



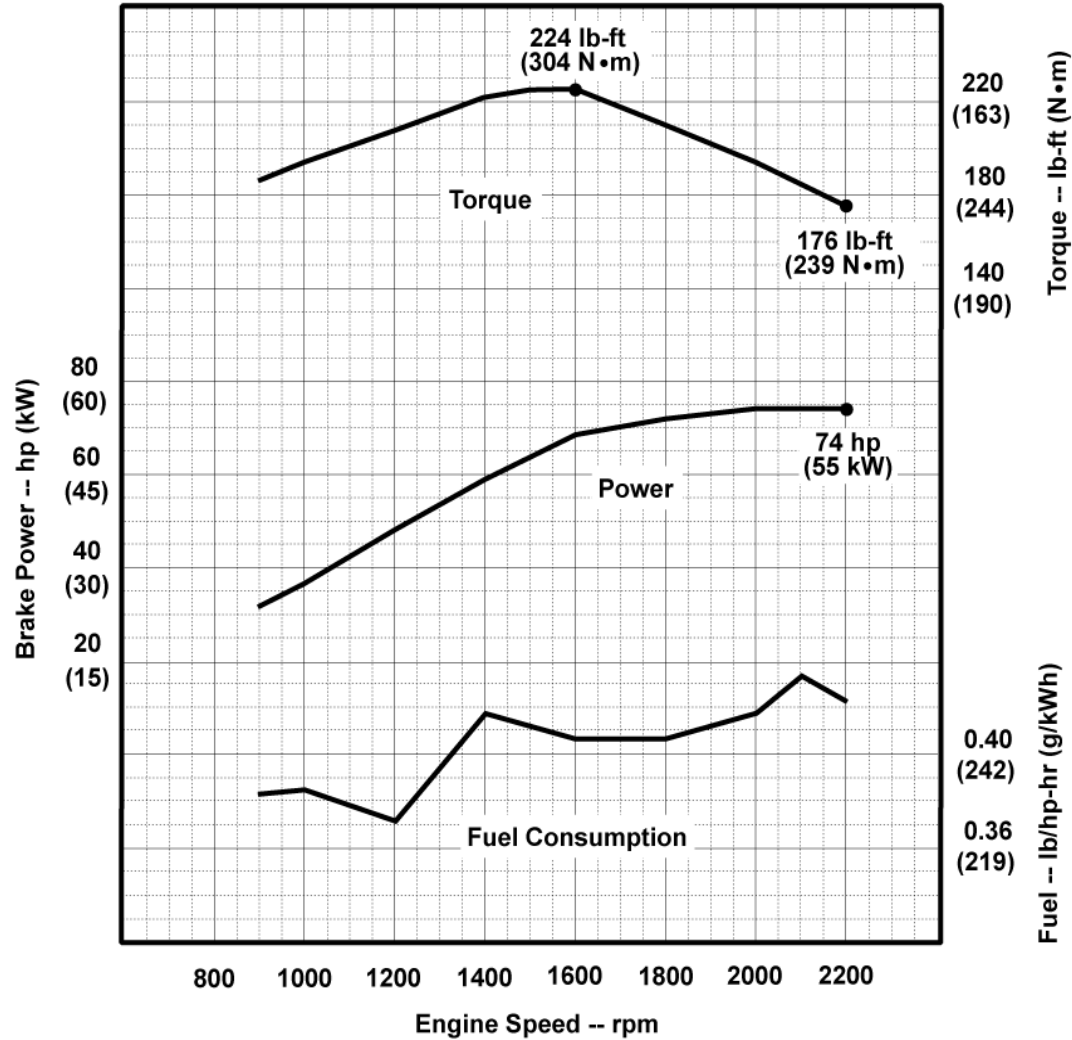
JOHN DEERE

ENGINE PERFORMANCE CURVE

Rating: Gross Power
 Application: Intermittent
 Power Bulge - 0%
 Torque Rise - 27%

**PowerTech™ EWX 2.9L Engine
 Model: 3029HFC03**

74 hp @ 2200 rpm
 55 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: This Performance Curve provides installation requirements necessary for the engine to emit at its certified emission levels. For additional information necessary to meet applicable regulatory requirements, refer to the John Deere Emissions-related Installation Instructions (AG01): <https://power.deere.com/wps/myportal/jdps/products/engines/apguidelines>.

Designed/Calibrated to meet:	Certified by:
<ul style="list-style-type: none"> • CARB • EPA Tier 4 • EU Stage III B 	 22 Oct 2015
Ref: Engine Emission Label	

Performance Curve: 3029HFC03_B

Engine Installation Criteria

General Data

Model	3029HFC03	
Number of Cylinders	3	
Bore	106.5 mm	4.2 in.
Stroke	110 mm	4.3 in.
Displacement	2.9 L	177 in. ³
Compression Ratio	16.9	
Valves per Cylinder, Intake/Exhaust	1 / 1	
Firing Order	1-2-3	
Combustion System	HPCR	
Engine Type	In-line, 4-Cycle	
Aspiration	Turbocharged and air-to-air aftercooled	
Engine Crankcase Vent System	Open	

Physical Data

Length	715 mm	28.1 in.
Width	596 mm	23.5 in.
Height	956 mm	37.6 in.
Weight, with oil & no coolant (Includes engine, flywheel housing, flywheel & electrics)	400 kg	882 lb
Center of Gravity Location, X-axis From Rear Face of Block	184.1 mm	7.2 in.
Center of Gravity Location, Y-axis Right of Crankshaft	7.6 mm	0.3 in.
Center of Gravity Location, Z-axis Above Crankshaft	147.2 mm	5.8 in.
Max. Bending Moment about Main Bearings Front and Rear	530 N·m	391 lb-ft
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	4000 N	899 lb
Thrust Bearing Load Limit Forward, Continuous	2200 N	495 lb
Thrust Bearing Load Limit Rearward, Intermittent	2000 N	450 lb
Thrust Bearing Load Limit Rearward, Continuous	1100 N	247 lb
Max. Continuous Damper Temp	NA	
Max. ECU Vibration, All Axis	9.00 gRMS	
Max. Torsional Vibration, Front of Crank	0.30 DDA	
Max. Engine Torsional Vibration in Overspeed	0.40 DDA	

Electrical System

Min. Instantaneous Cranking	50 rpm	
Min. Steady State Cranking	120 rpm	
Starter Rolling Current, 12V @32 °F (0 °C)	450 amps	
Starter Rolling Current, 24V @32 °F (0 °C)	250 amps	
Starter Rolling Current, 12V @-22 °F (-30 °C)	700 amps	
Starter Rolling Current, 24V @-22 °F (-30 °C)	400 amps	
Min. Voltage at ECU during Cranking, 12V	6 volts	
Min. Voltage at ECU during Cranking, 24V	10 volts	
Max. Voltage Drop, Battery to Starter	0.8 volts	
Max. Allowable Start Circuit Resistance, 12V	0.0012 Ohm	
Max. Allowable Start Circuit Resistance, 24V	0.002 Ohm	
Max. ECU Temperature	105 °C	221 °F
Max. VTG Actuator Surface Temp	NA	
Max. Air Throttle Electrical Actuator Temperature	NA	
Max. Harness Temperature	125 °C	257 °F
Max. Alternator Temperature	105 °C	221 °F
Max. Starter Temperature	120 °C	248 °F
Max. Temperature, All Other Electronics	125 °C	257 °F

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Engine Installation Criteria

Charge Air Cooling System

Air-to-Air Heat Rejection	11.4 kW	649 BTU/min
Compressor Discharge Temperature @77°F(25°C) Ambient Air	153 °C	307 °F
Intake Manifold Pressure	131 kPa	19.0 psi
Compressor Discharge Temperature @117°F(47°C) 80 kPa Barametric pressure	190 °C	374 °F
Max. Temperature Out of Charge Air Cooler @All Ambient Conditions	88 °C	190 °F
Intake Manifold Temperature at which Power De-rate Occurs	90 °C	194 °F
Intake Manifold Temperature at which Severe Power De-rate Occurs	93 °C	199.4 °F
Max. CAC System Volume	9 Liter	10 quart
Max. Pressure Drop through CAC	12 kPa	48.0 in. H ₂ O
Min. Pressure Drop through CAC	7 kPa	28.0 in. H ₂ O
Max. Temperature Out of Charge Air Cooler @77°F (25°C) Ambient Air	56 °C	133 °F
Min. Temperature Out of Charge Air Cooler @77°F (25°C) Ambient Air	39 °C	102 °F
Max. Bending Moment on Compressor Outlet	0 N-m	0 lb-ft
Max. Shear on Compressor Outlet	0 kg	0 lb

Cooling System

Engine Heat Rejection	25.2 kW	1434 BTU/min
Coolant Flow @10 kPa External Restriction	123 L/min	32 gal/min
Coolant Flow @40 kPa External Restriction	85 L/min	22 gal/min
Max. Auxiliary Coolant Flow	17 L/min	4 gal/min
Thermostat Start to Open	83 °C	181 °F
Thermostat Fully Open	95 °C	203 °F
Engine Coolant Capacity	5 Liter	5.3 quart
Min. Coolant Fill Rate	12 L/min	3.2 gal/min
Max. Water Pump Inlet Pressure	235 kPaa	34 psia
Min. Pump Inlet Pressure @203°F (95°C) Coolant	103 kPaa	15 psia
Min. Pump Inlet Pressure @Max. Top Tank Temperature	148 kPaa	21 psia
Max. External Coolant Restriction	40 kPa	6 psi
Max. Top Tank Temperature	113 °C	235 °F
Max. Top Tank Temperature 95% of Operating Hours	103 °C	217 °F

Exhaust System

Exhaust Flow	15.0 m ³ /min	530 ft. ³ /min
Exhaust Temperature	546 °C	1015 °F
Max. Allowable Exhaust Restriction	12.1 kPa	48 in. H ₂ O
Max. Bending Moment on Turbo Outlet	1.3 N-m	1.0 lb-ft
Max. Shear on Turbine Outlet	10 kg	22 lb
Exhaust Filter Size		2
Exhaust Filter Pressure Drop (Clean)	7.1 kPa	28 in. H ₂ O
Min. Mixing Length, Outlet to Exhaust Filter		NA
Max. Bending Moment on Exhaust Filter Inlet	25 N-m	18 lb-ft
Max. Bending Moment on Exhaust Filter Outlet	25 N-m	18 lb-ft
Max. Exhaust Leakage Rate, Engine to Exhaust Filter @30kPa	5 L/min	1.3 gal/min
Max. Temperature Drop, Engine to Exhaust Filter	30 Δ°C	54 Δ°F

Fuel System

ECU Description	L23 Controller	
Fuel Injection Pump	Denso HP3	
Governor Type	Electronic	
Total Fuel Flow	31 kg/hr	68 lb/hr
Fuel Consumption	14.2 kg/hr	31.3 lb/hr
Fuel Temperature Rise, Inlet to Return	42 Δ°C	76 Δ°F
Min. Fuel Inlet Pressure	-30 kPa	-120 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
Min. Fuel Return Pressure	0 kPa	0 in. H ₂ O
Max. Fuel Inlet Temperature	75 °C	167 °F
Fuel Filter @98% Efficiency		5 mic

Lubrication System

Oil Pressure at Rated Speed	357 kPa	52 psi
Oil Pressure at Low Idle	254 kPa	37 psi
Max. In-Pan Oil Temperature	135 °C	275 °F
Max. Crankcase Pressure	3 kPa	12 in. H ₂ O

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Engine Installation Criteria

Air Intake System

Engine Air Flow	5.9 m ³ /min	208 ft. ³ /min
Air Mass Flow	399 kg/hr	880 lb/hr
Maximum Allowable Temperature Rise, Ambient Air to Engine Inlet	8 Δ°C	15 Δ°F
Max. Air Intake Restriction, Clean Air Cleaner	3.0 kPa	12.0 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	55 kW	74 HP
Rated Speed	2200 rpm	
Max. Fast Idle Speed	2400 rpm	
Breakaway Speed	2250 rpm	
Power Bulge Speed	NA	
Peak Torque Speed	1600 rpm	
Low Idle Speed	850 rpm	
Rated Torque	239 N·m	176 lb-ft
Peak Torque	304 N·m	224 lb-ft
Torque Rise	27 %	
BMEP, Rated	1034 kPa	150 psi
BMEP, Peak Torque	1317 kPa	191 psi
Altitude Capability	2286 m	7500 ft
Friction Power @Rated Speed	13.8 kW	19 HP
Air:Fuel Ratio	27.4 : 1	
Noise @1 m	88.7 dB(A)	
Power Bulge	0 %	

Engine Speed	Power		Torque		BSFC	
	rpm	kW	hp	N·M	lb-ft	g/kWh
2200	55	74	239	176	257	0.421
2100	55	74	250	184	263	0.431
2000	55	74	263	194	255	0.418
1900	54	72	273	201	254	0.417
1800	54	72	285	210	248	0.407
1700	53	71	295	218	248	0.407
1600	51	68	304	224	248	0.407
1500	48	64	304	224	251	0.412
1400	44	59	299	221	254	0.417
1300	40	54	292	215	249	0.408
1200	36	48	283	209	226	0.371
1100	31	42	272	201	228	0.374
1000	27	36	262	193	234	0.384
900	24	32	252	186	233	0.382
850	22	30	246	181	235	0.385
800	20	27	240	177	235	0.385

DEF Data

Load Factor	Engine Speed	DEF Consumption*		Percent of Diesel Consumption**
		g/kWh	lb/hp-hr	
%	RPM	g/kWh	lb/hp-hr	%
100	0	0	0	0
Peak Torque	0	0	0	0

*DEF conversion factor: 1.087 kg/l (9.071 lb/gal)

** Percent of diesel consumption by volume at 100% load and peak torque

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