



# NEW ALPHA Series

## ALPHA-Bio G-Build

LPWS Bio2, LPWS Bio3, LPWS Bio4

Power range: 6.8–12.3; kW; 9.1 –16.5 bhp  
Fixed speed; full-load speeds: 1500–1800 r/min

*Sustainable heavy-duty engines fuelled by pure biodiesel*

### Environmentally Friendly

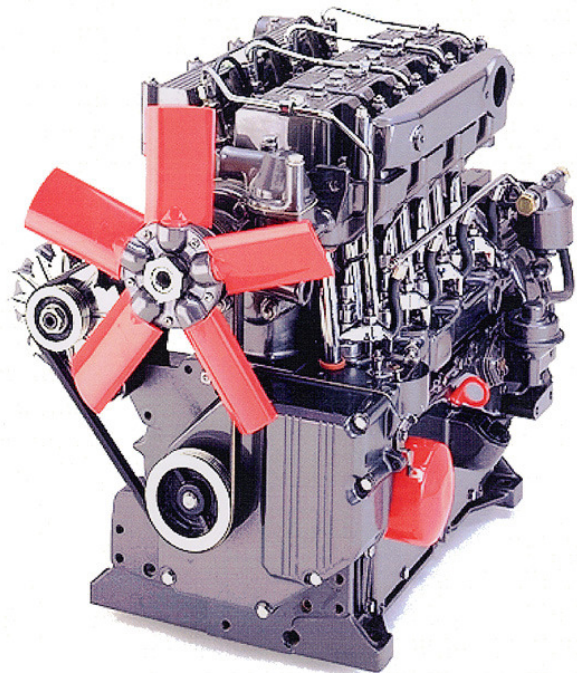
- ✓ fuelled by pure bio-diesel (B100)
- ✓ carbon-neutral power<sup>1</sup>
- ✓ cheap and sustainable

### Engine Characteristics

- 2, 3 or 4 cylinders
- biodiesel-fuelled
- indirect injection
- water-cooled
- naturally aspirated

### Design Features and Equipment

- continuous operation in ambient temperatures up to 52 °C (122 °F)
- self-vent fuel system with individual fuel-injection pumps
- fuel filter/agglomerator
- fuel-lift pump
- combustion-chamber glow plugs
- heater plugs
- gear-driven positive displacement-type lubricating-oil pump
- spin-on lubricating-oil filter
- low oil-pressure switch
- exhaust valve seat inserts
- inlet and exhaust manifolds
- heavy-duty air cleaner
- radiator with choice of pusher or puller fan
- flywheel with ring gear
- flywheel housing with SAE5 flange
- 250-hour service intervals
- operators' handbook



**Technical Data** See overleaf.

### Optional Items

- full guarding for radiator
- extended warranty (see below)

### Warranty

- standard: two years from delivery
- optional: five years from delivery (conditions apply)

1. Depending on the method of biodiesel production. An overall "greenhouse gas" rating would also have to take account of methane as a by-product of the biodiesel production process.

**NEW ALPHA Series: ALPHA-Bio G-Build Technical Data Sheet**

Technical Data				
		LPWS Bio2	LPWS Bio3	LPWS Bio4
Number of cylinders		2	3	4
Type of fuel injection		indirect		
Aspiration		natural		
Direction of rotation, looking on the flywheel end		anticlockwise		
Nominal cylinder bore	mm	86.0	86.0	86.0
	in	3.8	3.8	3.8
Stroke	mm	80.0	80.0	80.0
	in	3.15	3.15	3.15
Total cylinder capacity	litre	0.930	1.395	1.860
	in <sup>3</sup>	56.75	85.13	113.50
Compression ratio		1:22	1:22	1:22
Firing order		1-2	1-2-3	1-3-4-2
Minimum full-load speed		1500	1500	1500
Number of flywheel ring-gear teeth		96	96	96
Gear-end power take-off (subject to Lister Petter approval)	Maximum inline	kW	12	12
		bhp	16	16
	Maximum side load using a drive belt	kW	0.8	0.8
		bhp	10.7	10.7
Maximum continuous crankshaft end thrust	kgf	180	180	180
	lbf	400	400	400
Maximum permissible intake restriction at full rated speed and load	mbar	25	25	25
	in H <sub>2</sub> O	10	10	10
Maximum permissible exhaust back pressure	mbar	75	75	75
	in H <sub>2</sub> O	30	30	30
Lubricating-oil pressure at 1800 r/min and with the oil at 110° C (230° F)	bar	1.5	1.5	1.5
	lbf/in <sup>2</sup>	29	29	29
Lubricating-oil pressure at idle	bar	1.0	1.0	1.0
	lbf/in <sup>2</sup>	14.5	14.5	14.5

Fixed Speed Power (to ISO 3046) <sup>1</sup>				
Engine Model	Power		1500 r/min	1800 r/min
LPWS Bio2	Continuous Power	kW	6.9	8.6
		bhp	9.3	11.5
	Overload <sup>2</sup> Power	kW	7.5	9.4
		bhp	10.1	12.6
LPWS Bio3	Continuous Power	kW	10.4	12.8
		bhp	14.0	17.1
	Overload <sup>2</sup> Power	kW	11.4	14.1
		bhp	15.3	18.9
LPWS Bio4	Continuous Power	kW	13.8	17.1
		bhp	18.5	22.9
	Overload <sup>2</sup> Power	kW	15.2	18.7
		bhp	20.3	25.3

1. Power ratings (measured at the flywheel) and fuel consumption apply to a fully run-in, non-derated engine with no radiator or fan fitted, and without power-absorbing accessories or transmission equipment. Powers assume the use of a good-quality biodiesel; fuels of poorer quality will produce lower ratings.

2. The overload capability applies to a fully run-in engine. This is normally attained after a running period of about 50 hours .

### Rating Definitions, to ISO 3046

#### Fixed speed power: continuous power (ICN)

The power in kW which the engine is capable of delivering continuously at the stated crankshaft speed, under conditions of 100 kPa barometric pressure, 30% relative humidity and 25 °C air inlet temperature, provided that the engine is overhauled and maintained in good operating condition and that fuel to BS EN14214, and lubricating oils to the correct performance specification and viscosity classification as recommended by Lister Petter Limited, are used.

#### Fixed speed power: overload power (ICXN)

The maximum power in kW which the engine is capable of delivering intermittently at the stated crankshaft speed for a period not exceeding one hour in any period of twelve hours continuous running, immediately after working at the continuous power, under the conditions specified in (1) above.

#### Variable speed: fuel-stop power, continuous power (IFN)

The maximum power in kW which an engine is capable of delivering continuously at stated crankshaft speed, under the conditions as specified in item 1, with the fuel limited so that the fuel stop power cannot be exceeded.

#### Variable speed: fuel-stop power, intermittent power (IOFN)

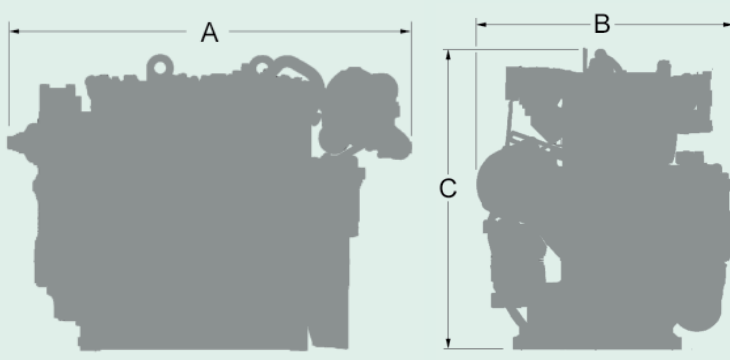
The maximum power in kW which an engine is capable of delivering intermittently at the stated crankshaft speed, for a period not exceeding 1 hour in any period of 12 hours continuous running immediately after running at the Continuous Fuel Stop Power rating.

#### De-rating


For non-standard site conditions, reference should be made to relevant BS, ISO and DIN standards.

The overload capability applies to a fully run-in engine. This is normally attained after a running period of about 50 hours.

Fuel Consumption			
Full load, continuous power			
Engine Model		1500 r/min	1800 r/min
LPWS Bio2	litre/hr	2.18	2.55
	US gal/hr	0.58	0.67
LPWS Bio3	litre/hr	3.19	3.83
	US gal/hr	0.84	1.01
LPWS Bio4	litre/hr	4.10	5.11
	US gal/hr	1.08	1.35

Approximate Dimensions and Weight					
		LPWS Bio2	LPWS Bio3	LPWS Bio4	
	<b>Dry Weight</b>	kg	112	150	180
		lb	247	330	396
	<b>Length (A)</b>	mm	496	596	696
		in	19.5	23.5	27.4
	<b>Height (B)</b>	mm	470	470	470
		in	18.5	18.5	18.5
	<b>Width (C)</b>	mm	574	574	574
		in	22.6	22.6	22.6

A range of options allows you to select a specification that matches your requirements. Please consult your Lister Petter distributor (see panel below left).

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Lister Petter have made efforts to ensure that the information in this data sheet is accurate but reserve the right to amend specifications and information without notice and without obligation or liability.