

# LPW ENGINES

## LPW2, LPW3, LPW4, LPWT4\*

*Power ranges: 6.8-41.3 kW; 9.1-55.4 bhp*

*Fixed speed; full load speed range: 1500-3600 r/min*

*Variable speed; full load speed range: 1500-3000 r/min*

### DURABLE, RELIABLE, EASY TO MAINTAIN LIQUID COOLED DIESEL ENGINES

#### SPECIAL ATTRIBUTES

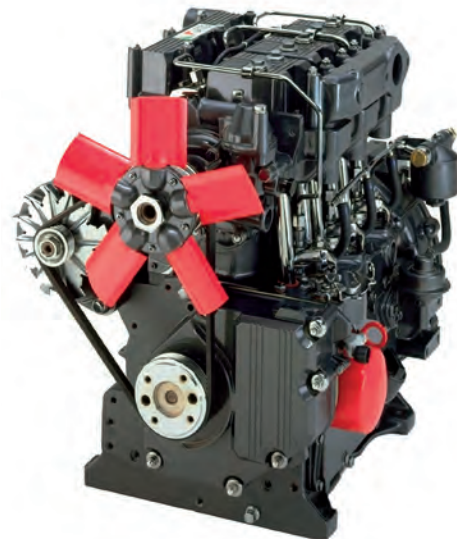
- variable and fixed speed builds available
- 500 hour service intervals
- designed for continuous operation in ambient temperatures up to 52°C (122°F)
- cold start capability down to -32°C (-25.6°F)

#### BASIC ENGINE CHARACTERISTICS

- diesel fuelled
- direct injection
- 2, 3 or 4 cylinders
- liquid cooled
- naturally aspirated or turbocharged (LPWT4)

#### DESIGN FEATURES AND EQUIPMENT

- heavy duty air cleaner
- inlet and exhaust manifolds
- inlet manifold heater plugs
- fuel lift pump
- self-vent fuel system with individual fuel injection pumps
- fuel filter/agglomerator
- gear-driven positive displacement type lubricating oil pump
- spin-on lubricating oil filter
- 12V electric start
- flywheel with ring gear \*\*
- SAE 5 flywheel housing
- operators' handbook
- 3600r/min fixed speed engine includes deep sump



**ALPHA SERIES ENGINE**

#### EMISSIONS COMPLIANCE

- models under 19kW comply with EU Stage 3A exhaust emissions regulations

#### OPTIONAL ITEMS

- low oil pressure switch
- radiator options with choice of pusher or puller fan and full guarding
- increased oil sump capacity (deep sump)
- extended warranty

\* Not available at 3600r/min

\*\* LPW2 - If operating at 1500/1800 rpm in a genset application, please, refer to Applications Department for cyclic irregularity implications

## ALPHA SERIES: LPW ENGINES TECHNICAL DATA SHEET

### VARIABLE SPEED: POWER OUTPUTS TO ISO 3046

Model	Power	r/min:	1500	1800	2000	2500	3000	3600
LPW2	Continuous <sup>3</sup>	kW	6.8	8.5	9.6	11.8	13.4	N/A
		bhp	9.1	11.4	12.9	15.8	18.0	
	Intermittent Fuel Stop <sup>4</sup>	kW	7.5	9.4	10.6	13.0	14.7	
		bhp	10.0	12.6	14.2	17.4	19.7	
LPW3	Continuous <sup>3</sup>	kW	10.3	12.8	14.5	17.7	20.1	
		bhp	13.8	17.2	19.4	23.7	27.0	
	Intermittent Fuel Stop <sup>4</sup>	kW	11.3	14.1	15.9	19.5	22.1	
		bhp	15.1	18.9	21.3	26.1	29.6	
LPW4	Continuous <sup>3</sup>	kW	13.6	17.0	19.3	23.6	26.8	
		bhp	18.2	22.7	25.9	31.6	35.9	
	Intermittent Fuel Stop <sup>4</sup>	kW	15.0	18.7	21.2	26.0	29.5	
		bhp	20.1	25.1	28.4	34.8	39.5	
LPWT4	Continuous <sup>3</sup>	kW	20.7	26.4	28.7	34.3	37.5	
		bhp	27.7	35.3	38.5	46.0	50.2	
	Intermittent Fuel Stop <sup>4</sup>	kW	22.3	28.5	31.0	36.7	40.2	
		bhp	29.9	38.2	41.5	49.1	53.9	

### FIXED SPEED: POWER OUTPUTS TO ISO 3046

Model	Power	r/min	1500	1800	2000	2500	3000	3600 <sup>7</sup>	
LPW2	Continuous <sup>1</sup>	kW	7.5	9.3	N/A	N/A	13.4	14.0	
		bhp	10.1	12.5			18.0	18.8	
	Intermittent Fuel Stop <sup>2</sup>	kW	8.2	10.2			14.7	N/A	
		bhp	11.0	13.7			19.7		
LPW3	Continuous <sup>1</sup>	kW	11.3	13.9			20.1		21.0
		bhp	15.2	18.6			26.9		28.1
	Intermittent Fuel Stop <sup>2</sup>	kW	12.4	15.3			22.1		N/A
		bhp	16.6	20.5			29.6		
LPW4	Continuous <sup>1</sup>	kW	15.0	18.6	26.8	28.0			
		bhp	20.1	24.9	35.9	37.5			
	Intermittent Fuel Stop <sup>2</sup>	kW	16.5	20.3	29.5	N/A			
		bhp	22.1	27.2	39.5				
LPWT4	Continuous <sup>1</sup>	kW	18.9	23.8	37.5		N/A		
		bhp	25.3	31.9	50.3				
	Intermittent Fuel Stop <sup>2</sup>	kW	20.8	26.2	41.3				
		bhp	27.8	35.1	55.4				

- Power ratings measured at the flywheel and fuel consumptions, apply to a fully run-in, non derated engine without a radiator and fan fitted and other power absorbing accessories or transmission equipment.

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

- For ratings definitions see page 4

### VARIABLE SPEED: TORQUE

Model	Power	r/min:	1500	1800	2000	2500	3000	3600
LPW2	Intermittent Fuel Stop <sup>4</sup>	Nm	47.7	49.4	50.6	49.7	46.8	N/A
		lbf ft	35.2	36.4	37.3	36.7	34.5	
LPW3		Nm	71.9	74.9	75.9	74.5	70.4	
		lbf ft	53.0	55.2	56.0	54.9	51.9	
LPW4		Nm	95.5	99.2	101.9	99.3	93.9	
		lbf ft	70.4	73.2	75.1	73.2	69.3	
LPWT4		Nm	142.0	151.2	148.0	140.2	128.0	
		lbf ft	104.7	111.5	109.1	103.4	94.4	

7. Engines operating at 3600rpm are offered for standby duty only. For further information and approval please contact Applications Department.

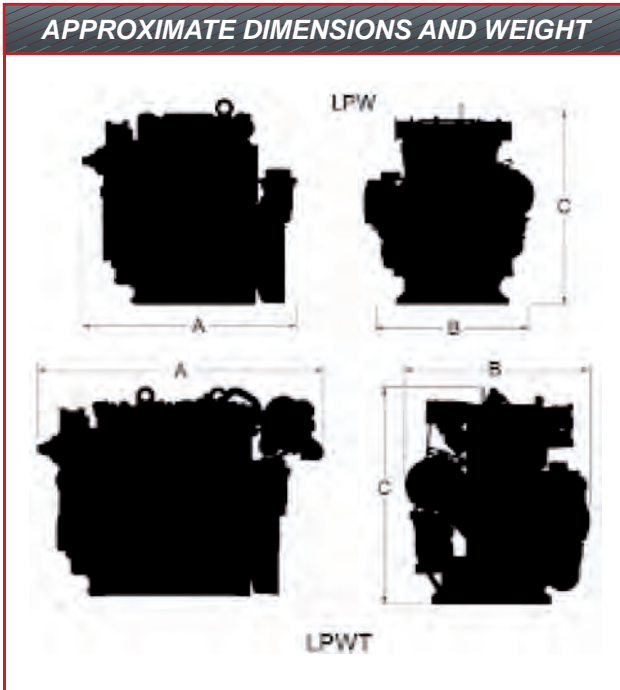
#### Key to Emissions Compliance

EU Stage 3A only

TECHNICAL DATA					
		LPW2	LPW3	LPW4	LPWT4
Number of cylinders		2	3	4	4
Type of fuel injection		Direct	Direct	Direct	Direct
Aspiration		Natural			Turbocharged
Direction of rotation (flywheel end)		Anti clockwise			
Nominal cylinder bore	mm	86.0	86.0	86.0	86.0
	in	3.39	3.39	3.39	3.39
Stroke	mm	80.0	80.0	80.0	80.0
	in	3.15	3.15	3.15	3.15
Total cylinder capacity	litre	0.930	1.395	1.860	1.860
Total cylinder capacity	in <sup>3</sup>	56.75	85.13	113.50	113.50
Compression ratio		18.5:1	18.5:1	18.5:1	16.2:1
Firing order (number 1 cylinder is at the gear end)		1 – 2	1 – 2 – 3	1 – 3 – 4 – 2	1 – 3 – 4 – 2
Minimum idling speed		Dependent on build			
Minimum full load speed	r/min	1500	1500	1500	1500
Number of flywheel ring gear teeth		96	96	96	96
Gear end power take-off (subject to Lister Petter approval) - maximum inline - maximum side load using a drive belt	kW	12	12	12	12
	bhp	16	16	16	16
	kW	8.0	8.0	8.0	8.0
	bhp	10.7	10.7	10.7	10.7
Maximum continuous crankshaft end thrust	kgf	180	180	180	180
	lbf	400	400	400	400
Maximum permissible intake restriction at full rated speed and load	mbar	25	25	25	25
	in H <sub>2</sub> O	10	10	10	10
Maximum permissible exhaust back pressure	mbar	75	75	75	50
	in H <sub>2</sub> O	30	30	30	20
Lubricating oil pressure at 3000r/min and with the oil at 110°C (230°F)	bar	2.0	2.0	2.0	2.0
	lbf/in <sup>2</sup>	29	29	29	29
Lubricating oil pressure at idle	bar	1.0	1.0	1.0	1.0
	lbf/in <sup>2</sup>	14.5	14.5	14.5	14.5

VARIABLE SPEED: MAXIMUM FUEL CONSUMPTION								
The figures given are for 100% load and are subject to 5% tolerance.								
Model	Power	r/min	1500	1800	2000	2500	3000	3600
LPW2	Continuous <sup>3</sup>	litre/hr	1.9	2.3	2.5	3.2	3.9	N/A
		US gal/hr	0.50	0.60	0.67	0.84	1.03	
LPW3		litre/hr	2.8	3.4	3.8	4.7	5.9	
		US gal/hr	0.75	0.90	1.00	1.25	1.55	
LPW4		litre/hr	3.8	4.6	5.0	6.3	7.8	
		US gal/hr	1.0	1.2	1.33	1.67	2.07	
LPWT4		litre/hr	4.9	6.0	7.1	8.8	10.6	
		US gal/hr	1.29	1.58	1.87	2.32	2.79	

**APPROXIMATE DIMENSIONS AND WEIGHT**



		LPW2	LPW3	LPW4	LPWT4
Dry weight	kg	112	150	180	186
	lb	247	330	396	409
Length (A)	mm	496	596	696	786
	in	19.5	23.5	27.4	30.9
Width (B)	mm	470	470	470	480
	in	18.5	18.5	18.5	18.9
Height (C)	mm	574	574	574	574
	in	22.6	22.6	22.6	22.6

**RATING DEFINITIONS, TO ISO 3046**

**Ratings Definitions, to ISO 3046**

ISO Standard Conditions

Barometric pressure	100 kPa
Relative humidity	30%
Ambient air temperature at the inlet manifold	25°C

**1. Fixed Speed: Continuous Power (ICN)**

The power in kW which the engine is capable of delivering continuously at the stated crankshaft speed, under ISO 3046 standard conditions, measured at the flywheel without power-absorbing accessories, provided that the engine is overhauled and maintained in good operating condition and that fuel to BS EN 590 Class A1 or A2, and lubricating oils to the correct performance specification and viscosity classification as recommended by Lister Petter Power Systems Limited are used.

**2. Fixed Speed (Fuel Stop): 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 of continuous running, immediately after working at the continuous power, under ISO 3046 standard conditions and with the provisions specified for continuous power in item (1) above, but with the fuel limited so that the fuel stop power cannot be exceeded.

**3. Variable Speed (Fuel Stop): Continuous Power (IFN)**

The maximum power in kW which the engine is capable of delivering continuously at the stated crankshaft speed, under ISO 3046 standard conditions, and with the provisions specified in item (1) above, but with the fuel limited so that the fuel stop power cannot be exceeded.

**4. Variable Speed (Fuel Stop): Overload Power (IOFN)**

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 of continuous running, immediately after working at the continuous power, under ISO 3046 standard conditions and with the provisions specified for continuous power in item (3) above, but with the fuel limited so that the fuel stop power cannot be exceeded.

**5. Derating**

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

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**DISTRIBUTOR ADDRESS**

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