ENGINE PERFORMANCE CURVE

Rating: Gross Power
Application: Generator
30 kVA Prime Market; Dual Frequency
1500 RPM (50 Hz)

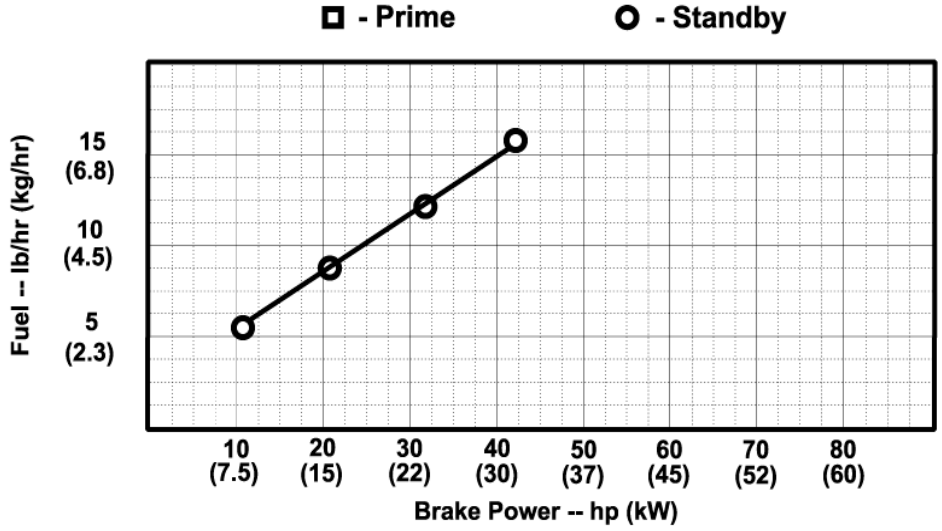
PowerTech™ M 2.9L Engine
Model: 3029TFG80

38 hp (28 kW) Prime
42 hp (31 kW) Standby

Nominal Engine Power @ 1500 RPM			
Prime		Standby	
HP	kW	HP	kW
38	28	42	31

Generator Efficiency %	Fan Power (% of Standby)		Power Factor	Prime Rating		Standby Rating	
	hp	kW		kWe	kVA	kWe	kVA
88-92	1.7	1.3	0.8	23-25	29-31	25-27	32-34

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.H_2O (3 kPa)
Exhaust Back Pressure.....30 in.H_2O (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 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:
• EU Stage III A Ref: Engine Emission Label	03-14-2011

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Engine Installation Criteria

General Data

Model			3029TFG80	
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	529	mm	20.8	in.
Height	961	mm	37.8	in.
Weight, with oil &no coolant (Includes engine, flywheel housing, flywheel &electrics)	316	kg	697	lb
Center of Gravity Location, X-axis From Rear Face of Block	253	mm	10.0	in.
Center of Gravity Location, Y-axis Right of Crankshaft	9	mm	0.4	in.
Center of Gravity Location, Z-axis Above Crankshaft	143	mm	5.6	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
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)			640	amps
Recommended Battery Capacity, 24V @32 °F (0 °C)			570	amps
Starter Rolling Current, 12V @32 °F (0 °C)			640	amps
Starter Rolling Current, 24V @32 °F (0 °C)			570	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			6	volts
Min. Voltage at ECU during Cranking, 24V			10	volts
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	105	°C	221	°F
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	18.08	kW	1029	BTU/min
Engine Radiated Heat		kW		
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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Engine Installation Criteria

Exhaust System

Exhaust Flow	6.3	m³/min	222	ft.³/min
Exhaust Temperature	575	°C	1067	°F
Max. Allowable Exhaust Restriction	7.5	kPa	30	in. H_2O
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			Stanadyne DB2	
Governor Type			Mechanical	
Governor Regulation			3-5	
Total Fuel Flow	92	kg/hr	203	lb/hr
Fuel Consumption	7.4	kg/hr	16.3	lb/hr
Fuel Temperature Rise, Inlet to Return	17.8	Δ°C	32	Δ°F
Max. Fuel Inlet Restriction	20	kPa	80	in. H_2O
Min. Fuel Inlet Pressure	7.6	kPa	30	in. H_2O
Max. Fuel Inlet Pressure	20	kPa	80	in. H_2O
Max. Fuel Return Pressure	20	kPa	80	in. H_2O
Max. Fuel Inlet Temperature	80	°C	176	°F
Fuel Filter @98% Efficiency			8	mic

Lubrication System

Oil Pressure at Rated Speed	328	kPa	48	psi
Oil Pressure at Low Idle			NA	
Max. Oil Carryover in Blow-By			NA	
Max. Airflow in Blow-By			NA	
Max. Crankcase Pressure	0.5	kPa	2	in. H_2O

Air Intake System

Engine Air Flow	2.7	m³/min	95	ft.³/min
Air Mass Flow	192	kg/hr	423	lb/hr
Intake Manifold Pressure	54.9	kPa	8.0	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_2O
Max. Air Intake Restriction, Dirty Air Cleaner	6.25	kPa	25.0	in. H_2O
Air Cleaner Efficiency			99.9	%

Performance Data

Rated Power, Prime	28	kW	38	HP
Rated Power, Standby	31	kW	42	HP
Rated Speed			1500	rpm
Rated Torque, Prime	178.2	N·m	131	lb-ft
Rated Torque, Standby	197.3	N·m	146	lb-ft
BMEP, Prime	767	kPa	111	psi
BMEP, Standby	2483.6	kPa	360	psi
Altitude Capability	3000	m	9843	ft
Friction Power @Rated Speed	13	kW	17	HP
Air:Fuel Ratio			26.4 : 1	
Smoke @Rated Speed		Bosch No.		
Noise @1 m			92.5	dB(A)
0-100% Standby Load Acceptance			1.45	sec
Load Acceptance, ISO 8528-5			G3	

Fuel Consumption	Prime		Standby	
	lb/hr	kg/h	lb/hr	kg/h
25 % Power	0.0	0.0	5.1	2.3
50 % Power	0.0	0.0	8.4	3.8
75 % Power	0.0	0.0	12.1	5.5
100 % Power	14.8	6.7	16.1	7.3

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