



JOHN DEERE

ENGINE PERFORMANCE CURVE

Rating: Gross Power
 Application: Generator
 40 kVA Prime Market; Bare Engine (G)
 1500 RPM (50 Hz)

**PowerTech™ M 2.9L Engine
 Model: 3029TSG20**

52 hp (38.9 kW) Prime
 56 hp (42 kW) Standby

Nominal Engine Power @ 1500 RPM			
Prime		Standby	
HP	kW	HP	kW
52	38.9	56	42

Generator Efficiency %	Fan Power (% of Standby)		Power Factor	Prime Rating		Standby Rating	
	hp	kW		kWe	kVA	kWe	kVA
88-92	2.4	1.8	0.8	32-33	40-42	35-37	44-46

Note 1: Based on nominal engine power.

Note 2: kWe / kVA rating assumes 90% efficiency. Generator Efficiency % will vary.

STANDARD CONDITIONS

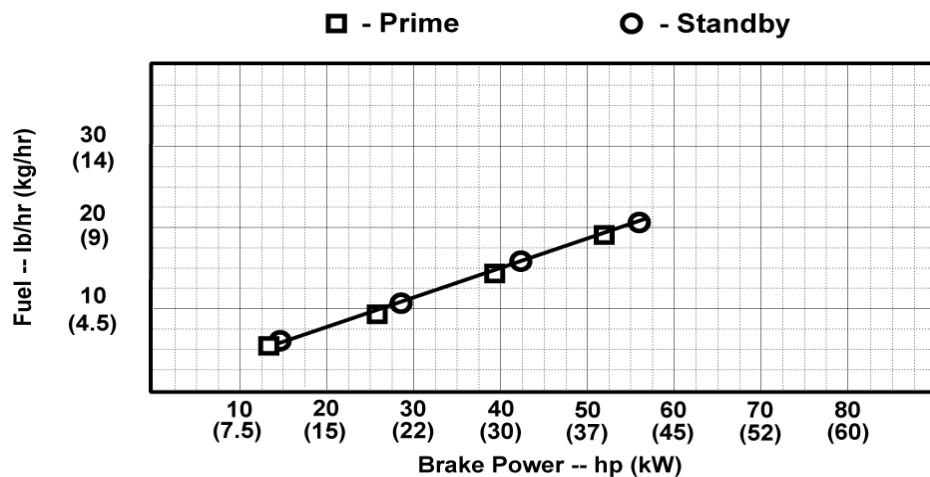
Air Intake Restriction.....12 in.H₂O (3 kPa)
 Exhaust Back Pressure.....30 in.H₂O (7.5 kPa)

Gross power guaranteed within + or - 5%
 at SAEJ1995 and ISO 3046 conditions:
 Air Inlet Temperature = 77 °F (25 °C)
 Barometer = 29.31 in.Hg (99 kPa)
 Fuel Inlet Temperature = 104 °F (40 °C)
 Fuel Specific Gravity @ 60 °F (15.5 °C) = 0.853

CONVERSION FACTORS:
 Power: kW = HP x 0.746
 Fuel: 1 Gal = 7.1 lb, 1 L = 0.85kg
 Torque: N·m = lb·ft x 1.356

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

Notes:



Designed/Calibrated to meet:	Certified by:
<ul style="list-style-type: none"> Non-Emissions Certified 	<p><i>Early Data</i></p>
Ref: Engine Emission Label	

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Engine Installation Criteria

General Data

Model	3029TSG20	
Number of Cylinders	3	
Bore	106 mm	4.2 in.
Stroke	110 mm	4.3 in.
Displacement	2.9 L	177 in. ³
Compression Ratio	17.2 : 1	
Valves per Cylinder, Intake/Exhaust	1 / 1	
Firing Order	1-2-3	
Combustion System	Direct injection	
Engine Type	In-line, 4-cycle	
Aspiration	Turbocharged	
Engine Crankcase Vent System	Open	

Physical Data

Length	717 mm	28.2 in.
Width	519 mm	20.4 in.
Height	819 mm	32.2 in.
Center of Gravity Location, X-axis From Rear Face of Block	198 mm	7.8 in.
Center of Gravity Location, Y-axis Right of Crankshaft	10 mm	0.4 in.
Center of Gravity Location, Z-axis Above Crankshaft	124 mm	4.9 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	4003 N	900 lb
Thrust Bearing Load Limit Forward, Continuous	2224 N	500 lb
Thrust Bearing Load Limit Rearward, Intermittent	2000 N	450 lb
Thrust Bearing Load Limit Rearward, Continuous	1000 N	225 lb
Weight, with oil & no coolant (Includes engine, flywheel housing, flywheel & electrics)	316 kg	697 lb
Max. Continuous Damper Temp	NA	
Max. Torsional Vibration, Front of Crank	0.00 DDA	

Electrical System

Recommended Battery Capacity, 12V @32 °F (0 °C)	640 amps	
Recommended Battery Capacity, 24V @32 °F (0 °C)	570 amps	
Starter Rolling Current, 12V @32 °F (0 °C)	780 amps	
Starter Rolling Current, 24V @32 °F (0 °C)	600 amps	
Starter Rolling Current, 12V @-22 °F (-30 °C)	1000 amps	
Starter Rolling Current, 24V @-22 °F (-30 °C)	700 amps	
Min. Voltage at ECU during Cranking, 12V	NA	
Min. Voltage at ECU during Cranking, 24V	NA	
Max. Allowable Start Circuit Resistance, 12V	0.0012 Ohm	
Max. Allowable Start Circuit Resistance, 24V	0.002 Ohm	
Max. Voltage From Engine to Crankshaft, 12V	0.15 volts	
Max. Voltage From Engine to Crankshaft, 24V	0.15 volts	
Max. ECU Temperature	NA	
Max. Alternator Temperature	120 °C	248 °F
Max. Starter Temperature	120 °C	248 °F
Max. Temperature, All Other Electronics	125 °C	257 °F

Cooling System

Engine Heat Rejection	21.1 kW	1201 BTU/min
Engine Radiated Heat	4.2 kW	239 BTU/min
Coolant Flow	91 L/min	24 gal/min
Thermostat Start to Open	82 °C	180 °F
Thermostat Fully Open	94 °C	201 °F
Engine Coolant Capacity	5.7 Liter	6.0 quart
Min. Coolant Fill Rate	11 L/min	2.9 gal/min
Min. Pressure Cap	70 kPa	10 psi
Min. Pump Inlet Pressure @203°F (95°C) Coolant	30 kPaa	4 psia
Max. External Coolant Restriction	40 kPa	6 psi
Max. Top Tank Temperature	105 °C	221 °F
Max. Top Tank Temperature 95% of Operating Hours	100 °C	212 °F
Min. Limiting Ambient Temperature	47 °C	117 °F

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Exhaust System

Exhaust Flow	7.3 m ³ /min	258 ft. ³ /min
Exhaust Temperature	440 °C	824 °F
Max. Allowable Exhaust Restriction	7.5 kPa	30 in. H ₂ O
Max. Bending Moment on Turbo Outlet	7.0 N-m	5.2 lb-ft
Max. Shear on Turbine Outlet	11 kg	24 lb

Fuel System

ECU Description	NA	
Fuel Injection Pump	Delphi DP100G	
Governor Type	Mechanical	
Governor Regulation	3-5	
Total Fuel Flow	kg/hr	
Fuel Consumption	9.2 kg/hr	20.3 lb/hr
Fuel Temperature Rise, Inlet to Return	8.0 Δ°C	14 Δ°F
Max. Fuel Inlet Restriction	NA	
Min. Fuel Inlet Pressure	-30 kPa	-120 in. H ₂ O
Max. Fuel Inlet Pressure	69 kPa	276 in. H ₂ O
Max. Fuel Return Pressure	10 kPa	40 in. H ₂ O
Max. Fuel Inlet Temperature	85 °C	185 °F
Fuel Filter @98% Efficiency	8 mic	

Lubrication System

Oil Pressure at Rated Speed	268 kPa	39 psi
Max. Crankcase Pressure	0.5 kPa	2 in. H ₂ O

Air Intake System

Engine Air Flow	3.2 m ³ /min	113 ft. ³ /min
Air Mass Flow	219 kg/hr	483 lb/hr
Intake Manifold Pressure	91.0 kPa	13.2 psi
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, Prime	38.9 kW	52 HP
Rated Power, Standby	42 kW	56 HP
Rated Speed	1500 rpm	
Rated Torque, Prime	244 N-m	180 lb-ft
Rated Torque, Standby	N-m	
BMEP, Prime	1053 kPa	153 psi
Altitude Capability, Prime	3200 m	10500 ft
Altitude Capability, Standby	2591 m	8500 ft
Friction Power @Rated Speed	13 kW	17 HP
Air:Fuel Ratio	23.4 : 1	
Smoke @Rated Speed	1.4 Bosch No.	
Noise @1 m Standby	dB(A)	
0-100% Standby Load Acceptance	sec	
Load Acceptance, ISO 8528-5	G2	

Fuel Consumption	Prime		Standby	
	lb/hr	kg/h	lb/hr	kg/h
25 % Power	5.7	2.6	6.4	2.9
50 % Power	9.9	4.5	10.8	4.9
75 % Power	14.3	6.5	15.9	7.2
100 % Power	18.7	8.5	20.3	9.2

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