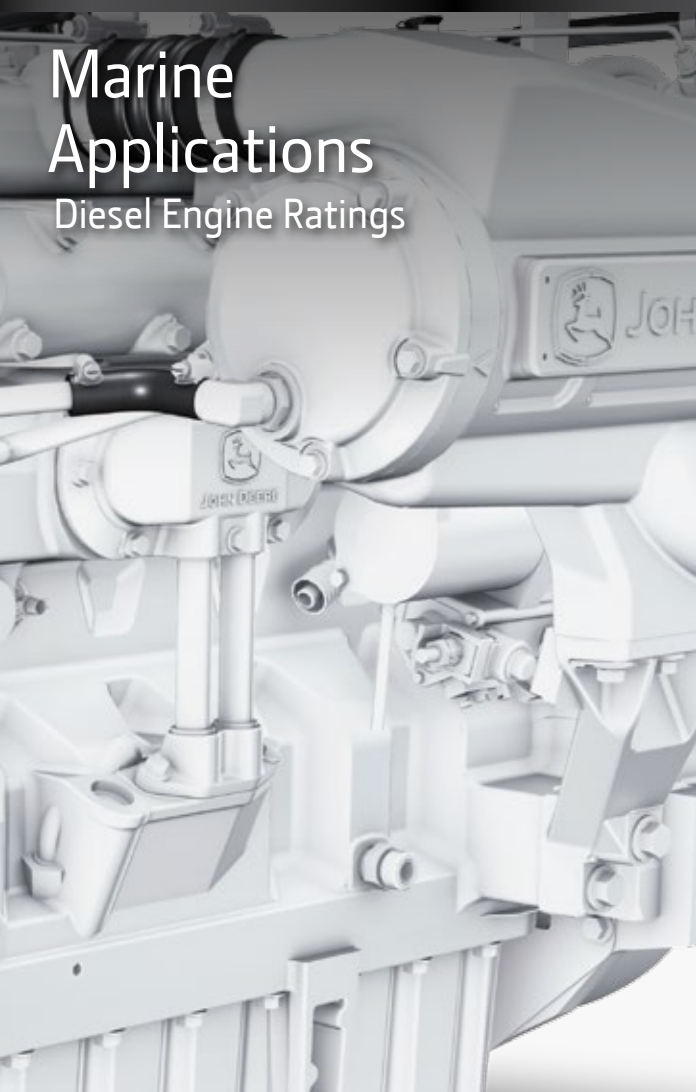




JOHN DEERE

Marine Applications

Diesel Engine Ratings





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Nothing Runs Like A Deere™

John Deere PowerTech™ engines are as powerful in the water as they are on the land. Our marine propulsion and generator engines share the same reputation for performance and reliability that their agricultural and industrial counterparts have enjoyed for decades. They are also backed by a vast service network that will keep you operating — no matter where you go.

When you choose John Deere, you get the support of one of the strongest engine and equipment companies in the world. See for yourself why more vessels are powered by John Deere.





Clean engines — clean air

With John Deere PowerTech engines, everything runs clean and efficiently — above and below deck. John Deere marine engines offer closed crankcase vents that eliminate undesirable gases in the engine room and keep the bilge clean.

John Deere also protects the air outside your boat by complying with international, European, and United States emissions standards for regulated vessels. John Deere meets Environmental Protection Agency (EPA) Marine Tier 3 emissions regulations with a complete line of PowerTech engines for newly constructed vessels as well as repowered boats, as regulation dates become effective.

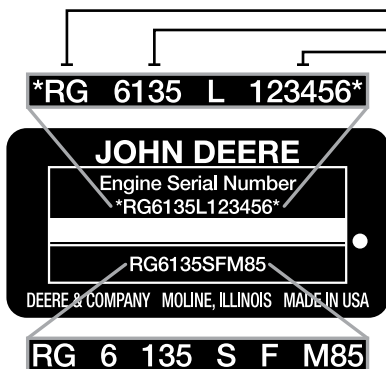
Marine classification societies

John Deere has worked with various marine classification societies allowing the use of our engines in vessels designed and built to the societies' requirements.





Identification plate



Model designation key

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

A John Deere marine engine model designated as 6135SFM85 is a 6-cylinder, 13.5-liter turbocharged and aftercooled, air-to-seawater engine that is emissions regulated.

6135S

Indicates air intake system
Displacement in liters
Number of cylinders

Factory manufactured by

RC	Waterloo, Iowa, USA
CD	Saran, France
PE	Torreón, Mexico

Number of cylinders and total displacement

6135	6 cylinders, 13.5 liters
6090	6 cylinders, 9.0 liters
6068	6 cylinders, 6.8 liters
4045	4 cylinders, 4.5 liters

Engine serial number

Emissions

50	Non-emissions regulated
50, 70, 75, 76, 85	Emissions regulated

Engine type

M	Marine
---	--------

User type

F	OEM (John Deere Power Systems)
---	--------------------------------

Air intake system

D	Naturally aspirated
T	Turbocharged
A	Turbocharged and keel-cooled or heat exchanger
S	Turbocharged and aftercooled, air-to-seawater

Marine propulsion M ratings

Ratings are based on the ISO 8655 standard power rating and the SAEJ1228 crankshaft power rating.

The M rating definitions are provided as a guide to help in the selection of the engine that best fits the application requirements. It is recommended to consult a John Deere representative to verify the optimal rating for the specific application.

The **M1** rating is for marine propulsion applications that may operate up to 24 hours per day at uninterrupted full power and have load factors* greater than 65 percent.

Possible applications: Line hauls tugs and towboats, fish and shrimp trawlers/draggers, and displacement hull fishing boats.

The **M2** rating is for marine propulsion applications that typically operate between 3,000-5,000 hours per year and have load factors* up to 65 percent. This rating is for applications that are in continuous use and use full power for no more than 16 hours of each 24 hours of operation. The remaining time of operation is at or below cruising[†] speed.

Possible applications: Short-range tugs and towboats long-range ferryboats, large passenger vessels and offshore displacement hull fishing boats.

* 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 eight-hour run, and the full-power fuel consumption is 60 liters per hour, the load factor is $160 \text{ liters} / (60 \text{ liters per hour} \times 8 \text{ hours}) = 33.3 \text{ percent}$.

[†] Cruising is any operating time where the engine speed is more than 200 rpm less than the maximum attainable engine speed.

The **M3** rating is for marine propulsion applications that typically operate between 2,000-4,000 hours per year and have load factors* up to 50 percent. This rating is for applications that use full power for no more than four hours out of each 12 hours of operation. The remaining time of operation is at or below cruising† speed.

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

The **M4** rating is for marine propulsion applications that typically operate between 1,000-3,000 hours per year and have load factors* below 40 percent. This rating is for applications that use full power no more than one hour out of each 12 hours of operation. The remaining time of operation is at or below cruising† speed.

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

The **M5** rating is for marine recreational and certification for light duty commercial Tier 3 propulsion applications that operate between 300-1,000 hours per year and have load factors* below 35 percent. This rating is for applications that use full power for no more than 30 minutes out of each eight hours. The remaining time of operation is at or below cruising† speed.

Possible applications: Recreational boats, tactical military vessels and rescue boats.

Load factor

M rating	Typical load factor	Typical annual usage	Typical full power operation
M1	> 65%	Unrestricted	Uninterrupted
M2	≤ 65%	3,000 – 5,000 hr	16 of each 24 hr
M3	≤ 50%	2,000 – 4,000 hr	4 of each 12 hr
M4	≤ 40%	1,000 – 3,000 hr	1 of each 12 hr
M5	≤ 35%	300 – 1,000 hr	0.5 of each 8 hr



Marine generator engine ratings

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 percent overload capability, and conforms to ISO 8528 prime power. Average load over a 24-hour period shall not exceed 67 percent of the prime rating, of which no more than two hours are between 100 percent and 110 percent of the prime rating.

This rating is used for applications that require constant speed in auxiliary applications.

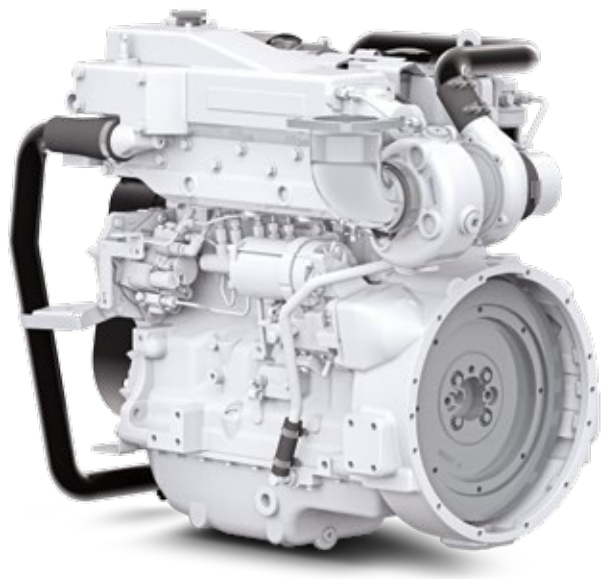


* Load factor is the actual fuel burned over a period of time divided by the full-power fuel consumption for the same period of time. For example, if an engine burns 160 liters of fuel during an eight-hour run, and the full-power fuel consumption is 60 liters per hour, the load factor is $160 \text{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

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



Engine model	Emissions rating	Displacement		Rated power		Rated speed	Rated fuel consumption	
		L	cu in	kW	hp	rpm	L/hr	gal/hr
4045DFM50								
M1	¥	4.5	276	56	75	2400	15.0	4.0
M2	¥	4.5	276	63	85	2500	17.3	4.6
4045TFM50								
M1	¥	4.5	276	78	105	2300	19.5	5.2
M2	¥	4.5	276	90	120	2400	22.7	6.0
M3	¥	4.5	276	101	135	2500	26.3	6.9
M4	¥	4.5	276	112	150	2600	29.7	7.8
4045DFM70								
M2	¥, 4	4.5	276	60	80	2500	17.5	4.6
4045TFM75								
M1	¥, 4	4.5	276	80	107	2400	22.1	5.8
M2	¥, 4	4.5	276	90	121	2500	25.4	6.2
M3	¥, 4	4.5	276	101	135	2600	29.4	7.8
4045TFM85								
M1	¥, 3, 4	4.5	276	75	100	2400	21.5	5.7
M2	¥, 3, 4	4.5	276	93	125	2500	29	7.7
4045AFM85								
M1	¥, 3, 4	4.5	276	119	160	2300	33.6	8.9
M2	1, 3, 4	4.5	276	134	180	2400	37.3	9.9
M3	1, 3, 4	4.5	276	149	200	2500	43.7	11.5
M4	1, 3, 4	4.5	276	168	225	2600	48.3	12.8

Emissions rating:

Ratings are subject to change.

¥. MARPOL Annex VI exempt

1. MARPOL Annex VI compliant

2. EPA Marine Tier 2

3. EPA Marine Tier 3

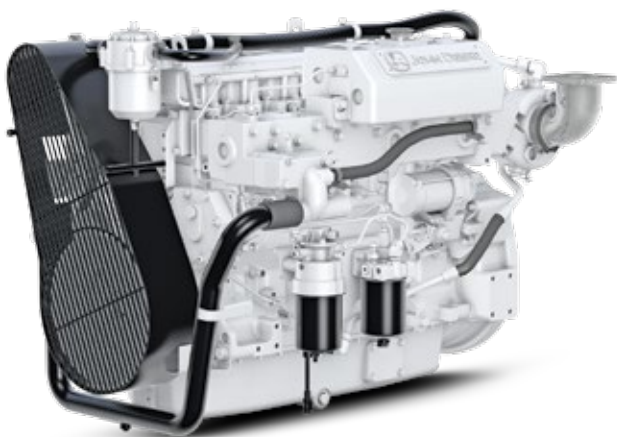
4. NRMM (97/68/EC) as amended

Engine model	Length, to rear of block		Width		Height		Weight, dry	
	mm	in	mm	in	mm	in	kg	lb
4045DFM50	756	29.8	758	29.8	902	35.5	437	963
4045TFM50	748	29.4	827	32.5	912	35.9	461	1017
4045DFM70	756	29.8	675	26.6	901	35.4	437	963
4045TFM75	748	29.4	828	32.6	882	34.7	462	1019
4045TFM85	732	28.8	715	28.1	912	35.9	507	1117
4045AFM85	752	29.6	770	30.3	964	38.0	578	1274

PowerTech

6.8L marine engines

- Keel-cooled or heat exchanger configurations
- Turbocharged, non-aftercooled or turbocharged with air-to-seawater or air-to-coolant aftercooling
- Excellent choice for recreational boats, launches, work boats, trawler yachts, and patrol craft



Engine model	Length, to rear of block		Width		Height		Weight, dry	
	mm	in	mm	in	mm	in	kg	lb
6068TFM50	1004	39.5	828	32.6	881	34.7	730	1609
6068SFM50	1049	41.3	875	34.4	882	34.7	776	1710
6068TFM75	1004	39.5	828	32.6	881	34.7	730	1609
6068AFM75	1034	40.7	854	33.6	912	35.9	786	1732
6068SFM75	1034	40.7	906	35.7	912	35.9	763	1682
6068AFM85	1034	40.7	854	33.6	912	35.9	786	1732
6068SFM85	1034	40.7	906	35.7	912	35.9	763	1682

Engine model	Emissions rating	Displacement		Rated power		Rated speed	Rated fuel consumption	
		L	cu in	kW	hp	rpm	L/hr	gal/hr
6068TFM50								
M1	¥	6.8	414	115	154	2300	29.6	7.8
M2		6.8	414	131	175	2400	34.7	9.2
M3		6.8	414	149	200	2500	38.8	10.3
M4		6.8	414	168	225	2600	44.3	11.7
6068SFM50								
M3	1, 4	6.8	414	176	236	2400	45.5	12.0
M4	1, 4	6.8	414	199	267	2500	51.6	13.6
M5	1, 4	6.8	414	224	300	2600	59.1	15.6
6068TFM75								
M1	¥, 4	6.8	414	118	158	2400	33.7	8.9
M2	1, 4	6.8	414	133	178	2500	38.3	10.1
M3	1, 4	6.8	414	150	201	2600	44.1	11.7
6068AFM75								
M1	1, 4	6.8	414	172	230	2300	43.7	11.5
M2	1, 4	6.8	414	198	265	2400	56.2	13.5
M3	1, 4	6.8	414	224	300	2500	57.8	15.3
M4	1, 4	6.8	414	246	330	2600	65.2	17.2
6068SFM75								
M1	1, 4	6.8	414	186	249	2400	47.2	12.5
M2	1, 4	6.8	414	209	280	2500	52.3	13.8
M3	1, 4	6.8	414	239	321	2600	60.2	15.9
M4	1, 4	6.8	414	265	355	2700	66.8	17.7
M5	1, 4	6.8	414	298	400	2800	77.6	20.5
6068AFM85								
M1	1, 3, 4	6.8	414	172	230	2300	50.9	13.4
M2	1, 3, 4	6.8	414	198	265	2400	58.0	15.3
M3	1, 3, 4	6.8	414	224	300	2500	65.0	17.1
M4	1, 3, 4	6.8	414	246	330	2600	71.0	18.8
6068SFM85								
M1	1, 3, 4	6.8	414	186	249	2400	51.0	13.5
M2	1, 3, 4	6.8	414	209	280	2500	56.7	15.0
M3	1, 3, 4	6.8	414	239	321	2600	63.2	16.7
M4	1, 3, 4	6.8	414	265	355	2700	69.3	18.3
M5	1, 3*, 4	6.8	414	298	400	2800	81.3	21.5

Emissions rating:

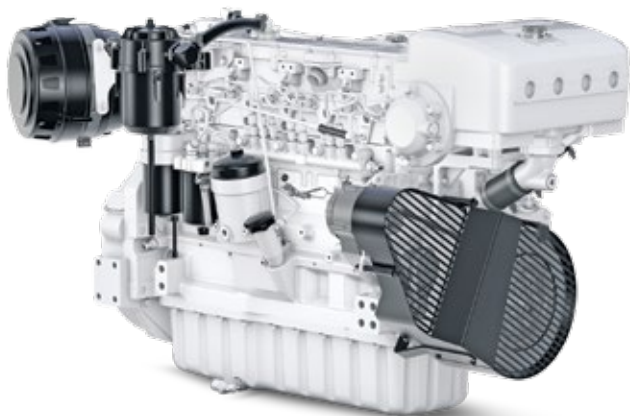
- ¥. MARPOL Annex VI exempt
- 1. MARPOL Annex VI compliant
- 2. EPA Marine Tier 2
- 3. EPA Marine Tier 3
- 4. NRMM (97/68/EC) as amended

Ratings are subject to change.

* EPA recreational marine only

PowerTech 9.0L marine engines

- Keel-cooled or heat exchanger configurations
- Turbocharged with air-to-seawater or air-to-coolant aftercooling
- 4-valve cylinder head
- Electronically controlled HPCR fuel system
- Front or side service
- Excellent choice for patrol craft, launches, workboats, fishing boats, trawler yachts, and sportfishing boats



Engine model	Emissions rating	Displacement		Rated power		Rated speed	Rated fuel consumption	
		L	cu in	kW	hp	rpm	L/hr	gal/hr
6090AFM75								
M1	1, 4	9.0	548	213	285	2100	56.0	14.8
M2	1, 4	9.0	548	242	325	2200	62.0	16.4
M3	1, 4	9.0	548	280	375	2300	76.0	20.0
M4	1, 4	9.0	548	317	425	2400	86.0	22.7
6090SFM75								
M1	1, 4	9.0	548	242	325	2100	56.3	14.9
M2	1, 4	9.0	548	280	375	2200	64.0	16.9
M3	1, 4	9.0	548	317	425	2300	74.0	19.5
M4	1, 4	9.0	548	373	500	2400	88.0	23.2
M5	1, 4	9.0	548	410	550	2500	108.0	28.5
6090AFM85								
M1	1, 3, 4	9.0	548	213	285	2100	56.0	14.8
M2	1, 3, 4	9.0	548	242	325	2200	62.0	16.4
M3	1, 3, 4	9.0	548	280	375	2300	76.0	20.0
M4	1, 3, 4	9.0	548	317	425	2400	86.0	22.7
6090SFM85								
M1	1, 3, 4	9.0	548	242	325	2100	56.3	14.9
M2	1, 3, 4	9.0	548	280	375	2200	64.0	16.9
M3	1, 3, 4	9.0	548	317	425	2300	74.0	19.5
M4	1, 3, 4	9.0	548	373	500	2400	88.0	23.2
M5	1, 3, 4	9.0	548	410	550	2500	108.0	28.5

Emissions rating:

Ratings are subject to change.

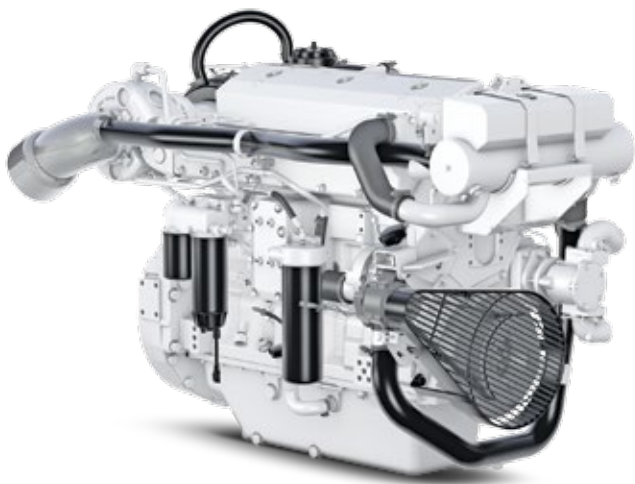
- ¥. MARPOL Annex VI exempt
- 1. MARPOL Annex VI compliant
- 2. EPA Marine Tier 2
- 3. EPA Marine Tier 3
- 4. NRMM (97/68/EC) as amended

Engine model	Length, to rear of block		Width		Height		Weight, dry	
	mm	in	mm	in	mm	in	kg	lb
6090AFM75	1297	51.1	938	36.9	953	37.5	1011	2229
6090SFM75	1293	50.9	975	38.4	982	38.7	1066	2350
6090AFM85	1297	51.1	938	36.9	953	37.5	1011	2229
6090SFM85	1293	50.9	975	38.4	982	38.7	1066	2350

PowerTech

13.5L marine engines

- Keel-cooled or heat exchanger configurations
- Turbocharged with air-to-seawater or air-to-coolant aftercooling
- 4-valve cylinder head
- Feature constant power to 400 rpm below rated speed
- Excellent choice for patrol craft, launches, workboats, fishing boats, trawler yachts, and sportfishing boats



Engine model	Emissions rating	Displacement		Rated power		Rated speed	Rated fuel consumption	
		L	cu in	kW	hp	rpm	L/hr	gal/hr
6135AFM85								
M1	1, 3, 4	13.5	824	272	365	1800	73.0	19.0
M2	1, 3, 4	13.5	824	317	425	1900	86.0	23.0
M3	1, 3, 4	13.5	824	373	500	2000	104.0	27.0
M4	1, 3, 4	13.5	824	429	575	2100	114.0	30.0
6135SFM85								
M1	1, 3, 4	13.5	824	317	425	1800	79.4	21.0
M2	1, 3, 4	13.5	824	373	500	1900	92.1	24.3
M3	1, 3, 4	13.5	824	429	575	2000	106.0	28.0
M4	1, 3, 4	13.5	824	485	650	2100	124.0	32.8
M5	1, 3, 4	13.5	824	559	750	2200	142.0	37.5

Emissions rating:

Ratings are subject to change.

¥. MARPOL Annex VI exempt

1. MARPOL Annex VI compliant

2. EPA Marine Tier 2

3. EPA Marine Tier 3

4. NRMM (97/68/EC) as amended

Engine model	Length, to rear of block		Width		Height		Weight, dry	
	mm	in	mm	in	mm	in	kg	lb
6135AFM85	1316	51.8	1075	42.3	1167	45.9	1497	3300
6135SFM85	1337	52.6	975	38.4	1143	45	1526	3363

PowerTech marine generator drive engines

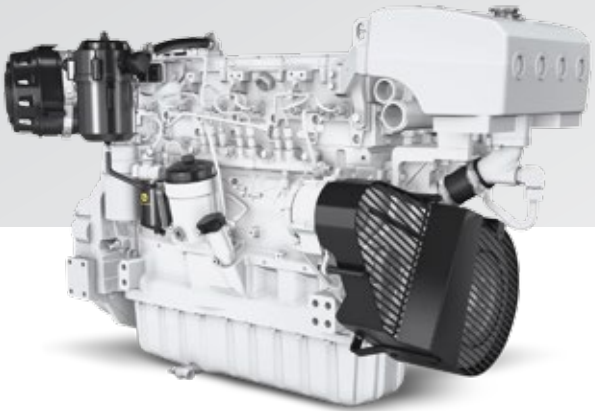
- Quiet, smooth operation
- Preferred provider of generator drive engines worldwide
- Available in 1500 rpm for 50 Hz and 1800 rpm for 60 Hz configurations

Engine model	Emissions rating	Rated speed rpm	Engine prime power		Engine 10% overload power	
			kW	hp	kW	hp
1500 rpm						
4045DFM50	¥	1500	40	54	44	59
4045DFM70	¥	1500	40	54	44	59
4045TFM50	¥	1500	57	76	63	84
4045TFM75	¥	1500	55	74	61	82
4045TFM85	¥	1500	61	82	67	90
4045AFM85	¥	1500	89	119	98	131
6068TFM50	¥	1500	89	119	98	131
6068AFM75	1	1500	139	186	153	205
6068TFM76	¥	1500	89	119	98	131
6068AFM85	1	1500	139	186	153	205
6068SFM85	1	1500	168	226	185	248
6090AFM75	1	1500	195	261	214	287
6090SFM75	1	1500	222	298	244	328
6090AFM85	1	1500	195	261	214	287
6090SFM85	1	1500	222	298	244	328
6135AFM85	1	1500	278	373	306	410
6135SFM85	1	1500	334	448	367	493
1800 rpm						
4045DFM50	¥	1800	48	64	53	71
4045DFM70	¥	1800	46	62	50	67
4045TFM50	¥	1800	71	95	78	105
4045TFM75	¥	1800	73	98	80	107
4045TFM85	¥, 3	1800	74	99	81	109
4045AFM85	¥, 3	1800	110	148	121	162
6068TFM76	¥	1800	110	148	121	162
6068TFM50	¥	1800	115	154	125	168
6068AFM75	1	1800	166	223	183	245
6068AFM85	1, 3	1800	166	223	183	245
6068SFM85	1, 3	1800	195	262	215	288
6090AFM75	1	1800	222	297	244	327
6090SFM75	1	1800	278	373	306	410
6090AFM85	1, 3	1800	222	297	244	327
6090SFM85	1, 3	1800	278	373	306	410
6135AFM85	1, 3	1800	334	448	367	492
6135SFM85	1, 3	1800	416	558	458	614

Emissions rating:

- ¥. MARPOL Annex VI exempt
- 1. MARPOL Annex VI compliant
- 2. EPA Marine Tier 2

- 3. EPA Marine Tier 3
- 4. NRMM (97/68/EC) as amended



Typical prime ratings		Typical 10% overload ratings		Typical generator efficiency
kVA	kWe	kVA	kWe	%
44-46	35-37	48-51	39-40	88-92
44-46	35-37	48-51	39-41	88-92
62-65	50-52	68-71	55-57	88-92
60-64	48-51	66-70	53-56	88-92
68-70	54-56	75-77	59-62	88-92
98-103	78-82	108-113	86-90	88-92
98-102	78-82	108-113	86-90	88-92
153-160	122-128	169-176	135-141	88-92
98-102	78-82	108-113	86-90	88-92
153-160	122-128	169-176	135-141	88-92
185-194	148-155	204-213	163-170	88-92
214-224	171-179	235-246	188-197	88-92
244-255	195-205	268-281	215-224	88-92
214-224	171-179	235-246	188-197	88-92
244-255	195-205	268-281	215-224	88-92
305-320	244-256	336-353	269-282	88-92
368-384	294-307	405-422	323-338	88-92
52-55	42-44	58-61	47-79	88-92
50-53	40-42	55-58	44-46	88-92
78-81	62-65	86-89	68-71	88-92
80-84	64-67	88-92	70-74	88-92
81-85	65-68	89-94	71-75	88-92
121-126	97-101	133-139	106-111	88-92
121-126	97-101	133-138	106-111	88-92
134-132	99-106	136-145	108-116	88-92
183-191	146-153	201-210	161-168	88-92
183-191	146-153	201-210	161-168	88-92
215-225	172-180	236-248	189-198	88-92
244-255	195-204	269-280	215-224	88-92
305-320	244-256	336-353	269-282	88-92
244-255	195-204	269-280	215-224	88-92
305-320	244-256	336-353	269-282	88-92
366-383	293-306	402-423	322-338	88-92
458-479	366-383	504-527	402-421	88-92

Ratings are subject to change.

Customer support

With more than 4,000 service locations worldwide, John Deere is always handy when you need service and support. You'll find an authorized John Deere dealer or engine distributor almost anywhere in the world. Go to www.JohnDeere.com/dealer to find the service dealer nearest you.

We have centralized parts warehouses in the United States and Europe, plus numerous worldwide depots that employ overnight parts shipping — so you'll never have to wait long for parts.

In addition, John Deere service personnel are highly trained technicians who stay on top of changing engine technologies and service techniques.

John Deere dealers and distributors are your best source for service, knowledge, and engine parts. They're one of the many reasons to specify John Deere engines in your equipment.





JOHN DEERE

Worldwide locations

North America, South America, Brazil, and Caribbean

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Garza Garcia, Nuevo Leon 66210
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Email: mexweb@JohnDeere.com

Europe, Africa, and Middle East

John Deere Power Systems
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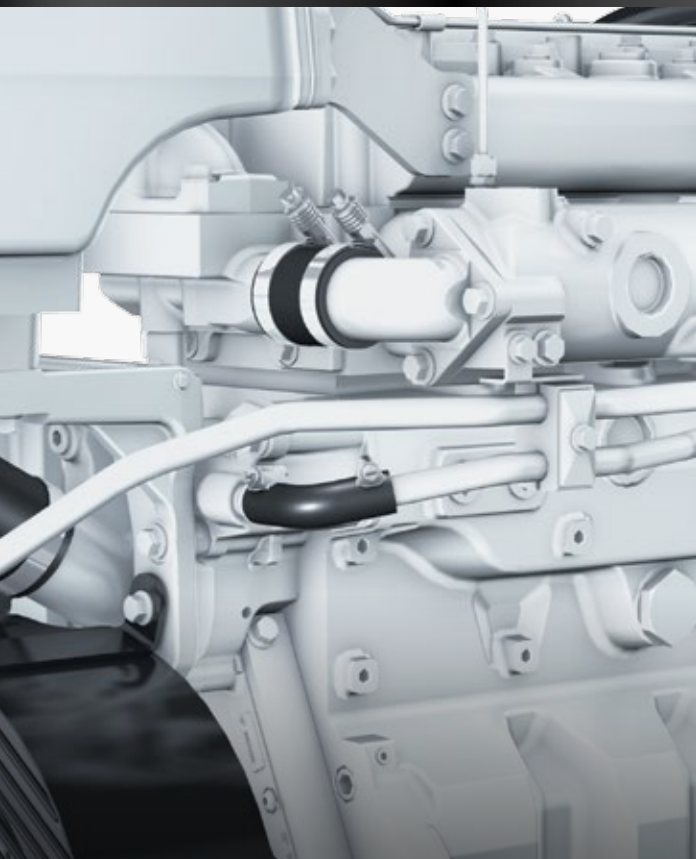
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