

LP Industrial Engines



LPW4 Engine



fixed speed | full-load speed range
1500 | 3600 r/min
variable speed | full-load speed range
1500 - 3000 r/min
6.8 - 37.5 kW | 9.1 - 50.2 bhp¹

OVERVIEW

The **LP Series Industrial Engines** are specifically designed as an Industrial/Pump spec engine suitable for use in unregulated emissions territories. It is durable, reliable and easy to maintain with oil and filter changes up to 500 hours, dependant on operational conditions. It is designed for continuous operation in ambient temperatures up to 52°C (122°F) and a cold start capability down to -32°C (-25.6°F).

BASIC ENGINE CHARACTERISTICS

- diesel fuelled and approved for operation on biodiesel, that conforms with ASTM D6751 and EN14214, concentrations of up to 20%
- direct fuel injection
- 2, 3 or 4 cylinders
- liquid cooled
- naturally aspirated or turbocharged (LPWT4)

DESIGN FEATURES AND EQUIPMENT

- inlet and exhaust manifolds *
- heavy duty air cleaner *
- fuel lift pump
- mechanical governing
- self-vent fuel system with individual
- fuel injection pumps
- fuel filter / agglomerator
- thermostatically controlled cooling system with belt driven coolant pump
- radiator with fan and belt guard *
- gear driven positive displacement type
- lubricating oil pump
- spin on full flow lubricating oil filter
- flywheel with ring gear *
- SAE 5 flywheel housing *
- 12V starter motor *
- 12V battery charge alternator *
- oil pressure and coolant temperature switches *
- fuel control solenoid (energised to run) *
- skid base packing
- operators' handbook (English) *

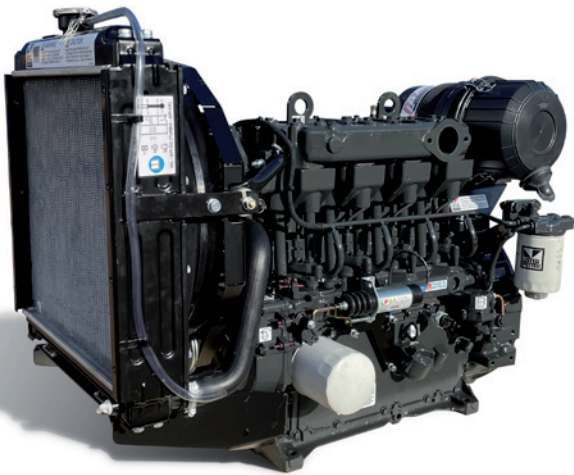
OPTIONAL ITEMS

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

Note:

This engine does not comply with Harmonised International Regulated Emissions Limits.

* Optional items



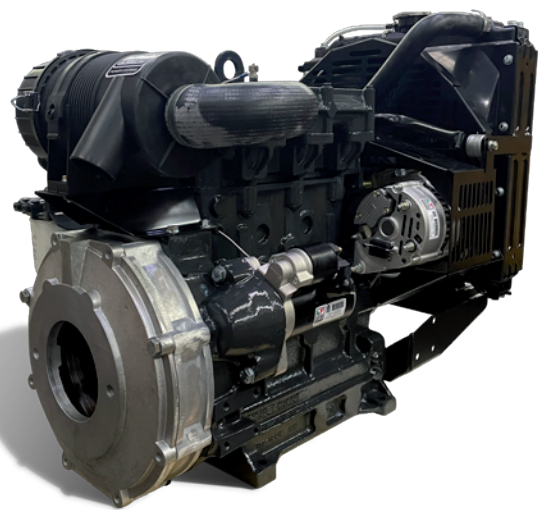
LPW4I3000VS | 29.5 kWm IOFN



LPWX4I2800VS-GV | 32.5 kWm
Including radiator screen guard



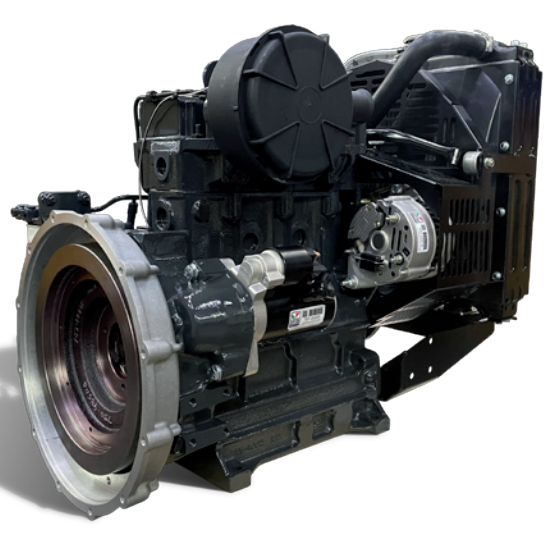
LPW3I2800VSC | 19.3 kWm IFN



LPWX3I2500VS-HF | 19.5 kWm IFN
Including hydraulic pump adaptor



LPW3I3000VSE | 22.1 kWm IOFN
Extended running variant



LPW3I3000VS-SAE4 | 22.1 kWm IOFN
Including SAE4 J620 7.5" engine connection

Note: Images shown are for reference only.

A fully detailed breakdown confirming the exact scope of supply is provided within our sales quotation, and acknowledgment.

VARIABLE SPEED POWER - ISO3046 CONTINUOUS RATING (IFN)

Model	Output	r/min	1500	1800	2000	2200	2500	2800	3000
LPW2	Gross	kWm	6.8	8.5	9.6	10.5	11.8	12.9	13.4
		bhp	9.1	11.4	12.9	14.1	15.8	17.3	18.0
	Net	kWm	6.2	7.7	8.7	9.5	10.6	11.4	11.8
		bhp	8.3	10.3	11.7	12.8	14.1	15.3	15.8
LPWX2	Gross	kWm	7.9	9.8	10.8	11.7	12.9	13.9	14.5
		bhp	10.6	13.1	14.5	15.8	17.3	18.7	19.5
	Net	kWm	7.3	9.0	9.9	10.7	11.7	12.5	12.9
		bhp	9.8	12.1	13.3	14.4	15.6	16.7	17.3
LPW3	Gross	kWm	10.3	12.8	14.5	15.8	17.7	19.3	20.1
		bhp	13.8	17.2	19.4	21.2	23.7	25.9	27.0
	Net	kWm	9.7	12.0	13.6	14.8	16.4	17.9	18.5
		bhp	13.0	16.1	18.2	19.9	22.1	24.0	24.8
LPWX3	Gross	kWm	11.9	14.7	16.3	17.7	19.5	21.1	22.1
		bhp	16.0	19.7	21.9	23.7	26.2	28.3	29.6
	Net	kWm	11.3	13.9	15.4	16.7	18.3	19.7	20.5
		bhp	15.2	18.6	20.6	22.4	24.5	26.4	27.5
LPW4	Gross	kWm	13.6	17.0	19.3	21.1	23.6	25.7	26.8
		bhp	18.2	22.8	25.9	28.3	31.6	34.5	35.9
	Net	kWm	13.0	16.2	18.4	20.1	22.3	24.3	25.2
		bhp	17.4	21.7	24.7	27.0	30.0	32.6	33.8
LPWX4	Gross	kWm	15.8	19.6	21.7	23.5	25.9	28.1	29.5
		bhp	21.2	26.3	29.1	31.5	34.8	37.7	39.6
	Net	kWm	15.2	18.8	20.8	22.5	24.7	26.6	27.9
		bhp	20.4	25.2	27.9	30.2	33.1	35.7	37.4
LPWT4	Gross	kWm	18.9	24.2	26.4	28.6	31.0	32.8	34.0
		bhp	25.3	32.4	35.4	38.3	41.6	44.0	45.6
	Net	kWm	18.3	23.4	25.5	27.6	29.7	31.4	32.4
		bhp	24.5	31.4	34.2	37.0	39.9	42.1	43.5

Note:

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

RATING DEFINITIONS TO ISO 3046

ISO Standard Conditions

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

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 Limited are used.

**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.

**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.

**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.

Derating

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

VARIABLE SPEED POWER - ISO3046 FUEL STOP RATING (IOFN)									
Model	Output	r/min	1500	1800	2000	2200	2500	2800	3000
LPW2	Gross	kWm	7.5	9.4	10.6	11.6	13.0	14.2	14.7
		bhp	10.0	12.5	14.2	15.5	17.4	19.0	19.8
	Net	kWm	6.9	8.6	9.7	10.6	11.7	12.7	13.1
		bhp	9.2	11.5	12.9	14.2	15.7	17.0	17.6
LPWX2	Gross	kWm	8.7	10.8	11.9	12.9	14.2	15.3	16.0
		bhp	11.7	14.5	16.0	17.3	19.0	20.5	21.4
	Net	kWm	8.1	10.0	11.0	11.9	12.9	13.9	14.4
		bhp	10.9	13.4	14.8	16.0	17.4	18.6	19.3
LPW3	Gross	kWm	11.3	14.1	15.9	17.4	19.5	21.3	22.1
		bhp	15.2	18.9	21.4	23.3	26.1	28.5	29.7
	Net	kWm	10.7	13.3	15.0	16.4	18.2	19.8	20.5
		bhp	14.4	17.8	20.2	22.0	24.4	26.6	27.5
LPWX3	Gross	kWm	13.1	16.2	17.9	19.5	21.5	23.2	24.3
		bhp	17.6	21.7	24.0	26.1	28.8	31.1	32.6
	Net	kWm	12.5	15.4	17.0	18.5	20.2	21.8	22.7
		bhp	16.8	20.6	22.8	24.8	27.1	29.2	30.4
LPW4	Gross	kWm	15.0	18.7	21.2	23.2	25.9	28.3	29.5
		bhp	20.1	25.1	28.5	31.1	34.8	38.0	39.5
	Net	kWm	14.4	17.9	20.3	22.2	24.7	26.9	27.9
		bhp	19.3	24.0	27.2	29.8	33.1	36.0	37.4
LPWX4	Gross	kWm	17.4	21.6	23.9	25.8	28.5	30.9	32.5
		bhp	23.3	28.9	32.0	34.7	38.2	41.4	43.5
	Net	kWm	16.8	20.8	23.0	24.8	27.3	29.4	30.8
		bhp	22.5	27.8	30.8	33.3	36.6	39.5	41.4
LPWT4	Gross	kWm	20.8	26.6	29.0	31.4	34.1	36.1	37.4
		bhp	27.9	35.7	38.9	42.1	45.7	48.4	50.2
	Net	kWm	20.2	25.8	28.1	30.4	32.8	34.7	35.8
		bhp	27.1	34.6	37.7	40.8	44.0	46.5	48.0

FIXED SPEED | POWER OUTPUTS TO ISO3046

Model	Speed, r/min	Power	Gross		Net	
			kWm	bhp	kWm	bhp
LPW2	1500	Continuous	7.5	10.1	7.0	9.3
		Fuel stop	8.2	11.0	7.7	10.3
	1800	Continuous	9.3	12.5	8.4	11.2
		Fuel stop	10.2	13.7	9.3	12.4
	3000	Continuous	13.4	18.0	11.8	15.8
		Fuel stop	14.7	19.7	13.1	17.6
	3600	Continuous	12.7	17.0	10.4	13.9
		Fuel stop	14.0	18.7	11.7	15.6

* Engines operating at 3600 r/min are offered for standby duty only

Model	Speed, r/min	Power	Gross		Net	
			kWm	bhp	kWm	bhp
LPWX2	1500	Continuous	8.6	11.5	8.1	10.8
		Fuel stop	9.4	12.6	8.9	11.9
	1800	Continuous	10.6	14.2	9.7	13.0
		Fuel stop	11.6	15.5	10.7	14.3
	3000	Continuous	14.7	19.7	13.1	17.6
		Fuel stop	16.1	21.6	14.5	19.4
	3600	Continuous	14.5	19.4	12.2	16.3
		Fuel stop	16.0	21.4	13.7	18.3

* Engines operating at 3600 r/min are offered for standby duty only

Model	Speed, r/min	Power	Gross		Net	
			kWm	bhp	kWm	bhp
LPW3	1500	Continuous	11.3	15.1	10.8	14.4
		Fuel stop	12.4	16.6	11.9	15.9
	1800	Continuous	13.9	18.6	13.0	17.4
		Fuel stop	15.3	20.5	14.4	19.3
	3000	Continuous	20.1	26.9	18.5	24.8
		Fuel stop	22.1	29.6	20.5	27.5
	3600	Continuous	19.1	25.6	16.8	22.5
		Fuel stop	21.0	28.2	18.7	25.1

* Engines operating at 3600 r/min are offered for standby duty only

Model	Speed, r/min	Power	Gross		Net	
			kWm	bhp	kWm	bhp
LPWX3	1500	Continuous	12.9	17.3	12.4	16.6
		Fuel stop	14.1	18.9	13.6	18.2
	1800	Continuous	15.8	21.2	14.9	19.9
		Fuel stop	17.0	22.8	16.1	21.5
	3000	Continuous	22.1	29.6	20.5	27.5
		Fuel stop	24.3	32.6	22.7	30.4
	3600	Continuous	21.5	28.8	19.2	25.7
		Fuel stop	23.7	31.7	21.4	28.6

Power Standards

The engine performance corresponds to ISO 3046, BS 5514 and DIN 6271. The technical data applies to an engine without cooling fan and operating on a fuel with calorific value of 42.7 MJ/kg (18360 BTU/lb) and a density of 0.84 kg/litre (7.01 lb/US gal, 8.42 lb/Imp gal).

**Notes:**

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.
3. Excluding radiator.

Note:

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

FIXED SPEED | POWER OUTPUTS TO ISO3046

Model	Speed, r/min	Power	Gross		Net	
			kWm	bhp	kWm	bhp
LPW4	1500	Continuous	15.0	20.1	14.5	19.4
		Fuel stop	16.5	22.1	16.0	21.4
	1800	Continuous	18.6	24.9	17.7	23.7
		Fuel stop	20.3	27.2	19.4	26.0
	3000	Continuous	26.8	35.9	25.2	33.8
		Fuel stop	29.5	39.5	27.9	37.4
	3600	Continuous	25.4	34.0	23.1	31.0
		Fuel stop	27.9	37.4	25.6	34.4

* Engines operating at 3600 r/min are offered for standby duty only

Model	Speed, r/min	Power	Gross		Net	
			kWm	bhp	kWm	bhp
LPWX4	1500	Continuous	16.9	22.6	16.4	21.9
		Fuel stop	18.5	24.8	18.0	24.1
	1800	Continuous	20.9	28.0	20.0	26.8
		Fuel stop	23.0	30.8	22.1	29.6
	3000	Continuous	29.5	39.5	27.9	37.4
		Fuel stop	32.4	43.4	30.8	41.3
	3600	Continuous	28.0	37.5	25.7	34.4
		Fuel stop	30.8	41.3	28.5	38.2

* Engines operating at 3600 r/min are offered for standby duty only

Model	Speed, r/min	Power	Gross		Net	
			kWm	bhp	kWm	bhp
LPWT4	1500	Continuous	18.9	25.3	18.4	24.6
		Fuel stop	20.8	27.9	20.3	27.2
	1800	Continuous	23.8	31.9	22.9	30.7
		Fuel stop	26.2	35.1	25.3	33.9
	3000	Continuous	33.7	45.2	32.1	43.0
		Fuel stop	37.5	50.3	35.9	48.1
	3600	Continuous	N/A	N/A	N/A	N/A
		Fuel stop	N/A	N/A	N/A	N/A

* Engines operating at 3600 r/min are offered for standby duty only

VARIABLE SPEED TORQUE - ISO3046 CONTINUOUS POWER (IFN)

Model		1500	1800	2000	2200	2500	2800	3000
LPW2	Nm	43.3	45.1	45.8	45.7	45.1	43.9	42.7
	lbf ft	31.9	33.3	33.8	33.7	33.2	32.4	31.5
LPWX2	Nm	50.3	52.0	51.8	51.0	49.3	47.5	46.2
	lbf ft	37.1	38.4	38.2	37.6	36.4	35.0	34.1
LPW3	Nm	65.6	67.9	69.2	68.7	67.6	65.9	64.0
	lbf ft	48.4	50.1	51.0	50.7	49.9	48.6	47.2
LPWX3	Nm	75.8	78.0	77.8	76.8	74.5	72.0	70.3
	lbf ft	55.9	57.5	57.4	56.6	54.9	53.1	51.9
LPW4	Nm	86.6	90.2	92.1	91.6	90.1	87.8	85.3
	lbf ft	63.9	66.5	67.9	67.6	66.5	64.8	62.9
LPWX4	Nm	100.6	104.0	103.6	102.0	99.0	95.8	93.9
	lbf ft	74.2	76.7	76.4	75.2	73.0	70.7	69.3
LPWT4	Nm	120.3	128.3	126.0	75.6	118.4	112.0	108.3
	lbf ft	88.7	94.6	92.9	55.7	87.3	82.6	79.9

VARIABLE SPEED TORQUE - ISO3046 FUEL STOP POWER (IOFN)

Model		1500	1800	2000	2200	2500	2800	3000
LPW2	Nm	47.6	49.6	50.4	50.3	49.6	48.3	46.9
	lbf ft	35.1	36.6	37.2	37.1	36.6	35.6	34.6
LPWX2	Nm	55.3	57.2	57.0	56.1	54.2	52.3	50.8
	lbf ft	40.8	42.2	42.0	41.4	40.0	38.5	37.5
LPW3	Nm	72.2	74.7	76.1	75.6	74.4	72.5	70.4
	lbf ft	53.2	55.1	56.1	55.7	54.8	53.5	51.9
LPWX3	Nm	83.4	85.8	85.6	84.5	82.0	79.2	77.3
	lbf ft	61.5	63.3	63.1	62.3	60.4	58.4	57.0
LPW4	Nm	95.3	99.2	101.3	100.8	99.1	96.6	93.8
	lbf ft	70.3	73.2	74.7	74.3	73.1	71.2	69.2
LPWX4	Nm	110.7	114.4	114.0	112.2	108.9	105.4	103.3
	lbf ft	81.6	84.4	84.1	82.8	80.3	77.7	76.2
LPWT4	Nm	132.3	141.1	138.6	83.1	130.2	123.2	119.1
	lbf ft	97.6	104.1	102.2	61.3	96.1	90.9	87.9

VARIABLE SPEED | APPROXIMATE FUEL CONSUMPTION | 100% LOAD (IFN)

Model	r/min	1500	1800	2000	2200	2500	2800	3000
LPW2	g/kWh	234.6	227.3	223.3	223.4	227.8	234.9	244.5
	l/h	1.9	2.3	2.6	2.8	3.2	3.6	3.9
LPWX2	g/kWh	244.5	233.1	229.2	227.3	229.7	237.0	243.1
	l/h	2.3	2.7	3.0	3.2	3.5	3.9	4.2
LPW3	g/kWh	228.2	223.1	220.2	219.7	223.1	234.7	246.5
	l/h	2.8	3.4	3.8	4.1	4.7	5.4	5.9
LPWX3	g/kWh	261.0	239.9	230.9	226.0	223.9	232.8	243.4
	l/h	3.7	4.2	4.5	4.8	5.2	5.9	6.4
LPW4	g/kWh	234.6	227.3	223.0	221.3	224.3	234.9	244.5
	l/h	3.8	4.6	5.1	5.6	6.3	7.2	7.8
LPWX4	g/kWh	260.5	244.2	236.9	232.3	230.1	236.2	244.9
	l/h	4.9	5.7	6.1	6.5	7.1	7.9	8.6
LPWT4	g/kWh	217.8	208.4	210.1	217.6	230.3	248.1	261.7
	l/h	4.9	6.0	6.6	7.4	8.5	9.7	10.6

ENGINE EXHAUST SYSTEM DETAIL							
Parameter	Engine Model						
	LPW2	LPWX2	LPW3	LPWX3	LPW4	LPWX4	LPWT4
Maximum allowed back pressure (kPa)	7.5						
Bosch smoke level at rated output	5.5						
Exhaust gas temperature, continuous (°C)	520	520	520	520	520	520	480
Exhaust gas temperature, overload (°C)	550	550	550	550	550	550	520
Exhaust pipe diameter - recommended O/D	48						

ENGINE NOISE LEVELS							
Parameter	Engine Model						
	LPW2	LPWX2	LPW3	LPWX3	LPW4	LPWX4	LPWT4
Sound pressure level at 1m	≤ 92.9	≤ 92.8	≤ 92.3	≤ 92.3	≤ 95.2	≤ 94.9	≤ 88.0

ENGINE LUBRICATING OIL SYSTEM DETAIL							
Parameter	Engine Model						
	LPW2	LPWX2	LPW3	LPWX3	LPW4	LPWX4	LPWT4
Lubrication method	Pressure						
Sump capacity (L)	3.0	3.0	3.8	3.8	5.5		
Total capacity (L)	3.5	3.5	4.8	4.8	6.5		
Oil filter type	Full flow paper element						
Oil consumption (g/kW h)	≤ 0.25						
Lubrication oil temperature (°C)	110 (max. 125)						
Lubrication oil pressure at running conditions (kPa)	100-450						
Oil pump type	Gear type						
Oil cooler type (where fitted)	Oil to water						
Maximum operation angle (degrees)	Front/rear - 30; Fuel pump up/down - 30						

ENGINE COOLANT DETAIL							
Parameter	Engine Model						
	LPW2	LPWX2	LPW3	LPWX3	LPW4	LPWX4	LPWT4
Cooling method	Liquid cooled circulation by belt driven water pump						
Cooling package operating temperatures (°C)	88						
Total system coolant capacity (L)	5.6		7.0		7.5		
Thermostat type	Wax capsule						
Thermostat opens at... (°C)	86						
Thermostat fully open at...(°C)	99						
Minimum temperature to engine (°C)	74						
Maximum static pressure head at pump (metres at 1500rpm)	4						

OPTIONAL ACCESSORIES

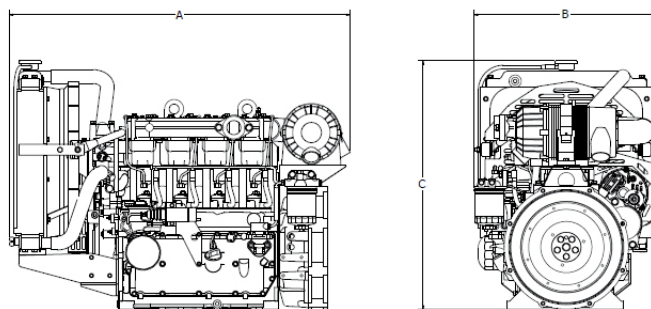
The installation is critical to ensure your engines performance and reliability being maintained throughout its lifetime operation. As part of your engine package from Lister Petter, we can offer you a full range of optional accessories to enhance your engines installation. Please consult Lister Petter for full details.

Basic installation accessories comprise, but not limited to:

- Control lever and cables
- Fuel pre-filter and ISO hoses
- Engine mountings
- Battery leads
- Exhaust systems
- Lubricating oil drain pumps
- Service kits

			
(NA) Industrial exhaust silencer	(NL) Exhaust silencer guard	(NH) Tail pipe - 90 degrees	(KC) Engine speed control - friction lever
			
(INSTRUMENT GAUGES) Please consult Lister Petter	(WCE) Electric start panel	(EM) 24V starter motor	(EN) 24V alternator
			
Service Kits 500, 1000, 2000, 4000 & 6000 hrs	(BA) Drive shaft - 40 mm	(FLYWHEEL COUPLINGS) Please consult Lister Petter	(GV) Radiator screen guard

APPROXIMATE DIMENSIONS AND WEIGHT



		LPW2	LPWX2	LPW3	LPWX3	LPW4	LPWX4	LPWT4
Dry weight	kg	112	112	150	150	180	180	186
	lb	247	247	330	330	396	396	409
Length (A)	mm	699	699	809	809	909	909	999
	in	27.5	27.5	31.9	31.9	35.8	35.8	39.3
Width (B)	mm	512	512	512	512	512	512	512
	in	20.2	20.2	20.2	20.2	20.2	20.2	20.2
Height (C)	mm	647	647	685	685	685	685	685
	in	25.5	25.5	27.0	27.0	27.0	27.0	27.0

TYPICAL PACKING CASE DIMENSIONS

Packing case dimensions					Container quantities	
Engine	Length (mm)	Width (mm)	Height (mm)	Gross weight (kg)	20ft	40ft
LPW2	770	550	850	175	56	120
LPWX2	770			175	56	120
LPW3	880			205	48	104
LPWX3	880			205	48	104
LPW4	1020			240	40	88
LPWX4	1020			240	40	88
LPWT4	1020	670		255	30	66



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