

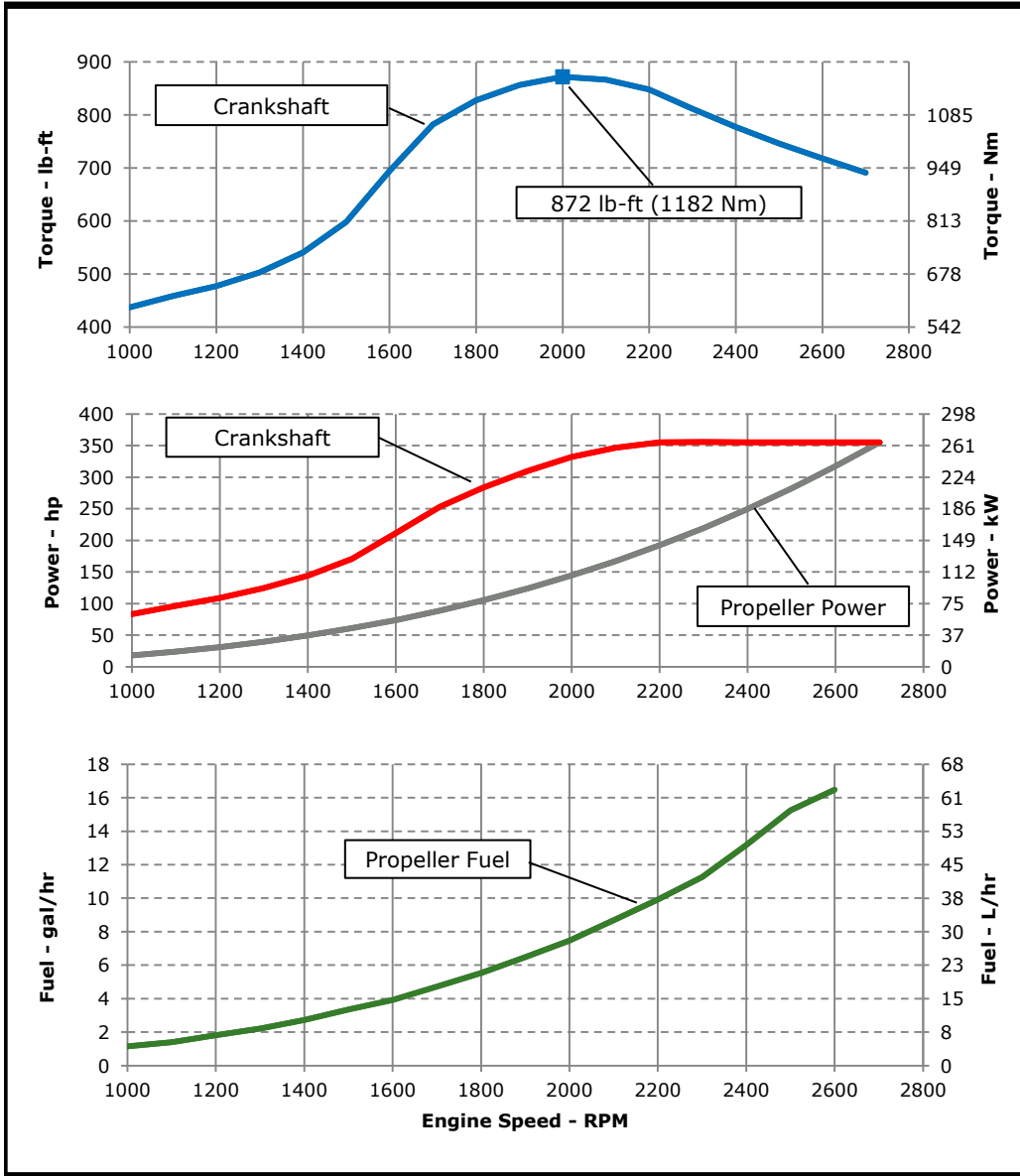


JOHN DEERE

**ENGINE PERFORMANCE CURVE**

Rating: **M4 - 355 HP (265 kW) @ 2700 rpm**  
 Application: **Marine**

**PowerTech™ 6.8L Engine**  
**Model: 6068SFM85**



**REFERENCE CONDITIONS**

Air Intake Restriction.....12 in.H<sub>2</sub>O (3 kPa)  
 Exhaust Back Pressure..... 30 in.H<sub>2</sub>O (7.5 kPa)

Rated speed and power  
 Gross power guaranteed within ±5% at SAE J1995 and ISO 3046  
 J1995 and ISO 3046 conditions:  
 77 °F (25 °C) air inlet temperature  
 29.31 in.Hg (99 kPa) barometric pressure  
 104 °F (40 °C) fuel inlet temperature  
 0.853 fuel specific gravity @ 60 °F (15.5 °C)

Ambient air temperature is defined to be the temperature of ambient air close to operating vessel that is not influenced in any manner by operating characteristics of the vessel (free field temp).

Conversion factors:  
 Power: kW = hp x 0.746  
 Fuel: 1 gal = 7.1 lb, 1 L = 0.85 kg  
 Torque: N·m = lb-ft x 1.356

All values from currently available data. Subject to manufacturing and measurement variations and to change without notice.  
 Actual performance is subject to application and operation conditions outside of John Deere control.

**Notes:**

**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 planning hull commercial fishing boats.

Designed/Calibrated to meet:	Certified by:
<ul style="list-style-type: none"> <li>EPA Commercial Marine Tier 3</li> <li>IMO MARPOL Annex VI Compliant</li> <li>NRMM (97/68/EC), as amended</li> </ul> Ref: Engine Emission Label	 15-Aug-12
Performance Curve: 6068SFM85_D	

All values at rated speed, power, and standard conditions, per SAE J1995 unless otherwise noted.

# Engine Installation Criteria

## General Data

Model	6068SFM85		
Number of Cylinders	6		
Bore	106 mm	4.17	in
Stroke	127 mm	5.00	in
Displacement	6.8 L	415	in <sup>3</sup>
Compression Ratio	16.3:1		
Valves per Cylinder, Intake/Exhaust	2/2		
Combustion System	Direct injection		
Firing Order	1-5-3-6-2-4		
Engine Type	In line, 4 Cycle		
Aspiration	Turbocharged and Aftercooled		
Aftercooling System	Seawater cooled		
Engine Crankcase Vent System	Closed		

## Cooling System\*

Total Engine to Seawater Heat Rejection**	197.77 kW	11257 BTU/min
Aftercooler Heat Rejection	57.2 kW	3256 BTU/min
Coolant Flow	262 L/min	69 gal/min
Thermostat Start to Open	82 °C	180 °F
Thermostat Fully Open	95 °C	203 °F
Min. Coolant Fill Rate	12 L/min	3.2 gal/min
Min. Pressure Cap	110.3 kPa	16 psi
Max. External Coolant Restriction	40 kPa	5.8 psi
Normal Operation Max Top Tank Temperature	100 °C	212 °F
≤ 5% of Total Operating Time Top Tank Temperature	100-110 °C	212-230 °F
Absolute Max Top Tank Temperature	110 °C	230 °F
Recommended Fuel Cooler	9 kW	520 BTU/min
Engine Radiated Heat	35 kW	1979 BTU/min

\* The cooling system should be capable of typical at ambient up to the maximum conditions in which the vessel will operate.

Typical operation is defined as the average load sustainable in the vessel over 10 min.

\*\* Reference 32 °C Sea Water Temperature

## Physical Data

Length to rear face of block	1027 mm	40.4 in
Length maximum	1317 mm	51.9 in
Width maximum	872 mm	34.3 in
Height, crank centerline to top	645 mm	25.4 in
Height, crank centerline to bottom	293 mm	293 in
Weight, with oil, no coolant (includes engine, flywheel housing, flywheel, and electronics)	0 kg	0 lb
Center of Gravity Location, X-axis From Rear Face of Block	0 mm	0.0 in
Center of Gravity Location, Y-axis Right of Crankshaft	0 mm	0.0 in
Center of Gravity Location, Z-axis Above Crankshaft	0 mm	0.0 in
Max. Allowable Static Bending Moment At Rear Face of Flywheel Housing with 5-G Load	814 Nm	600 lb-ft
Thrust Bearing Load Limit, Forward Continuous	2.2 kN	495 lbf
Thrust Bearing Load Limit, Forward Intermittent	4 kN	899 lbf
Thrust Bearing Load Limit, Rearward Continuous	1 kN	225 lbf
Thrust Bearing Load Limit, Rearward Intermittent	2 kN	450 lbf

## Electrical System

Min. Recommended Battery Capacity, 12V @32 °F (0 °C)	925 amps
Min. Recommended Battery Capacity, 24V @32 °F (0 °C)	625 amps
Starter Rolling Current, 12V @32 °F (0 °C)	920 amps
Starter Rolling Current, 24V @32 °F (0 °C)	600 amps
Min. Voltage at ECU during Cranking, 12V	6 volts
Min. Voltage at ECU during Cranking, 24V	10 volts
Max. Allowable Start Circuit Resistance, 12V	0.002 ohms
Max. Allowable Start Circuit Resistance, 24V	0.0012 ohms
Recommended Starter Cable, 12V 100"	#00
Recommended Starter Cable, 24V 100"	#2
Recommended Starter Cable, 12V 200"	#0000 or 2 #00
Recommended Starter Cable, 24V 200"	#0
Electrical Component Maximum Temperature Limit	125 °C 257 °F

Performance Curve: 6068SFM85\_D

All values at rated speed, power, and standard conditions, per SAE J1995 unless otherwise noted.

## Engine Installation Criteria

### Fuel System

ECU Description	L14			
Fuel Injection Pump	HPCR			
Governor Type	Electronic			
Volumetric Fuel Consumption	69.3	L/hr	18.3	gal/hr
Mass Fuel Consumption	58.9	kg/hr	130	lb/hr
Total Fuel Volumetric Flow	192	L/hr	50.7	gal/hr
Total Fuel Mass Flow	163	kg/hr	360	lb/hr
Max. Fuel Inlet Restriction*	20	kPa	80	in.H2O
Max. Fuel Inlet Pressure	20	kPa	80	in.H2O
Max Fuel Return Pressure	20	kPa	80	in.H2O
Max. Fuel Height Above Transfer Pump	2.4	m	7.9	ft
Max. Leak-off Return Height	2.4	m	7.9	ft
Max. Fuel Inlet Height Above Fuel Tank Supply	2.4	m	7.9	ft
Normal Operation Fuel Temperature	40	°C	104	°F
Max. Fuel Inlet Temperature	100	°C	212	°F
Min. Recommended Fuel Line Inside Diameter	7.46	mm	0.29	in
Min. Recommended Fuel Line Size	5 (-) AN			
Primary Fuel Filter	10 mic			
Secondary Fuel Filter	2 mic			

### Lubrication System

Oil Pressure at Rated Speed	415	kPa	60	psi
Oil Pressure at Low Idle (800rpm)**	180	kPa	26	psi
Max. Crankcase Pressure	2	kPa	8	in.H2O
Maximum Installed Angle, Front Down	0 deg			
Maximum Installed Angle, Front Up	12 deg			
Engine Angularity Limits Any Direction, Continuous***	25 deg			
Engine Angularity Limits Any Direction, Intermittent***	35 deg			

### Seawater Pump System

Seawater Pump Flow	248	L/min	66	gal/min
Max. Suction Lift	3	m	9.8	ft
Max. Outlet Pressure	140	kPa	20	psi
Max. Inlet Restriction	30	kPa	4	psi

\* With clean filters

\*\* With John Deere Plus-50 II™ 15w-40, not applicable with break in oil.

\*\*\* With 19BP option

### Air Intake System

Engine Air Flow	20.6	m <sup>3</sup> /min	727	ft <sup>3</sup> /min
Intake Manifold Pressure	259	kPa	37.6	psi
Manifold Air Temperature	34	°C	93	°F
Maximum Manifold Air Temperature	67	°C	153	°F
Max. Allowable Temperature Rise, Ambient	17	°C	30	°F
Air to Engine Inlet				
Max. Air Intake Restriction, Clean Air Cleaner	3	kPa	12	in.H2O
Max. Air Intake Restriction, Dirty Air Cleaner	6.25	kPa	25	in.H2O
Min. Ventilation Area	0.127	m <sup>2</sup>	196	in <sup>2</sup>

### Performance Data

Rated Power	265	kW	355	hp
Rated Speed	2700 RPM			
Peak Torque Speed	2000 RPM			
Low Idle Speed	600 RPM			
Rated Torque	937	Nm	691	ft-lb
Peak Torque	1182	Nm	872	ft-lb
BMEP, Rated	1732	kPa	251	psi
Rated Pferdestärke (metric hp)	360 ps			
Front Drive Capacity, Intermittent	907	Nm	669	lb-ft
Front Drive Capacity, Continuous	907	Nm	669	lb-ft

### Exhaust System

Exhaust Flow	48	m <sup>3</sup> /min	1695	ft <sup>3</sup> /min
Exhaust Flow @ gas STP	21.67	m <sup>3</sup> /min	765	ft <sup>3</sup> /min
Exhaust Temperature	436	°C	817	°F
Max. Allowable Exhaust Restriction	7.5	kPa	30	in.H2O
Max. Shear on Turbocharger Exhaust Outlet	11	kg	24.3	lb
Max. Bending Moment on Turbocharger Exhaust Outlet	7	Nm	15.4	lb-ft
Min. Exhaust Pipe Diameter, Dry	127	mm	5.0	in
Min. Exhaust Pipe Diameter, Wet	139.7	mm	5.5	in

Performance Curve: 6068SFM85\_D

All values at rated speed, power, and standard conditions, per SAE J1995 unless otherwise noted.

## Engine Installation Criteria

### Engine Performance Data Table

Engine Speed	Crank Power		Crank Torque		* Prop Power		* Prop Fuel		* Prop BSFC
	RPM	kW	hp	Nm	lb-ft	kW	hp	L/hr	gal/hr
<b>2700</b>	265	355	937	691	265	355	69	18	222
<b>2600</b>	265	355	973	718	237	317	62	16	224
<b>2500</b>	265	355	1012	746	210	282	58	15	233
<b>2400</b>	265	355	1054	778	186	250	50	13	228
<b>2300</b>	265	355	1100	812	164	220	43	11	221
<b>2200</b>	265	355	1150	848	143	192	38	10	223
<b>2100</b>	258	347	1175	867	125	167	33	9	224
<b>2000</b>	248	332	1182	872	108	144	28	7	223
<b>1900</b>	231	310	1161	857	92	124	25	6	226
<b>1800</b>	212	284	1122	828	79	105	21	6	227
<b>1700</b>	189	253	1060	782	66	89	18	5	230
<b>1600</b>	158	211	941	694	55	74	15	4	229
<b>1500</b>	127	171	811	598	45	61	13	3	237
<b>1400</b>	108	144	733	541	37	50	10	3	237
<b>1300</b>	93	124	682	503	30	40	8	2	241
<b>1200</b>	81	109	647	477	23	31	7	2	252
<b>1100</b>	72	96	622	459	18	24	5	1	250
<b>1000</b>	62	83	593	437	13	18	4	1	275

\* Theoretical 3.0 exponent propeller curve , measured at flywheel

Performance Curve: 6068SFM85\_D

All values at rated speed, power, and standard conditions, per SAE J1995 unless otherwise noted.