NEW ALPHA Series

LPWS Engines

LPWS2, LPWS3, LPWS4, LPWST4

Power range: 7.4—29.5 kW; 9.9 —39.5 bhp
Variable or fixed speed; full-load speed range: 1500—3000 r/min

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Durable, reliable, emission-compliant liquid-cooled diesel engines

Emissions Compliance

LPWS engines are fully compliant with the following emissions regulations:

- ✓ EU Stage 3A
- ✓ USA EPA Interim Tier 4
- ✓ India legislation GSR 448(E)

Other Special Attributes

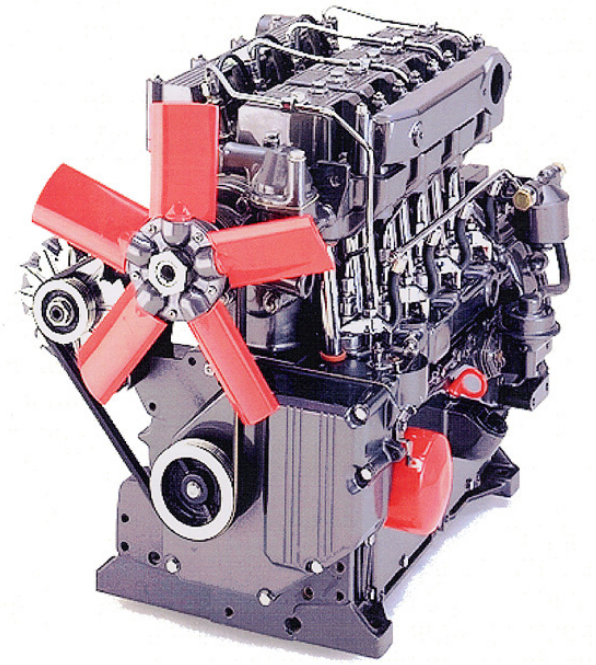
- ✓ variable and fixed-speed builds available
- ✓ designed for continuous operation in ambient temperatures up to 52°C (122°F)
- ✓ cold-start capability down to -32°C (-25.6°F)

Basic Engine Characteristics

- diesel fuelled
- indirect injection
- 2, 3 or 4 cylinders
- liquid cooled
- naturally aspirated or turbocharged (LPWST4)

Design Features and Equipment

- heavy-duty air cleaner
- inlet and exhaust manifolds
- inlet manifold heater plugs
- combustion-chamber glow 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



- low oil-pressure switch
- 12V electric start
- flywheel with ring gear
- SAE 5 flywheel housing
- 250 hour service intervals
- operators' handbook

Optional Items

- radiator options with choice of pusher or puller fan and full guarding
- extended warranty (see below)

Variable Speed: Power Outputs to ISO 3046[1]							
Model	Power	r/min:	1500	1800	2000	2500	3000
LPWS2	Continuous	kW	7.4	9.1	10.1	12.2	13.4
		bhp	9.9	12.2	13.5	16.3	18.0
	Intermittent (Fuel Stop)	kW	8.1	10.0	11.1	13.4	14.7
		bhp	10.9	13.4	14.9	18.0	19.7
LPWS3	Continuous	kW	11.1	13.6	15.2	18.3	20.1
		bhp	14.9	18.2	20.4	24.5	26.9
	Intermittent (Fuel Stop)	kW	12.2	15.0	16.7	20.1	22.1
		bhp	16.4	20.1	22.3	26.9	29.6
LPWS4	Continuous	kW	14.7	18.2	20.2	24.4	26.8
		bhp	19.7	24.4	27.0	32.7	35.9
	Intermittent (Fuel Stop)	kW	16.2	20.0	22.2	26.8	29.5
		bhp	21.7	26.8	30.0	35.9	39.5

Fixed Speed: Power Outputs to ISO 3046							
Model	Power	r/min:	1500	1800	2000	2500	3000
LPWS2	Continuous	kW	7.5	9.3	N/A	N/A	13.4
		bhp	10.1	12.5			18.0
	Intermittent (Fuel Stop)	kW	8.2	10.2			14.7
		bhp	11.0	13.7			19.7
LPWS3	Continuous	kW	11.3	13.9			20.1
		bhp	15.2	18.6			26.9
	Intermittent (Fuel Stop)	kW	12.4	15.3			22.1
		bhp	16.6	20.5			29.6
LPWS4	Continuous	kW	15.0	18.6			26.8
		bhp	20.1	24.9			36.0
	Intermittent (Fuel Stop)	kW	16.5	20.3			29.5
		bhp	22.1	27.5			39.6
LPWST4	Continuous	kW	18.9	23.8			
		bhp	25.3	31.9			
	Intermittent (Fuel Stop)	kW	20.8	26.2			
		bhp	27.8	35.1			

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.
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
LPWS2	Intermittent (Fuel Stop)	Nm	51.6	53.1	53.0	51.2	46.8
		lbf ft	38.0	39.2	39.0	37.8	34.5
LPWS3		Nm	77.7	79.6	79.7	76.8	70.3
		lbf ft	57.3	58.7	58.8	56.6	51.8
LPWS4		Nm	103.1	106.1	106.0	102.4	93.9
		lbf ft	76.0	78.3	78.2	75.5	69.1

Technical Data						
			LPWS2	LPWS3	LPWS4	LPWST4
Number of cylinders			2	3	4	4
Type of fuel injection			Indirect			
Aspiration			Natural			Turbo
Direction of rotation, looking on the flywheel end			Anticlockwise			
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
		in^3	56.75	85.13	113.50	113.50
Compression ratio			23.5 : 1	23.5 : 1	23.5 : 1	22 : 1
Firing order			1–2	1–2–3	1–3–4–2	1–3–4–2
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	kW	12	12	12	12
		bhp	16	16	16	16
	Maximum side load using a drive belt	kW	0.8	0.8	0.8	0.8
		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_2O	10	10	10	10
Maximum permissible exhaust back pressure		mbar	75	75	75	50
		in H_2O	30	30	30	20
Lubricating-oil pressure at 3000 r/min and with the oil at 110° C (230° F)		bar	2.0	2.0	2.0	2.0
		lbf/in^2	29	29	29	29
Lubricating-oil pressure at idle		bar	1.0	1.0	1.0	1.0
		lbf/in^2	14.5	14.5	14.5	14.5

Emissions Compliance: Key to Colour Coding

Compliant with EU Stage 3A, USA EPA Interim Tier 4 and India GSR 448(E).

Compliant with EU Stage 3A and USA EPA Interim Tier 4 legislation.

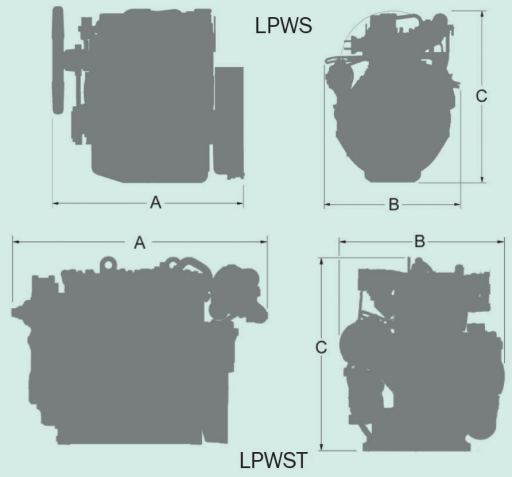
Compliant with EU Stage 3A and India GSR 448(E) legislation.

Compliant with EU Stage 3A legislation only.

Compliant with USA EPA Interim Tier 4 legislation only.

Variable Speed: Maximum Fuel Consumption							
Model	Power	r/min:	1500	1800	2000	2500	3000
LPWS2	Continuous	litre/hr	2.1	2.5	2.9	3.5	4.4
		US gal/hr	0.55	0.66	0.76	0.92	1.16
LPWS3		litre/hr	3.1	3.7	4.4	5.3	6.6
		US gal/hr	0.81	0.97	1.16	1.39	1.74
LPWS4		litre/hr	4.1	5.0	5.8	7.1	8.8
		US gal/hr	1.08	1.32	1.53	1.87	2.32

Approximate Dimensions and Weight



		LPWS2	LPWS3	LPWS4	LPWST4
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

Distributor's Address

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.

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. De-rating

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

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