



JOHN DEERE

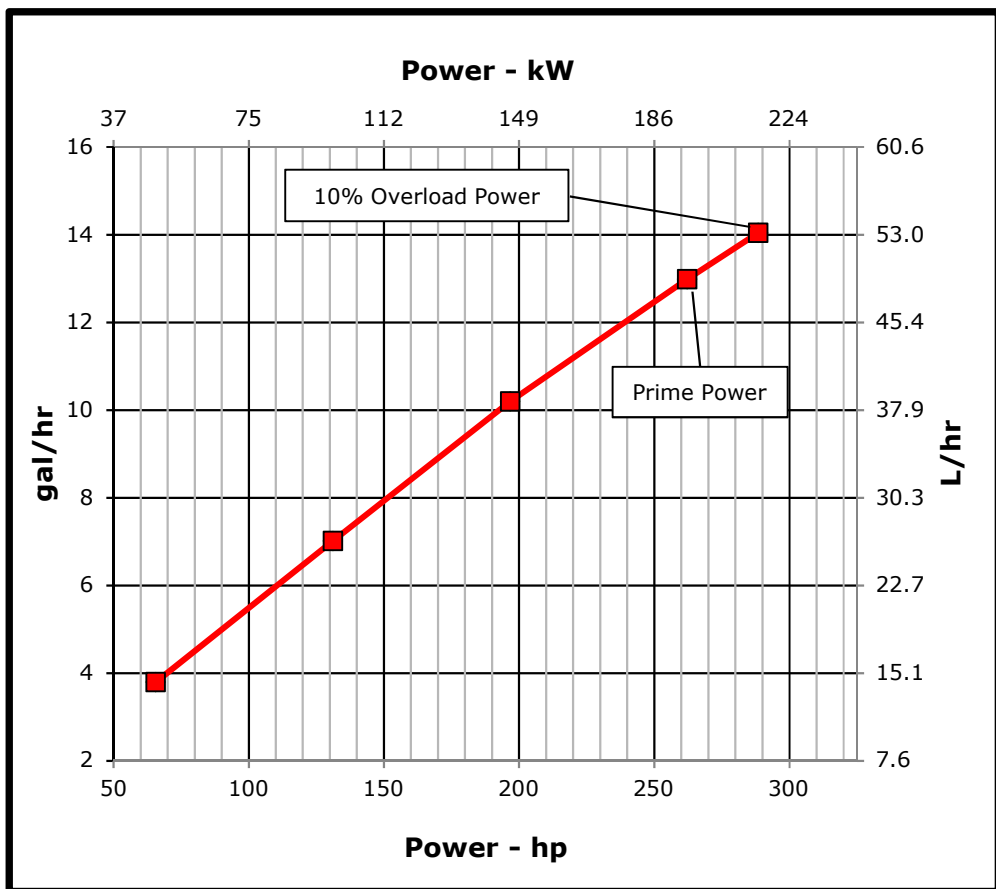
ENGINE PERFORMANCE CURVE

Rating: **60 Hz - 262 HP (195 kW) @ 1800 rpm**
Application: **Marine**

PowerTech™ 6.8L Engine

Model: 6068SFM85

| Generator Efficiency (%) | Power Factor | Calculated Gen-Set Rating | | Prime Power | 10% Overload Power |
|--------------------------|--------------|---------------------------|---------|-------------|--------------------|
| | | kWe | kVA | hp (kW) | hp (kW) |
| 88-92 | 0.8 | 172-179 | 215-224 | 261 (195) | 288 (215) |



REFERENCE CONDITIONS

Air Intake Restriction.....12 in.H₂O (3 kPa)
Exhaust Back Pressure..... 30 in.H₂O (7.5 kPa)

Rated speed and power
Gross power guaranteed within ±5% at ISO 8665/SAE J1228 and ISO 3046/SAE J1995
Test 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.

All pressures shown in gauge pressure

Notes:

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.

Constant speed engines are not certified for constant speed propulsion applications (i.e. variable pitch propeller, hybrid propulsion system).

Possible applications: This rating is used for applications that require constant speed operation in power generation or auxiliary applications such as generators and hydraulic pumps.

Designed/Calibrated to meet:

- EPA Marine Tier 3 Constant Speed Auxiliary (40 CFR 1042)
- IMO Tier II Compliant (MARPOL Annex VI)

Ref: Engine Emission Label

Certified by:

Scott A. Ochsner

24-Jul-20

Performance Curve: 6068SFM85_F

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

Engine Performance Curve:

6068 - Marine Generator

July 2020

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 ³ |
| 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*

| | | | | |
|---|---------|-------|---------|---------|
| Jacket Water Heat Rejection** | 175 | kW | 9961 | BTU/min |
| Aftercooler Heat Rejection | 59 | kW | 3358 | BTU/min |
| Coolant Flow | 250 | L/min | 66 | gal/min |
| Min. Coolant Pump Inlet Pressure | 30.3 | kPa | 4.4 | psi |
| Thermostat Start to Open | 71 | °C | 160 | °F |
| Thermostat Fully Open | 83 | °C | 182 | °F |
| Engine Coolant Capacity, HE | 31.5 | L | 8.3 | gal |
| 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 | 100-110 | °C | 212-230 | °F |
| Tank Temperature | | | | |
| Absolute Max Top Tank Temperature | 110 | °C | 230 | °F |
| Return Fuel Heat Rejection | 3 | kW | 168 | BTU/min |
| Engine Radiated Heat | 12 | kW | 703 | 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 | 1034 | mm | 40.7 | in |
| Length to rear face of flywheel housing (SAE #3) | 1172 | mm | 46.1 | in |
| Length maximum | 1387 | mm | 54.6 | in |
| Width maximum | 872 | mm | 34.3 | in |
| Height, crank centerline to top | 711 | mm | 28 | in |
| Height, crank centerline to bottom | 291 | mm | 11.5 | in |
| Weight, with oil, no coolant (includes engine, flywheel housing, flywheel, and electronics) | 763 | kg | 1682 | lb |
| Center of Gravity Location, X-axis From Rear Face of Block | 407 | mm | 16 | in |
| Center of Gravity Location, Y-axis Right of Crankshaft | -23 | mm | -0.9 | in |
| Center of Gravity Location, Z-axis Above Crankshaft | 187 | mm | 7.38 | in |
| Max. Allowable Static Bending Moment At Rear Face of Flywheel Housing (for installations up to 5-G) | 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 |
| Electrical Component Maximum Temperature Limit | 125 | °C 257 °F |
| Maximum ECU Temperature | 105 | °C 221 °F |

Performance Curve: 6068SFM85_F

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Engine Installation Criteria

Fuel System

| | | | |
|--|------------|------------------------|--|
| ECU Description | L14 | | |
| Fuel Injection Pump | HPCR | | |
| Governor Type | Electronic | | |
| Volumetric Fuel Consumption, Prime | 49.2 L/hr | 13.0 gal/hr | |
| Mass Fuel Consumption, Prime | 41.8 kg/hr | 92 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.H ₂ O | |
| Max. Fuel Inlet Pressure | 20 kPa | 80 in.H ₂ O | |
| Max Fuel Return Pressure | 20 kPa | 80 in.H ₂ O | |
| 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 1800 RPM** | 341 kPa | 49 psi | |
| Max. Crankcase Pressure | 2 kPa | 8 in.H ₂ O | |
| 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 | 325 L/min | 86 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 | 15.9 m ³ /min | 563 ft ³ /min | |
| Intake Manifold Pressure | 107 kPa | 15.5 psi | |
| Manifold Air Temperature | 36 °C | 96 °F | |
| Maximum Manifold Air Temperature | 67 °C | 152.6 °F | |
| Max. Allowable Temperature Rise, Ambient Air to Engine Inlet | 17 °C | 30 °F | |
| Max. Air Intake Restriction, Clean Air Cleaner | 3 kPa | 12 in.H ₂ O | |
| Max. Air Intake Restriction, Dirty Air Cleaner | 6.25 kPa | 25 in.H ₂ O | |
| Min. Ventilation Area | 0.098 m ² | 152 in ² | |

Performance Data

| | | | |
|---------------------------------------|----------|-----------|--|
| Prime Power | 195 kW | 262 hp | |
| 10% Overload Power | 215 kW | 288 hp | |
| Rated Speed | 1800 | RPM | |
| Low Idle Speed | 1000 | RPM | |
| Prime Torque | 1037 Nm | 765 lb-ft | |
| BMEP, Prime | 1916 kPa | 278 psi | |
| Rated Pferdestärke, Prime (metric hp) | 266 | ps | |
| Front Drive Capacity, Intermittent | 907 Nm | 669 lb-ft | |
| Front Drive Capacity, Continuous | 907 Nm | 669 lb-ft | |
| Friction Power @ Rated Speed | 18.7 kW | 25 hp | |

Exhaust System

| | | | |
|--|--------------------------|---------------------------|--|
| Exhaust Flow | 35 m ³ /min | 1236 ft ³ /min | |
| Exhaust Flow @ gas STP | 18.5 m ³ /min | 653 ft ³ /min | |
| Exhaust Temperature | 334 °C | 633.2 °F | |
| Max. Allowable Exhaust Restriction | 7.5 kPa | 30 in.H ₂ O | |
| 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 | 101.6 mm | 4.0 in | |
| Min. Exhaust Pipe Diameter, Wet | 114.3 mm | 4.5 in | |

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Engine Installation Criteria

Engine Performance Data Table

| Engine Power | Crank Power | | Crank Torque | | Fuel Consumption | | BSFC |
|--------------|-------------|-----|--------------|-------|------------------|--------|------|
| | kW | hp | Nm | lb-ft | L/hr | gal/hr | |
| 25% | 49 | 66 | 259 | 191 | 14.4 | 3.8 | 250 |
| 50% | 98 | 131 | 518 | 382 | 26.6 | 7.0 | 231 |
| 75% | 147 | 197 | 778 | 574 | 38.6 | 10.2 | 224 |
| 100% | 195 | 262 | 1037 | 765 | 49.2 | 13.0 | 214 |
| 110% | 215 | 288 | 1141 | 841 | 53.1 | 14.0 | 210 |

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