

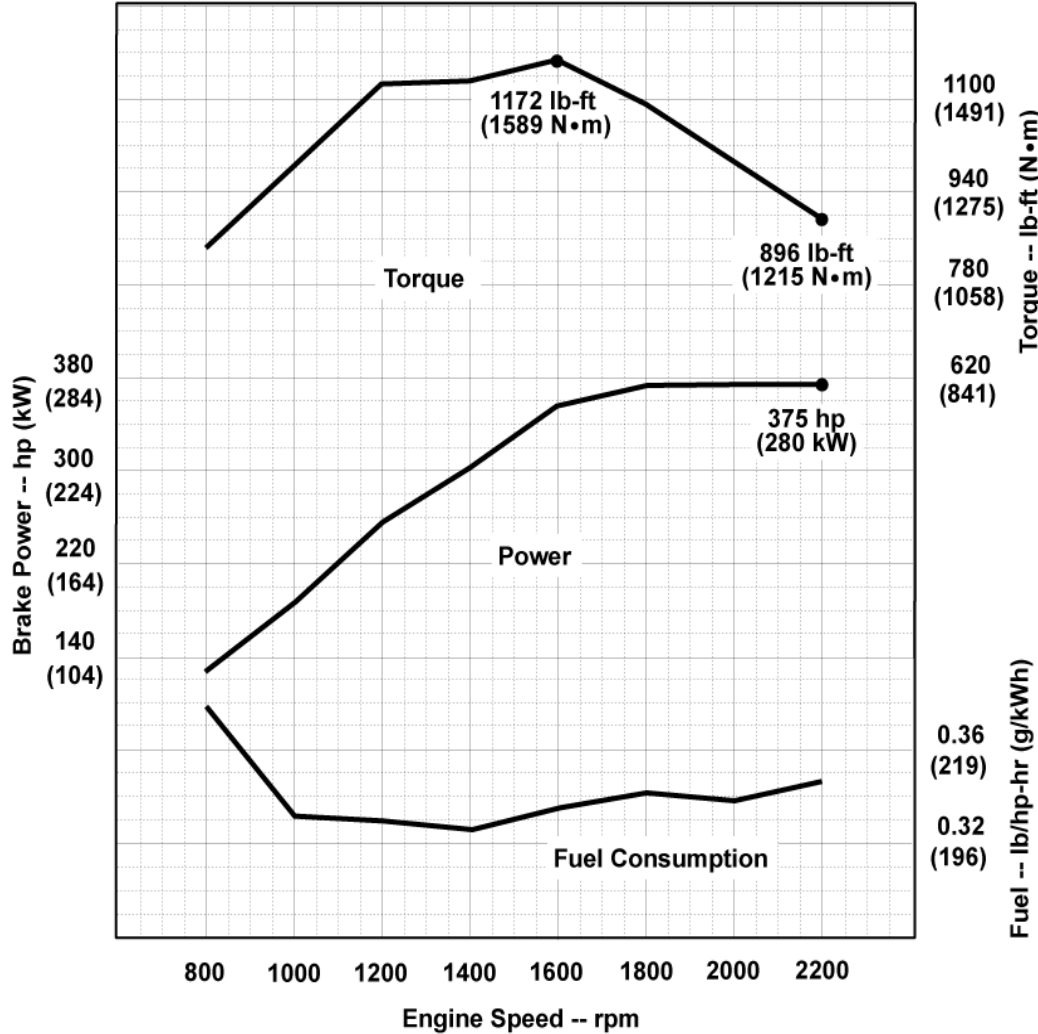


JOHN DEERE

ENGINE PERFORMANCE CURVE

Rating: Gross Power
Application: Intermittent
EPA Marine Tier 3
Power Bulge - 0%
Torque Rise - 31%

PowerTech™ Plus 9L Engine
Model: 6090HF485
JD Electronic Control
375 hp @ 2200 rpm
280 kW @ 2200 rpm



STANDARD CONDITIONS

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

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

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

All values are from currently available data and are subject to change without notice.

Notes: Industrial Based Auxiliary - The Marine Emissions Labeled Industrial Engine ratings are for applications that require variable speed and load operation and do not run on a propeller curve. Additionally, these engines are for applications that do not require marinized components (such as wet manifold/turbocharger, blue hose, etc.) or marine classification society approval. See John Deere Industrial Diesel Engine Documentation and Application Guidelines for further information. Possible applications: Barge pumps, deck winches, hydraulic power units.

Designed/Calibrated to meet:

Certified by:

- US EPA Marine Tier 3 Compliant

[Signature]
02/10/14

Ref: Engine Emission Label

Performance Curve: 6090HF485_DD

Engine Installation Criteria

General Data

Model	6090HF485	
Number of Cylinders	6	
Bore	118.4 mm	4.7 in.
Stroke	136.0 mm	5.4 in.
Displacement	9 L	549 in. ³
Compression Ratio	16.0 : 1	
Valves per Cylinder, Intake/Exhaust	2/2	
Firing Order	1-5-3-6-2-4	
Combustion System	HPCR	
Engine Type	In-line, 4-Cycle	
Aspiration	Turbocharged and air-to-air aftercooled	
Charge Air Cooling System	Air-to-Air	
Engine Crankcase Vent System	Open	

Physical Data

Length	1208 mm	47.6 in.
Width	630 mm	24.8 in.
Height	1113 mm	43.8 in.
Weight, with oil & no coolant (Includes engine, flywheel housing, flywheel & electrics)	901 kg	1986 lb
Center of Gravity Location, X-axis From Rear Face of Block	434.4 mm	17.1 in.
Center of Gravity Location, Y-axis Right of Crankshaft	2.2 mm	0.1 in.
Center of Gravity Location, Z-axis Above Crankshaft	201.4 mm	7.9 in.
Max. Allowable Static Bending Moment At Rear Face of Flywheel Housing with 5-G Load	814 N·m	600 lb-ft
Thrust Bearing Load Limit Forward, Intermittent	13000 N	2923 lb
Thrust Bearing Load Limit Forward, Continuous	8600 N	1933 lb
Thrust Bearing Load Limit Rearward, Intermittent	6000 N	1349 lb
Thrust Bearing Load Limit Rearward, Continuous	4000 N	899 lb
Max. Continuous Damper Temp	82 °C	180 °F
Max. Torsional Vibration, Front of Crank	0.25 DDA	

Electrical System

Recommended Battery Capacity, 12V @32 °F (0 °C)	1100 amps	
Recommended Battery Capacity, 24V @32 °F (0 °C)	750 amps	
Starter Rolling Current, 12V @32 °F (0 °C)	920 amps	
Starter Rolling Current, 24V @32 °F (0 °C)	600 amps	
Starter Rolling Current, 12V @-22 °F (-30 °C)	1300 amps	
Starter Rolling Current, 24V @-22 °F (-30 °C)	700 amps	
Min. Voltage at ECU during Cranking, 12V	6 volts	
Min. Voltage at ECU during Cranking, 24V	10 volts	
Max. Allowable Start Circuit Resistance, 24V	0.002 Ohm	
Max. Allowable Start Circuit Resistance, 12V	0.0012 Ohm	
Max. ECU Temperature	105 °C	221 °F
Max. VTG Actuator Surface Temp	180 °C	356 °F
Max. Harness Temperature	125 °C	257 °F

Charge Air Cooling System

Air-to-Air Heat Rejection	79 kW	4497 BTU/min
Intake Manifold Pressure	347 kPa	50.3 psi
Compressor Discharge Temperature @77°F(25°C) Ambient Air	207.7 °C	406 °F
Compressor Discharge Temperature @117°F(47°C) 80 kPa Barometric pressure	260 °C	500 °F
Intake Manifold Temperature at which Power De-rate Occurs	88 °C	190 °F
Max. Pressure Drop through CAC	16 kPa	64.0 in. H ₂ O
Min. Pressure Drop through CAC	8 kPa	32.0 in. H ₂ O
Max. Temperature Out of Charge Air Cooler @77°F (25°C) Ambient Air	53 °C	127 °F
Min. Temperature Out of Charge Air Cooler @77°F (25°C) Ambient Air	48.5 °C	119 °F

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Engine Installation Criteria

Cooling System

Engine Heat Rejection	149 kW	8481 BTU/min
Coolant Flow	337 L/min	89 gal/min
Thermostat Start to Open	82 °C	180 °F
Thermostat Fully Open	94 °C	201 °F
Engine Coolant Capacity	16.3 Liter	17.2 quart
Min. Pressure Cap	100 kPa	15 psi
Min. Pump Inlet Pressure	30 kPa	4.4 psi
Max. External Coolant Restriction	14 kPa	2 psi
Max. Top Tank Temperature	110 °C	230 °F
Min. Coolant Fill Rate	12 L/min	3.2 gal/min

Exhaust System

Exhaust Flow	50 m ³ /min	1766 ft. ³ /min
Exhaust Temperature	401 °C	754 °F
Max. Allowable Exhaust Restriction	10 kPa	40 in. H ₂ O
Min. Allowable Exhaust Restriction	4 kPa	16 in. H ₂ O
Max. Bending Moment on Turbo Outlet	7 N-m	5.2 lb-ft
Max. Shear on Turbine Outlet	11 kg	24 lb

Fuel System

ECU Description	L14 Controller	
Fuel Injection Pump	Denso HP4	
Governor Type	Electronic	
Total Fuel Flow	204 kg/hr	450 lb/hr
Fuel Consumption	58.9 kg/hr	129.9 lb/hr
Fuel Temperature Rise, Inlet to Return	52 Δ°C	94 Δ°F
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
Max. Fuel Inlet Temperature	80 °C	176 °F

Lubrication System

Oil Pressure at Rated Speed	290 kPa	42 psi
Oil Pressure at Low Idle	170 kPa	25 psi
Max. Oil Carryover in Blow-By	3 g/hr	0.007 lb/hr
Max. Airflow in Blow-By	150 L/min	39.6 gal/min
Max. Crankcase Pressure	0.5 kPa	2 in. H ₂ O

Air Intake System

Engine Air Flow	23.4 m ³ /min	826 ft. ³ /min
Maximum Allowable Temperature Rise, Ambient Air to Engine Inlet	8 Δ°C	15 Δ°F
Max. Air Intake Restriction, Clean Air Cleaner	3.75 kPa	15.0 in. H ₂ O
Max. Air Intake Restriction, Dirty Air Cleaner	6.25 kPa	25.0 in. H ₂ O
Air Cleaner Efficiency	99.9 %	

Performance Data

Rated Power	280 kW	375 HP
Rated Speed	2200 rpm	
Max. Fast Idle Speed	2420 rpm	
Breakaway Speed	2270 rpm	
Power Bulge Speed	NA	
Peak Torque Speed	1600 rpm	
Low Idle Speed	800 rpm	
Rated Torque	1215 N·m	896 lb-ft
Peak Torque	1589 N·m	1172 lb-ft
Torque Rise	31 %	
BMEP, Rated	1697 kPa	246 psi
BMEP, Peak Torque	20002.3 kPa	2901 psi
Altitude Capability	2286 m	7500 ft
Friction Power @Rated Speed	37 kW	50 HP
Air:Fuel Ratio	26.0:1	
Smoke @1500 rpm Prime	0.54	Bosch No.
Noise @1 m	NA	
Power Bulge	0 %	

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Engine Installation Criteria

Engine Speed	Power		Torque		BSFC	
	rpm	kW	hp	N-M	lb-ft	g/kWh
2200	280	375	1215	896	211	0.346
2000	280	375	1337	986	206	0.338
1800	280	375	1483	1094	208	0.341
1600	266	357	1589	1172	204	0.335
1400	225	302	1537	1134	199	0.326
1200	192	257	1525	1125	201	0.330
1000	139	186	1330	981	202	0.331
800	96	129	1150	848	231	0.379

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