

# LLD LIQUID COOLED GENSETS

**LLD 95(A) \*, LLD 135, LLD 140(A), LLD 190(A),  
LLD 200, LLD 250(A), LLD 275, LLD 400**

*50 Hz; 1500/3000 r/min; power outputs: 5.6—43.5 kVA  
60 Hz; 1800 r/min; power outputs: 6.9—26.9 kVA*

## LIQUID COOLED GENERATING SETS WITH ELECTRONIC CONTROL MODULE

### BASIC CHARACTERISTICS

- 50 Hz, 1500/3000 r/min or
- 60 Hz, 1800 r/min
- Lister Petter Alpha Series liquid cooled, direct and indirect injection diesel engine (2, 3 or 4 cylinders)
- naturally aspirated or turbocharged
- open set (LLD) or acoustic set (LLDA)

### STANDARD FEATURES

- control system with electronic digital control module
- single bearing, 2 or 4-pole brushless alternator
- 66-litre polypropylene fuel tank with contents gauge
- galvanised steel base plate with forklift pockets and bunding for the fuel tank
- anti vibration mountings
- 12V starter battery and leads
- mechanical governing
- emergency stop button (lock-down type)
- pusher fan
- operators' handbook
- electrical diagrams

### OPEN SETS ONLY

- engine mounted exhaust silencer



**OPEN SET (LLD)**

### ACOUSTIC SETS ONLY

- acoustic canopy
- residential exhaust silencer
- central point lifting eye
- external emergency stop button



**ACOUSTIC SET (LLDA)**

### ENGINE ACCESSORIES

- heavy duty air cleaner
- oil and fuel filters
- fuel-lift pump

### ALTERNATOR SPECIFICATION

- single bearing, 2 or 4-pole brushless alternator
- solid state AVR with  $\pm 1.5\%$  as standard
- class H insulation on the rotor and stator
- IP23 protection class

### OPTIONAL ITEMS

- residential exhaust silencer for open sets (as fitted to acoustic)
- acoustic canopy kit (including residential silencer kit) for retro-fitting to electric-start open sets only
- 2-wheel trailer

### CONTROL CUBICLE

All LLD and LLDA sets have a control cubicle mounted on a vibration-isolated support, which has the following features:

- electronic digital control module with monitoring/control facility and warning indicators
- automatic shutdown protection
- emergency stop button (lock-down type)
- AC output circuit breaker with over-current protection
- DC circuit control switch and overload circuit breaker

#### The control module gives digital readouts of:

- generator voltage (phase-to-phase and phase-to-neutral)
- generator current (each phase displayed separately)
- output frequency
- engine speed
- engine coolant temperature
- battery voltage
- engine hours run

#### The control module has indicators for:

- overspeed/underspeed
- emergency stop

- engine oil pressure
- engine temperature
- failure to start
- battery charger failure

#### Automatic shutdown occurs under:

- low engine oil pressure
- high engine temperature
- overspeed/underspeed
- failure to start after three attempts

### MANUAL/REMOTE START SETS

These sets have the flexibility of either manual or remote automatic operation:

- manual operation is by **START** and **STOP** push-buttons on the control module
- remote operation is achieved by connecting a 2-wire circuit to the relevant terminals on the control module and is activated by setting the control module to **AUTO**

### AUTOMATIC MAINS FAILURE SETS (AMF)

In the event of a mains failure, the generating set will automatically operate to supply the electrical load. In addition to the standard features, automatic mains failure sets have:

- wall-mounted cubicle governing automatic mains failure operation
- control module timer circuits set to delay start, delay transfer back to mains and delay stop to allow for engine cool down
- solid state automatic battery charger that maintains charge when set is not running

#### The wall-mounted cubicle features:

- mains monitoring unit to control set operation
- load-transfer contactors, mechanically and electrically interlocked (rated for set output)
- indicator for mains-on-load or plant-on-load

**POWER OUTPUTS TO ISO 8528-1 AND EMISSIONS COMPLIANCE**

50 Hz, 1500 r/min							60 Hz, 1800 r/min									
Model	Engine	Rating	Single Phase		Three Phase		Model	Engine	Rating	Single Phase		Three Phase				
			220V *	230V *	240V *	380/220V *				400/230V *	415/240V *	220 or 110V *	230 or 115V *	240 or 120V *	220/127 *	230/133 *
			kVA	kW	kVA	kW				kVA	kW	kVA	kW	kVA	kW	
LLD 95(A)	LPW2	Prime <sup>1</sup>	5.6	5.6	7.0	5.6	LLD 95(A)	LPW2	Prime <sup>1</sup>	6.9	6.9	8.6	6.9			
		Standby <sup>2</sup>	6.1	6.1	7.6	6.1			Standby <sup>2</sup>	7.5	7.5	9.5	7.6			
	LPWS2	Prime <sup>1</sup>	5.6	5.6	7.0	5.6		LPWS2	Prime <sup>1</sup>	6.9	6.9	8.6	6.9			
		Standby <sup>2</sup>	6.1	6.1	7.6	6.1			Standby <sup>2</sup>	7.5	7.5	9.5	7.6			
LLD 140(A)	LPW3	Prime <sup>1</sup>	8.7	8.7	10.9	8.7	LLD 140(A)	LPW3	Prime <sup>1</sup>	10.5	10.5	13.3	10.6			
		Standby <sup>2</sup>	9.5	9.5	12.0	9.6			Standby <sup>2</sup>	11.5	11.5	14.6	11.7			
	LPWS3	Prime <sup>1</sup>	8.7	8.7	10.9	8.7		LPWS3	Prime <sup>1</sup>	10.5	10.5	13.3	10.6			
		Standby <sup>2</sup>	9.5	9.5	12.0	9.6			Standby <sup>2</sup>	11.5	11.5	14.6	11.7			
LLD 190(A)	LPW4	Prime <sup>1</sup>	12.2	12.2	15.0	12.0	LLD 190(A)	LPW4	Prime <sup>1</sup>	14.8	14.8	18.5	14.8			
		Standby <sup>2</sup>	13.5	13.5	16.5	13.2			Standby <sup>2</sup>	16.3	16.3	20.3	16.2			
	LPWS4	Prime <sup>1</sup>	12.2	12.2	15.0	12.0		LPWS4	Prime <sup>1</sup>	14.8	14.8	18.5	14.8			
		Standby <sup>2</sup>	13.5	13.5	16.5	13.2			Standby <sup>2</sup>	16.3	16.3	20.3	16.2			
LLD 250(A)	LPWT4	Prime <sup>1</sup>	16.1	16.1	20.0	16.0	LLD 250(A)	LPWT4	Prime <sup>1</sup>	19.3	19.3	24.4	19.5			
		Standby <sup>2</sup>	17.7	17.7	21.9	17.6			Standby <sup>2</sup>	21.2	21.2	26.9	21.5			
	LPWST4	Prime <sup>1</sup>	16.1	16.1	20.0	16.0		LPWST4	Prime <sup>1</sup>	19.3	19.3	24.4	19.5			
		Standby <sup>2</sup>	17.7	17.7	21.9	17.6			Standby <sup>2</sup>	21.2	21.2	26.9	21.5			

50 Hz, 3000 r/min

Model	Engine	Rating	Single Phase		Three Phase			
			220V *	230V *	240V *	380/220V *	400/230V *	415/240V *
			kVA	kW	kVA	kW		
LLD 135	LPW2	Prime <sup>1</sup>	10.2	10.2	13.7	11.0		
		Standby <sup>2</sup>	11.2	11.2	15.1	12.1		
	LPWS2	Prime <sup>1</sup>	10.2	10.2	13.7	11.0		
		Standby <sup>2</sup>	11.2	11.2	15.1	12.1		
LLD 200	LPW3	Prime <sup>1</sup>	15.4	15.4	20.3	16.3		
		Standby <sup>2</sup>	16.9	16.9	22.4	17.9		
	LPWS3	Prime <sup>1</sup>	15.4	15.4	20.3	16.3		
		Standby <sup>2</sup>	16.9	16.9	22.4	17.9		
LLD 275	LPW4	Prime <sup>1</sup>	20.9	20.9	28.1	22.5		
		Standby <sup>2</sup>	23.0	23.0	30.9	24.8		
	LPWS4	Prime <sup>1</sup>	20.9	20.9	28.1	22.5		
		Standby <sup>2</sup>	23.0	23.0	30.9	24.8		
LLD 400	LPWT4	Prime <sup>1</sup>			39.5	31.6		
		Standby <sup>2</sup>			43.5	34.8		

- \* Other voltages are available on request
- Power Factor (pf). Single phase 1.0 pf; three phase 0.8 pf.
- Power outputs are based on standard Lister Petter Alternators.
- Mecc Alte alternators are available as an option, ratings are different
- For ratings definitions see page 4

**Key to Emissions Compliance**

EU Stage 3A only	
USA EPA Interim Tier 4 only	
EU Stage 3A, USA EPA Interim Tier 4	

**APPROXIMATE FUEL CONSUMPTION**

Values refer to litres/hour			50 Hz		60 Hz
Genset	Engine	Load	1500 r/min	3000 r/min	1800 r/min
LLD 95(A)	LPW2	100%	1.9		2.3
		75%	1.5		1.8
	LPWS2	100%	2.1		2.5
		75%	1.6		2.0
LLD 135	LPW2	100%		3.9	
		75%		3.1	
	LPWS2	100%		4.4	
		75%		3.4	
LLD 140(A)	LPW3	100%	2.8		3.4
		75%	2.2		2.7
	LPWS3	100%	3.1		3.7
		75%	2.4		2.9
LLD 200	LPW3	100%		5.9	
		75%		4.6	
	LPWS3	100%		6.6	
		75%		5.1	
LLD 190(A)	LPW4	100%	3.8		4.6
		75%	2.9		3.6
	LPWS4	100%	4.1		5.0
		75%	3.2		3.9
LLD 275	LPW4	100%		7.8	
		75%		6.1	
	LPWS4	100%		8.8	
		75%		6.9	
LLD 250(A)	LPWT4	100%	4.9		6.0
		75%	3.7		4.6
	LPWST4	100%	5.5		7.1
		75%	4.1		5.3
LLD 400	LPWT4	100%		10.6	
		75%		8.3	

SOUND PRESSURE <sup>3</sup>											
LLDA (acoustic sets), 75% load at 7m											
50 Hz, 1500 r/min						60 Hz, 1800 r/min					
LPW2/3	LPW4	LPWT4	LPWS2/3	LPWS4	LPWST4	LPW2/3	LPW4	LPWT4	LPWS2/3	LPWS4	LPWST4
64 dBA	65 dBA	62 dBA	64 dBA	65 dBA	59.2 dBA	65 dBA	67 dBA	63 dBA	65 dBA	67 dBA	60.2 dBA

3. In accordance with European Noise Directive 2001/14/EC.

APPROXIMATE DIMENSIONS					
		All open sets *	LLD 250 (LPWST4)	All acoustic sets *	LLD 250A (LPWST4)
Length (A)	mm	1442	1626	1693	1945
	in	56.8	64	66.6	77
Width (B)	mm	715	837	743	840
	in	28.1	33	29.2	33
Height (C)	mm	997	1204	1143	1376
	in	39.3	47	45.0	54

**RATINGS DEFINITIONS, TO ISO 8528-1**

**Ratings Conditions**

A standard generating set is designed to operate in environmental reference conditions

ISO 3046 Standard Conditions

Barometric pressure 100 kPa

Relative humidity 30%

Ambient air temperature at the inlet manifold 25°C

**1. Prime Power**

This rating is for the supply of continuous power (at variable load), there is no limit on the annual hours of operation and 10% overload (intermittent) power can be supplied for 1 hour in 12.

**2. Standby Power**

This rating is for the supply of continuous power (at variable load) in the event of a utility power failure. No overload (intermittent) power is permitted.

\* Except LLD 250 (LPWST4)

WEIGHT															
LPW & LPWS Engines															
		Open Sets								Acoustic Sets					
		LLD 95	LLD 135	LLD 140	LLD 190	LLD 200	LLD 250 (LPWT4)	LLD 250 (LPWST4)	LLD 275	LLD 400	LLD 95A	LLD 140A	LLD 190A	LLD 250A (LPWT4)	LLD 250A (LPWST4)
Dry weight	kg	396	396	417	456	417	466	484	456	466	500	540	580	590	802
	lb	873	873	919	1005	919	1027	1067	1005	1027	1102	1190	1279	1301	1768

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

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