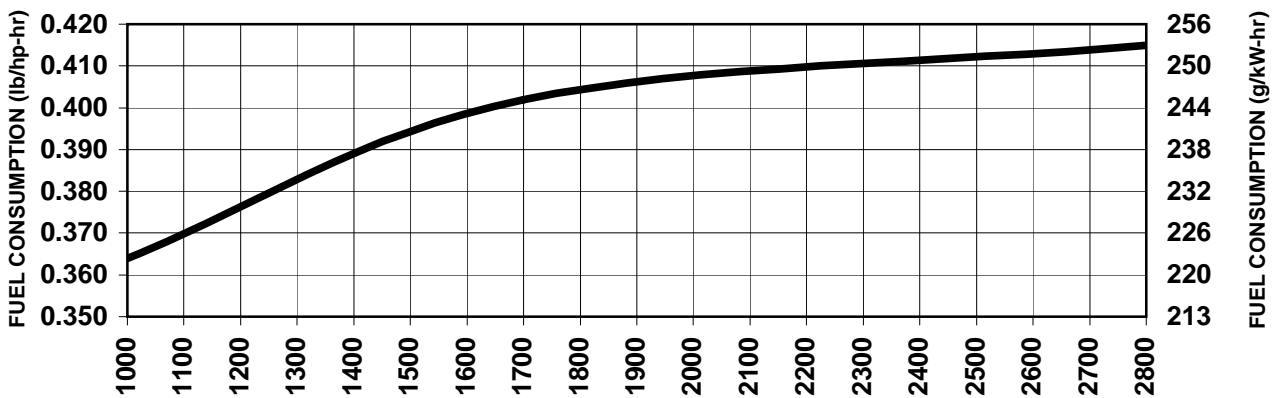
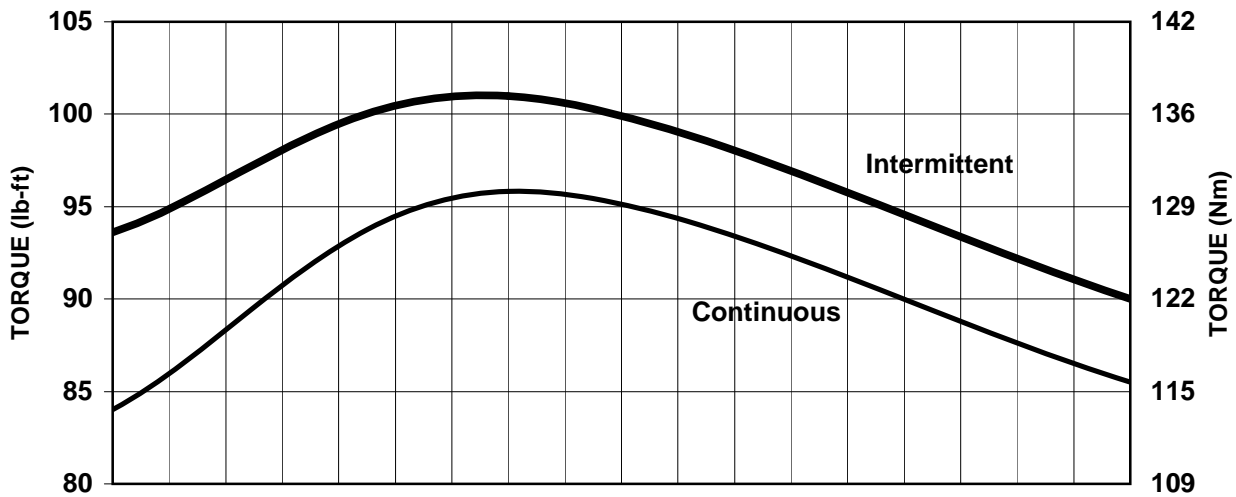
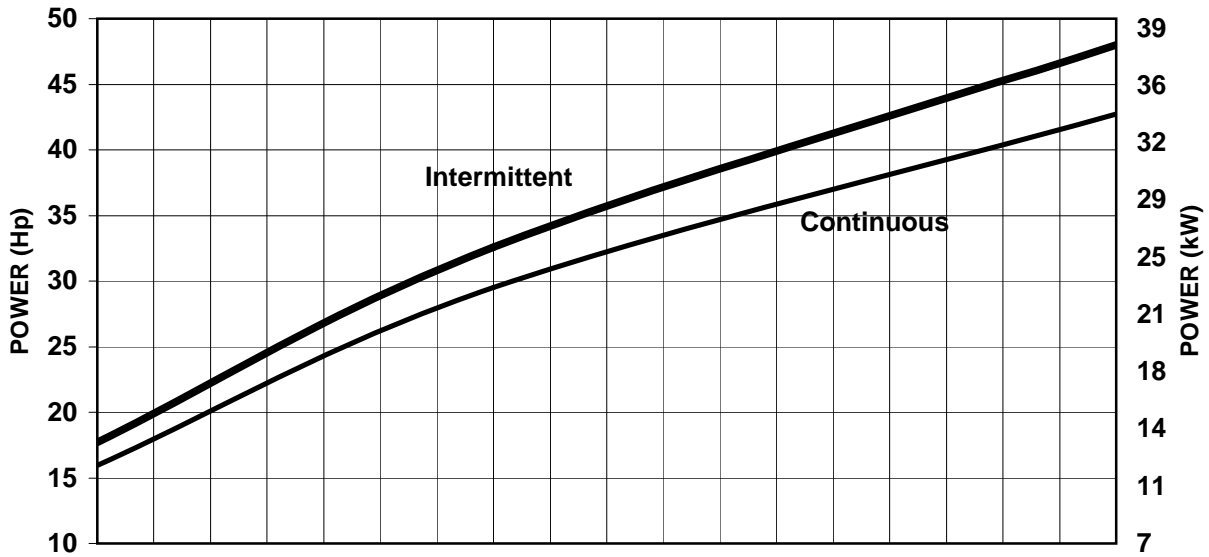


ENGINE PERFORMANCE CURVES

ENGINE MODEL
 RATING STANDARD
 RATED INTERMITTENT POWER
 MAX. TORQUE
 EMISSION CERTIFICATION

F3L2011
 ISO 3046
 48 Hp at 2800 rpm
 101 lb-ft at 1700 rpm
 EPA Tier 2 / COM 2



Tolerance: +/- 5% per ISO 3046
 Reference conditions: 25 °C (77 °F) 99 kPa (29.31 in. Hg)
 Fuel: 40 °C (104 °F) 0.850 kg/l (7.07 lb/gal)

Document: F3L2011_EPA 2
 Date: 31 July 2004
 Name: Oldham

Curves are based on current data and are subject to change without notice.

General

Cylinders	3	
Cylinder arrangement	Vertical in-line	
Bore	94 mm	3.7 in.
Stroke	112 mm	4.4 in.
Cylinder Displacement	0.78 liter	47.4 in. ³
Total displacement	2.33 liter	142.2 in. ³
Compression ratio	19.0:1	
Combustion system	Direct injection	
Aspiration	Natural	

Fuel system

Lift pump suction head, max	3 m	118.1 in.
Lift pump flow @max rpm	30.3 l/h	8.0 GPH
Max restriction in fuel supply line	300 mbar	120 in. H ₂ O
Max restriction in fuel return line	200 mbar	80 in. H ₂ O
Max restriction in fuel pre-filter	200 mbar	80 in. H ₂ O
Fuel filter type	Spin-on cartridge	
Fuel consumption @ max rating	10.9 l/h	2.9 GPH
Fuel consumption @ peak torque	7.0 l/h	1.8 GPH

Combustion air system

Combustion air flow @ max rating	165.0 m ³ /h	97.1 CFM
Max allowable clean restriction	25 mbar	10 in. H ₂ O
Max allowable dirty restriction	55 mbar	22 in. H ₂ O
Max inlet temp rise over ambient	10 °C	18 °F

Exhaust system

Exhaust gas flow @ max rating	450.0 m ³ /h	264.8 CFM
Exhaust temp @ max rating	670 °C	1238 °F
Max allowable back pressure	65 mbar	26 in. H ₂ O

Cooling system

Type	Integrated oil cooling	
Cooling air flow rate @ max rpm	1450.0 m ³ /h	853.3 CFM
Max inlet air temp rise over ambient	10 °C	18 °F
Discharge air temp rise over inlet	52 °C	93.6 °F
Cowling pressure:		
Max loss due to inlet duct	10 %	
Max loss due to discharge duct	10 %	

Lubrication system

Lubrication type	Forced feed	
Oil flow through filter at max rpm	17.5 l/min	4.6 GPM
Oil pump relief valve setting	7 bar	101.5 psi
Max oil temperature in oil sump	130 °C	266 °F
Filter volume	0.4 liter	0.423 qt.
Oil change interval	1000 hours	

Electrical

Starter motor	12V, 2.3 kW	24V, 4.0 kW
Max battery CCA	950A	750A
Voltage drop, battery (+), max	1.0V	

Physical data

Length	599 mm	23.6 in.
Width	451 mm	17.8 in.
Height	678 mm	26.7 in.
Weight, dry	216 kg	475.2 lb.
Max bending @ housing:	650 Nm	479.1 lb-ft
Max force @ flywheel:		
Axial:	1500 N	337.8 lb.
Radial:	3700 N	833.3 lb.

Performance data

Peak torque	137 Nm	101.0 lb-ft
@ rpm	1700	
low idle speed	900 rpm	

Gross power

	<u>Genset</u>	<u>Variable speed</u>			
Engine RPM	1800	2300	2500	2800	
kW, intermittent (LTP)	23.8	30.9	32.8	35.8	
Hp, intermittent	32.4	42.0	44.6	48.7	
kW, continuous (COP)	21.4	29.3	31.1	34.0	
Hp, continuous	29.1	39.8	42.3	46.2	

Fuel consumption

g/kWh	225.0	238.0	245.0	253.0
lb/hphr	0.369	0.390	0.402	0.415

Combustion air

m ³ /hr	105.0	135.0	147.0	165.0
CFM	61.8	79.4	86.5	97.1

Exhaust gas

m ³ /h	295.0	365.0	405.0	450.0
CFM	173.6	214.8	238.3	264.8

Cooling air

m ³ /h	933.0	1192.0	1295.0	1450.0
CFM	549.1	701.5	762.1	853.3

Noise, dB(A)

Avg. @ 1 meter

Certifications

U.S. EPA Non Road Tier 2
Europe COM 2 (18 - 37 KW)