131	175	2400
M1	1	6.8	414	115	154	2300

Emissions rating:

1. MARPOL Annex VI compliant
2. EPA Tier 2
3. IWT (2004/26/EC)
4. RCD (2003/44/EC)

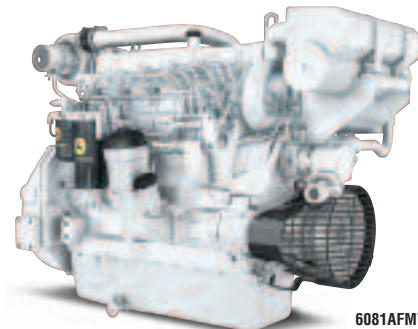
Ratings are subject to change.

Rated fuel consumption		Length		Width		Height		Weight, dry		Maximum installed angle	
L/hr	gal/hr	mm	in	mm	in	mm	in	kg	lb	Front up	Front down
77.6	20.5	1380	54.3	1122	44.2	959	37.7	890	1962	9	0
66.8	17.7	1380	54.3	1122	44.2	959	37.7	890	1962	9	0
60.2	15.9	1380	54.3	1122	44.2	959	37.7	890	1962	9	0
52.3	13.8	1380	54.3	1122	44.2	959	37.7	890	1962	9	0
47.2	12.5	1380	54.3	1122	44.2	959	37.7	890	1962	9	0
6068SFM50											
59.1	15.6	1183	46.6	721	28.4	946	37.3	793	1748	9	0
51.6	13.6	1183	46.6	721	28.4	946	37.3	793	1748	9	0
45.5	12.0	1183	46.6	721	28.4	946	37.3	793	1748	9	0
6068TFM75											
44.1	11.7	1141	44.9	703	27.7	882	34.7	590	1301	9	0
38.3	10.1	1141	44.9	703	27.7	882	34.7	590	1301	9	0
33.7	8.9	1141	44.9	703	27.7	882	34.7	590	1301	9	0
6068TFM50											
44.3	11.7	1141	44.9	712	28	881	34.7	590	1298	9	0
38.8	10.3	1141	44.9	712	28	881	34.7	590	1298	9	0
34.7	9.2	1141	44.9	712	28	881	34.7	590	1298	9	0
29.6	7.8	1141	44.9	712	28	881	34.7	590	1298	9	0



PowerTech 8.1L marine engines

- Keel-cooled or heat exchanger configurations
- Turbocharged with jacket water aftercooling
- Feature constant power to 400 rpm below rated speed
- Excellent choice for launches, work boats, trawler yachts, and patrol craft



6081AFM75

Engine model	Emissions rating	Displacement		Rated power		Rated speed
		L	cu in	kW	hp	rpm
6081AFM75						
M4	1, 2, 3, 4	8.1	497	280	375	2400
M3	1, 2, 3, 4	8.1	497	246	330	2300
M2	1, 2, 3, 4	8.1	497	224	300	2200
M1	1, 2, 3, 4	8.1	497	175	235	2100

Emissions rating:

1. MARPOL Annex VI compliant
2. EPA Tier 2
3. IWT (2004/26/EC)
4. RCD (2003/44/EC)

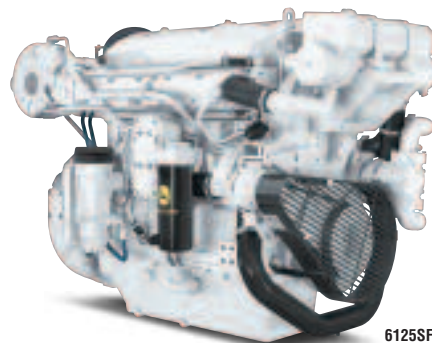
Rated fuel consumption		Length		Width		Height		Weight, dry		Maximum installed angle	
L/hr	gal/hr	mm	in	mm	in	mm	in	kg	lb	Front up	Front down
72.9	19.3	1299	51.1	787	31.0	1005	39.5	853	1881	12	0
62.3	16.7	1299	51.1	787	31.0	1005	39.5	853	1881	12	0
57.8	15.3	1299	51.1	787	31.0	1005	39.5	853	1881	12	0
46.6	12.3	1299	51.1	787	31.0	1005	39.5	853	1881	12	0

Ratings are subject to change.



PowerTech 12.5L marine engines

- Keel-cooled or heat exchanger configurations
- Turbocharged with jacket water aftercooling or turbocharged with sea water aftercooling
- Feature constant power to 400 rpm below rated speed
- Excellent choice for recreational boats, launches, work boats, trawler yachts, and patrol craft



6125SFM75

Engine model	Emissions rating	Displacement		Rated power		Rated speed
		L	cu in	kW	hp	rpm
6125SFM75						
M4	1, 2, 3, 4	12.5	766	455	610	2100
M3	1, 2, 3, 4	12.5	766	392	526	2000
M2	1, 2, 3, 4	12.5	766	335	449	1900
M1	1, 2, 3, 4	12.5	766	283	380	1800
6125AFM75						
M4	1, 2, 3, 4	12.5	766	392	526	2100
M3	1, 2, 3, 4	12.5	766	339	455	2000
M2	1, 2, 3, 4	12.5	766	298	400	1900
M1	1, 2, 3, 4	12.5	766	254	341	1800

Emissions rating:

1. MARPOL Annex VI compliant
2. EPA Tier 2
3. IWT (2004/26/EC)
4. RCD (2003/44/EC)

Ratings are subject to change.

Rated fuel consumption		Length		Width		Height		Weight, dry		Maximum installed angle	
L/hr	gal/hr	mm	in	mm	in	mm	in	kg	lb	Front up	Front down
118.5	31.3	1801	70.9	1032	40.6	1150	45.3	1475	3252	12	0
102.1	27.0	1801	70.9	1032	40.6	1150	45.3	1475	3252	12	0
87.3	23.1	1801	70.9	1032	40.6	1150	45.3	1475	3252	12	0
73.7	19.5	1801	70.9	1032	40.6	1150	45.3	1475	3252	12	0
106.5	28.1	1426	56.1	850	33.5	1138	44.8	1372	3025	12	0
92.1	24.3	1426	56.1	850	33.5	1138	44.8	1372	3025	12	0
67.8	17.9	1426	56.1	850	33.5	1138	44.8	1372	3025	12	0
66.2	17.5	1426	56.1	850	33.5	1138	44.8	1372	3025	12	0



PowerTech marine generator drive engines

- Quiet, smooth operation
- Preferred provider of generator drive engines worldwide
- Available in 1500 rpm for 50 Hz and 1800 rpm for 60 Hz configurations



Emissions certified

Engine model	Emissions rating	Rated speed	Engine prime power	
		rpm	kW	hp
6125SFM75	1, 2	1800	364	488
6125SFM75	1, 2	1500	307	412
6125AFM75	1, 2	1800	300	402
6081AFM75	1, 2	1800	195	261
6068TFM76	1, 2	1800	110	148
6068SFM75	1, 2	1800	174	233
6068SFM75	1, 2	1500	146	196
4045TFM75	1, 2	1800	73	98
4045DFM70	1, 2	1800	46	62

Non-emissions certified

6081AFM75	1	1500	162	217
6068TFM76	1	1500	89	119
6068TFM50	1	1800	115	154
6068TFM50	1	1500	89	119
4045TFM75	1	1500	55	74
4045DFM70	1	1500	40	54
4045TFM50	1	1800	71	95
4045TFM50	1	1500	57	76
4045DFM50	1	1800	48	64
4045DFM50	1	1500	40	54

Emissions rating:

1. MARPOL Annex VI compliant
2. EPA Tier 2

Ratings are subject to change.

Engine 10% overload power		Typical prime ratings		Typical 10% overload ratings		Typical generator efficiency
kW	hp	kVA	kWe	kVA	kWe	%
400	536	400-419	320-335	440-461	352-369	88-92
338	453	338-353	270-282	372-388	297-310	88-92
330	443	330-345	264-276	363-378	290-304	88-92
214	287	214-224	171-179	235-246	188-197	88-92
121	162	121-126	97-101	133-138	106-111	88-92
191	256	191-200	153-160	210-220	168-176	88-92
160	215	160-168	128-134	176-184	141-147	88-92
80	107	80-84	64-67	88-92	70-74	88-92
50	67	50-53	40-42	55-58	44-46	88-92

178	239	178-186	142-149	196-205	156-164	88-92
98	131	98-102	78-82	108-113	86-90	88-92
125	168	124-132	99-106	136-145	108-116	88-92
98	131	98-02	78-82	108-113	86-90	88-92
61	82	60-64	48-51	66-70	53-56	88-92
44	59	44-46	35-37	48-51	39-41	88-92
78	105	78-81	62-65	86-89	68-71	88-92
63	84	62-65	50-52	68-71	55-57	88-92
53	71	52-55	42-44	58-61	47-49	88-92
44	59	44-46	35-37	48-51	39-40	88-92