

# 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

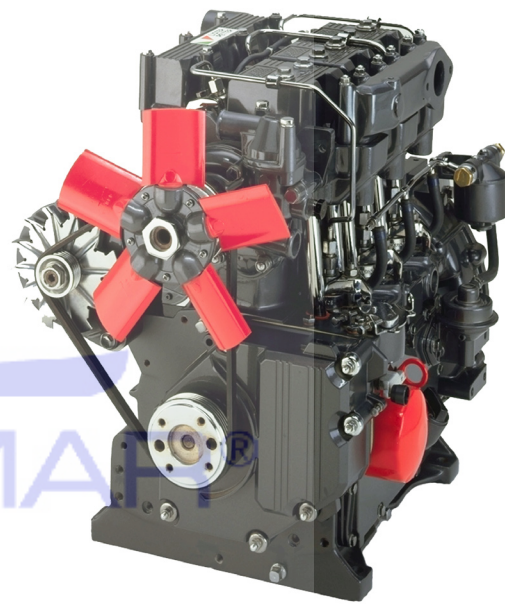
- variable and fixed speed builds available
- 500 hour service intervals
- designed for continuous operation in ambient temperatures up to 52°C (122°F)
- cold start capability down to -32°C (-25.6°F)

#### 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
- deep sump (3600r/min only)



ALPHA SERIES ENGINE

#### EMISSIONS

- models under 19 kW 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
- 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 <sup>1</sup>										
Model	Power	r/min:	1500	1800	2000	2500	3000	3600		
LPW2	Continuous	kW	6.8	8.5	9.6	11.8	13.4	N/A		
		bhp	9.1	11.4	12.9	15.8	18.0			
	Fuel Stop	kW	7.5	9.4	10.6	13.0	14.7			
		bhp	10.0	12.6	14.2	17.4	19.7			
LPW3	Continuous	kW	10.3	12.8	14.5	17.7	20.1			
		bhp	13.8	17.2	19.4	23.7	27.0			
	Fuel Stop	kW	11.3	14.1	15.9	19.5	22.1			
		bhp	15.1	18.9	21.3	26.1	29.6			
LPW4	Continuous	kW	13.6	17.0	19.3	23.6	26.8			
		bhp	18.2	22.7	25.9	31.6	35.9			
	Fuel Stop	kW	15.0	18.7	21.2	26.0	29.5			
		bhp	20.1	25.1	28.4	34.8	39.5			
LPWT4	Continuous	kW	20.7	26.4	28.7	34.3	37.5			
		bhp	27.7	35.3	38.5	46.0	50.2			
	Fuel Stop	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 <sup>1</sup>										
Model	Power	r/min	1500	1800	2000	2500	3000	3600*		
LPW2	Continuous	kW	7.5	9.3	N/A	N/A	13.4	14.0		
		bhp	10.1	12.5			18.0	18.8		
	Fuel Stop	kW	8.2	10.2			14.7			
		bhp	11.0	13.7			19.7			
LPW3	Continuous	kW	11.3	13.9					20.1	21.0
		bhp	15.2	18.6					26.9	28.1
	Fuel Stop	kW	12.4	15.3					22.1	
		bhp	16.6	20.5					29.6	
LPW4	Continuous	kW	15.0	18.6			26.8	28.0		
		bhp	20.1	24.9			35.9	37.5		
	Fuel Stop	kW	16.5	20.3			29.5			
		bhp	22.1	27.2			39.5			
LPWT4	Continuous	kW	18.9	23.8			37.5			
		bhp	25.3	31.9			50.3			
	Fuel Stop	kW	20.8	26.2			41.3			
		bhp	27.8	35.1			55.4			

1. 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 without power absorbing accessories or transmission equipment. For rating definitions see page 4.

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

VARIABLE SPEED: TORQUE								
Model	Power	r/min:	1500	1800	2000	2500	3000	3600
LPW2	Fuel Stop	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	

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

**Key to Emissions Compliance**

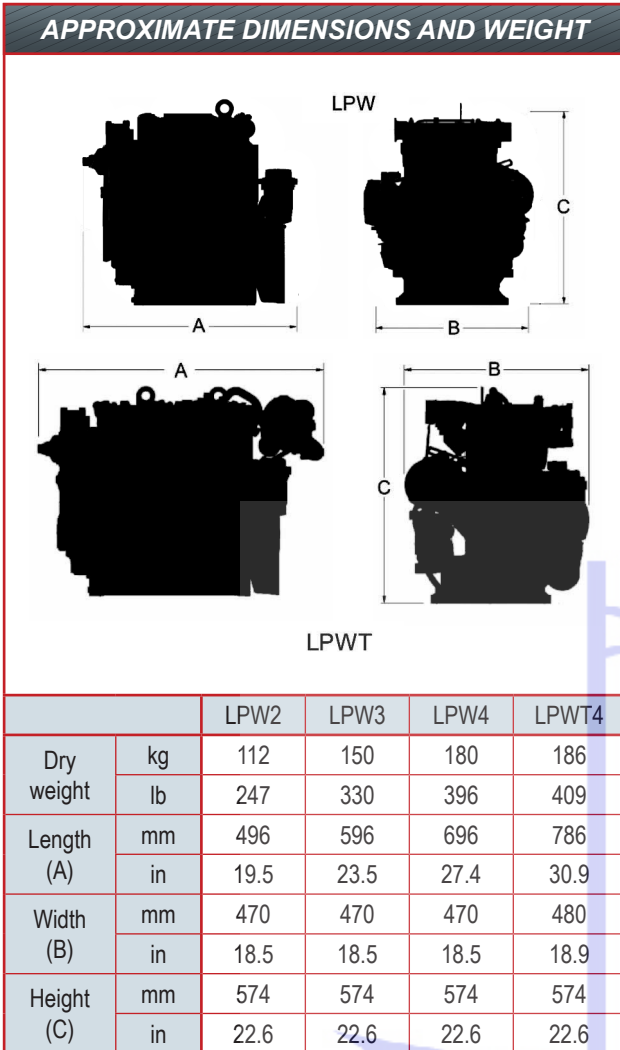
EU Stage 3A only	
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TECHNICAL DATA					
		LPW2	LPW3	LPW4	LPWT4
Type of fuel injection		Direct	Direct	Direct	Direct
Number of cylinders		2	3	4	4
Aspiration		Natural	Natural	Natural	Turbocharged
Direction of rotation (flywheel end)		Anti clockwise	Anti clockwise	Anti clockwise	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	Dependent on build	Dependent on build	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 <sup>3</sup> - 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

3. Subject to Lister Petter approval

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	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	Continuous	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	Continuous	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	Continuous	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**



**RATING DEFINITIONS TO ISO 3046**

**ISO Standard Conditions**

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

**1. Fixed speed power: continuous power (ICN)**

The power in kW which the engine is capable of delivering continuously at the stated crankshaft speed, under ISO 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 Limited, are used.

**2. 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 ISO standard conditions and with the provisions specified in (1) above.

**3. 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 ISO standard conditions and with the provisions specified in (1) above, with the fuel limited so that the fuel stop power cannot be exceeded.

**4. 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 one hour in any period of twelve hours' continuous running, with the fuel limited so that the fuel stop power cannot be exceeded, immediately after running at the rating in (3) above, under ISO standard conditions and with the provisions specified in (1) above.

**5. Fixed speed: continuous power, standby**

This rating is applicable for supplying emergency power in variable load applications. Overload is not allowed.

**6. De-rating**

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

**UK**

LISTER PETTER LIMITED  
 Long Street, Dursley, Gloucestershire, GL11 4HS, England  
 TEL: +44 (0)1453 544141; FAX: +44 (0)1453 546732  
 E-mail: sales@lister-petter.co.uk  
 www.lister-petter.co.uk

**UAE**

LISTER PETTER FZE  
 Dubai Silicon Oasis Headquarters,  
 PO Box 341077, Dubai, UAE  
 TEL: +971 4 372 4331; FAX: +971 4 372 4318  
 E-mail: sales@listerpettergroup.com  
 www.lister-petter.co.uk

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